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OUR CENTURY.

Perhaps, after all, in these days of mushroom publications that rival each other chiefly in the rapidity of their appearance and their disappearance, it is a bit old-fashioned to pause at the opening of our hundredth volume, and offer a word or two of thanks to those who have once again co-operated in the production of a New Year's number that may fairly take its place as at least an average one, and of congratulation to our readers generally that it is worthy of their reception.

As usual, it has been sought to make it wholesomely varied and genuinely representative. As usual, it is the fruit of the joint effort of veterans, and of those who have just won their spurs, and who bid fair honourably to maintain the old traditions throughout the second century which the close of this volume will herald.

May such good service bring its fair share of all good things in the better years which we believe are immediately before us, all, unmarred as 1910 was by two general elections within twelve months, and the lamented death of King Edward. As yet the great group of arts and crafts pledged to the service of Architecture have not lavishly participated in the better times which have encouraged Trade and Commerce. That their turn is due we are certain. That its arrival may be facilitated by legitimate enterprise—not wild speculation, and by judicious activity not mere "hustle," we are confident. So, slightly varying a verse of a little hymn, many of us used to learn long ago, we remind all, ourselves included, that

> If half the energy we waste
> In groans and wails, with mournful haste
> Were spent in work, we soon should see
> How better far most things might be.

Far better counsel, at any rate, than the catchword "Wait and See!" so many of us have heard reiterated with such parrot-like misapplication during the last few months. "Work, and see" that everybody knows you are able, is better advice just now, depend upon it! and no unworthy corollary, perhaps, of King George's well-timed and well-remembered reminder "Wake up, England"!

THE PAST AND FUTURE.

For several years past the building trades have been in a bad condition. Many of us have been wondering how architects have lived at all. The year which is just closing has, perhaps, been a trifle better than those which immediately preceded it; but nobody can say that there has been any large amount of building work in the country. What is to happen in the future is on the knees of the gods; but it is to be hoped that, at any rate, we may be spared two General Elections and a King's death all in one year! If other trades prosper, the year ought to be a good one for architects and builders too. The Coronation may not do much in itself; but schemes for memorials to the late King will ripen into maturity, competitions will be instituted, and in many cases the work will be commenced. Very little of this has been done yet; everywhere the authorities seem to be waiting for London's lead. From the architect's point of view, it is sincerely to be hoped that the London memorial will eventually take an architectural form, leading to similar monuments elsewhere. If the fashion were set for sculpture only, it would be sculpture which would become fashionable, and though this might be a happy state of affairs for our brother artists who wield the chisel, it would leave architects, builders, and the host of workmen who depend upon them with as little to do as they have had recently. On the other hand, architectural monuments generally include sculpture, so that the sculptors would not be entirely left out in the cold. They also almost invariably serve a utilitarian purpose, and so the gain to the public would likewise be great.

Reviewing the work of the year 1910, we are constrained to notice the paucity of great competitions, the only ones of real importance having been those for the University at Belfast and the Usher Hall at Edinburgh, with the exception of a few for town-planning schemes which have been the direct outcome of the passing of the Town Planning Act. The one common feature of general importance is the growth of a tendency, noticeable for some time past, to employ a jury of assessors for competitions of any magnitude. To most of those who have doubted the justice or wisdom of the awards made by the assessors in the past, this must seem to be a step in the right direction; at any rate, it will remove all ground for complaint on the score of the predilections of an individual having had too much weight or having been played up to by particular competitors. On the other hand, it is impossible to overlook the objections which have been raised by some who have had most experience of the system of assessing by jury in international competitions, such as those for the University of California and for the Palace of Peace at the Hague. The more obvious of these risks are that a jury, particularly if it is a small one, may be dominated by its strongest member, or else that agreement between two or more members who hold strongly different opinions may be found in a compromise and the selection of a design which really satisfies the ideals of neither, and is a work of mediocrity. Yet it may be remembered that, in the cases about which there has been most discussion in the past, the juries have been necessarily numerous, and have had no common language in which all could converse, so that the services of interpreters have been required, with all the attendant dissatisfaction accruing thereto.

If architects individually have not had any large amount of work to do, their organisations have been busy. The Institute has greatly enlarged its premises, and the Society has moved into a new home. Both bodies have gained in facilities for the transaction of their business. The Institute is again able to hold its examinations in its own hall, as it used to do in days now long past, when the number of candidates was small. For many years it has been necessary to hire the Medical Examination Hall on the Embankment, at great inconvenience and expense; but last month all the examinations were held in the new Galleries at Conduit-street. Those who have been responsible for the change may have it in their minds that enough has been done for at least forty years to come, and possibly for perpetuity. There are others who think that they have been looking very little further than the ends of their own noses, for architectural politics are certainly moving in the direction of a Registration Bill, which the Institute has undertaken to prepare and put forward as soon as the Licentiates class is fully established; and this should take place in the course of the next few months. As it will be subsequently necessary, one would imagine, for everyone who intends to become an architect to be examined by the Institute, it is doubtful whether the Hall would long remain large enough for the purpose. An extension upon the present site would be out of the question, and the only solution which one could suggest would be the holding of three or four or more examinations per annum, with the result that the examiners would have to devote so much time to the work that they would have none left for

private practice. In such circumstances the old system of using unpaid assistants would necessarily have to be supplemented by something different. If Public Authorities were to employ, after the Act was passed, the necessary staff to pay the candidates for their time, they would have to [illegible] and to recruit their staff [illegible] new; but the cost [illegible] to the ratepayers [illegible] bring a staff [illegible] Had such a system been [illegible] for holding [illegible] examinations [illegible] candidates [illegible]

The [illegible] has been a great boon to the year. A number of gentlemen have been exempted from passing, and a larger number have been exempted from [illegible]. Whispers have indeed reached us that the qualifications of those who have been exempted have not in all cases been above cavil, while other candidates have complained of having been rejected when in their own opinion at any rate their qualifications should have proved satisfactory. However, it is too early to pass any final decision upon the matter yet as at least three more months will elapse before admissions cease to the new class.

The greatest thing done by the Institute during the past year was unquestionably the holding of the Town Planning Conference. It would be difficult to exaggerate its importance. It was not merely that the thing got off with considerable [illegible] but that it has initiated the idea that architects may very well arrange conferences on matters of public importance which have an architectural basis. The success was unquestionable, and further similar successes of a kindred sort can be achieved, and public interest thus awakened in architecture generally. The more architecture is talked about the more will architects be and eventually consulted. The leaders may well take this to heart and give a certain amount of their time and attention to the matter. If they do so it will be simply because they are Englishmen and it is the habit of our race to take up apparently unnecessary work, with no thought of payment for it, yet in this case the return is certain to themselves or if it does not come to those who take the most pains it is sure to be reaped by their professional brethren. To talk about town planning on a large scale and excite public opinion on the matter throughout the whole country is eventually to put in the minds of someone in far off Australia the idea that a local architect should be employed to produce the plans for a new town or suburb. The architect concerned benefits in this way by work done by his leaders perhaps years before in the centre of the Empire; and what is true of town planning is infinitely more likely to be true about such things as municipal offices and hospitals and schools. It is only necessary for those upon whom initiation and organisation must necessarily devolve to keep themselves in touch with what is taking place around them and to convene the conferences at such times as each individual subject becomes ripe for full discussion; not holding them too frequently nor without sufficient consideration but at the same time acting promptly as occasion demands.

A few words to finish with upon the much vexed question of education. This to a certain extent is being now controlled by an Education Board, and is likely to be so to a still greater extent as time goes on particularly if Registration becomes an accomplished fact. It is an unwise thing then for even the youngest student to neglect to follow the course of instruction laid down by that body. In every case where it can possibly be arranged the first two years of training should now be spent in one of the recognised architectural schools at which there are already a considerable number. When this is impossible proper articles should be entered into as in any case they should follow the school training, but the R.I.B.A. Preliminary Examination might profitably be taken at the very outset even before leaving school. Then towards the termination of the articles the Intermediate Examination should be passed and the Final entered for at the earliest possible opportunity afterwards. There is far too great a tendency amongst the young men to put off what they consider the evil day of submitting themselves to the test only in too many cases to become later too much absorbed in providing for those dependent upon them to be able to spare the necessary time and money to enable them to pass. All such should bear in mind that Registration when it comes, will not make things easier in the near future for the young practitioner. The passing of the final test will be essential before practice will be permitted and the test is certainly not likely to be any easier than it is now. Every man who is tempted at the present time to put off the evil day should take this seriously to heart and seize the earliest opportunity of presenting himself before the examiners.

THE ROYAL ACADEMY WINTER EXHIBITION

For years and until quite recently, an exhibition of the works of "Old Masters" has been held in the Royal Academy during each winter. These were deservedly popular. Whether it be that the Academy is losing its influence that the pictures are leaving the country, or that their owners are tired of lending them, with the consequent risk which is involved of damage and loss, or merely that the ruling spirits at the Academy have thought it desirable to depart from this well established tradition at any rate a change has been made. This year the winter exhibition contains only the works of five members of the Academy who have recently died.

This is a mistake. Many of the exhibits possess beauty and freshness; but there is not a single great painting to be seen. Mental comparison of the work displayed in the galleries with what has been shown on previous occasions is depressing. We have been accustomed to see the very best work done in all countries during the last five hundred years, we are, this year, confronted with mediocrities of practically the present day. If a change was desirable at all, why should not the Academy have gone abroad, and have given us an exhibition of the best works, say of the French, the German, or the Italian, or Danish modern schools? Great work is being done by Continental painters, and we never see it here, though we used to do so occasionally while the Guildhall Exhibitions were held. There would be something to be learnt by such displays; there is no fresh lesson to be obtained from seeing again pictures which were hung in the summer exhibition last year, or even twenty years ago.

If it is thus necessary regretfully to class the paintings as mediocrities, it is fortunately possible to put the sculpture of Mr. J. M. Swan in a higher category. Almost all his works are castings in bronze, and are illustrations of animals, generally of the cat tribe. They are lifelike, natural, energetic, without affectation or artistic cant, and perfectly representative of wild animal life. Such a group for instance, as No. 34, "Puma and Macaw," if unearthed two thousand years hence by an enthusiastic antiquarian, will be looked upon as a masterpiece, as completely illustrative of the best English sculpture of the present day, as any of the well known marbles in the Louvre or the British Museum are of the artistry of Greece and Rome. Equally fine is No. 194, "A nude figure of Orpheus playing a lyre to two leopards who are climbing the rock on which he stands" and it possesses the added interest of a delightfully modelled human form. A large number of statuettes which are shown round in the Water-colour Room are amongst the most perfect examples of miniature statuary which have been produced by any English sculptor. Mr. Swan rarely attempted anything of a monumental or portrait character; but, facing the entrance, is a great bust of Cecil Rhodes intended for the Rhodes memorial at Cape Town, heroic in size, and magnificent in its strength and characterisation, the head leaning upon the right hand, and looking over a screen towards the staircase.

A large number of chalk studies of animals by Mr. Swan are hung in the Water colour Room, and display the same sense of motion and muscular energy. There are also a considerable number of his finished paintings in Gallery I. These might be divided into two distinct groups. Some are hard animal paintings, far inferior to the chalk studies and statues and by no means equal to the animal studies of other well known men of his time; others are delightful, fairy-like paintings of such subjects as the "Storm Siren," or "Boys Bathing," in which the nude or semi-nude human figure is treated with extreme delicacy, and with delightful colour effects. Yet these are far from being great pictures; they are pretty, with the prettiness of an illustration to a Christmas annual, and that is all.

Owing partly to his long life, and partly to the great popularity of his paintings when he was in his prime the works by W. P. Frith, which are shown in Gallery II., possess a certain interest, for few have been seen by the public of this generation. Artistically considered, they are now generally recognised to be faulty. The "Railway Station," for instance (No. 37), is nothing but a maze of figures. It possesses two distinct foci, the interest is scattered, and there is equal detailing of everything throughout. The picture was thought to be wonderful when it was painted in 1862, and engraved copies of it sold freely. It is now chiefly valuable as a record of the costumes of the period and of strange elementary locomotives and early railway carriages, with luggage piled upon the roof instead of being deposited in a van. The same artistic faults of confusion, indifferent mastery of colour, and want of recognition of line composition are seen even more prominently in No. 42, "King Charles II.'s Last Sunday," and again in No. 50, "Life at the Sea side," (the former showing a crowd of courtiers in the great gallery at Whitehall, and the latter illustrating a merrum on Ramsgate sands). Far better artistically is No. 49 which is a finished sketch for "Claude Duval." The big picture which was produced from it is hardly so good as the sketch, for the detail is there too highly worked up; but the scene is dramatic, and both colour and line are well conceived. Just at the present moment, possibly the most interesting of Frith's paintings is No. 35, "Hogarth brought before the Governor of Calais as a Spy," which was exhibited in 1851 with the following quotation: "Hogarth has

run a great risk since the peace; he went to France, accompanied by some friends, and was so imprudent as to be taking a sketch of the drawbridge at Calais. He was seized and carried to the Governor, where he was obliged to prove his vocation by producing several caricatures, etc., such as would by no means serve the purpose of an engineer. He was told by the Governor that, had not the peace been actually signed, he should have hung him immediately on the ramparts." (Horace Walpole's Letters, 1748.) Though only eleven "Friths" are shown, they are fairly representative, having been painted between the ages of twenty-four and forty-eight, when he was at his best; and great difficulty was experienced by the Exhibition Committee in discovering and obtaining the loan of even so many.

Galleries III. and IV. are devoted mainly to the works of Sir W. Q. Orchardson. The best of these, No. 85, "The Young Duke," has been seen elsewhere quite recently, and is the nearest approach to a great painting which the exhibition contains, though it is run somewhat closely by No. 56, "Talbot and the Countess of Auvergne," and also by No. 65, though the latter is merely a finished sketch for his great painting known as "Voltaire," which hangs in the Hamburg Art Gallery. In all three of these paintings there is shown an intense appreciation of a dramatic incident, and the way in which it appeals to the numerous persons who take part in it, expression and pose being studied with the greatest care. One of Orchardson's principal characteristics was the introduction of a central figure, generally robed in some light colour, standing vertically near the centre, and with everything else subservient to it. Only now and again is this prominent figure of dark tone, and it is always extremely graceful, much being made of the lines of the drapery. Close observation shows that these light figures are made to stand out from lighter backgrounds by the simple device of outlining them in colour, as if with a pencil line, though this is done so carefully that it is not noticed from even a short distance off. Where the figure is dark against a dark background, as in No. 73, "Testing the Blade," it has been impossible to adopt this method of obtaining stereoscopic effect, and the modelling is consequently by no means so good. Possibly the picture stands on a higher plane in consequence. Orchardson's portrait studies are also interesting. His other works are all of much the same calibre from the beginning to the end of his life; but these show a steady advance from the chalky and flat to the transparent, well-modelled, and characteristic portraits of recent days, conforming with the general advance which has taken place in oil portraiture.

A certain number of oil-paintings by R. W. Macbeth occupy Gallery V., but not one of them shows much else than an obviously made-up group of stagey description, well painted and posed amidst landscape surroundings. His many etchings in the Black-and-White Room are, perhaps, a trifle better; but except the two designs for New Year's cards, containing portraits of his own children, lightly sketched, they are not works of really high rank.

Some of David Farquharson's landscapes, of which, however, there are only a few, in Galleries IV. and V., are of a considerably higher order; but even the best of these, No. 123, "Winter," which is a view looking across a lake to some high mountains covered with snow on which the sun is shining, is brilliant and oleographic rather than rich in tone or in true sympathy with the scene.

RUISLIP TOWN-PLANNING COMPETITION.

One of the most interesting problems of town planning for which a solution has so far been sought has been that for the Ruislip Manor Estate in Middlesex. The competition which was instituted proved popular, and no less than 62 sets of large drawings were submitted, those by Messrs. A. and J. Soutar, 37, Westover-road, Wandsworth, S.W., being placed first, and awarded the first premium of £150, while the second prize of £100 has been awarded to Mr. G. Hornblower, F.R.I.B.A., 2, Devonshire-terrace, W., and the third, of £50, to Mr. H. R. Gardner, Reigate-road, Leatherhead.

The assessors, Sir Aston Webb, R.A., and Mr. Raymond Unwin, must have had a most difficult task in arriving at their decision, for although many of the schemes are obviously hopeless, the possible ones differ greatly from one another, and the conditions have been by no means easy to fulfil. The estate is a long and narrow one, running from North-West to South-East, and is in three detached portions, the northernmost being completely detached by an intervening reservoir and a slip of common land, while the Metropolitan Railway cuts off a similar large section on the south. Much of the land is now covered with timber, and in places the gradients are steep and the contours tortuous. No less than six houses had to be provided for per acre, making a total of over 7,000, and as few encroachments as possible were to be made upon land outside the estate itself.

The successful design, which we illustrate herewith, symmetrical and French in general idea and based upon an axial road three miles in length, shows several com-

mum: main roads across property which cuts by the boundary, and, like many others, absorbs the present village of Ruislip. The difficulty of the contours is mainly got over by the simple expedient of avoiding them, the most troublesome portions to deal with being left as public woods, thus retaining valuable existing features in the landscape from the surrounding country; while a stream which runs across the site from East to West the River Pinn, is to be enclosed and opened out as an ornamental water, with playing fields on either side of it. Thus the general scheme is a good one and in detail, it is also well thought out and practical, trouble having been taken to provide rectangular building plots rather than irregular ones, though these plots would be small where the roads are cross together at the southern extremity. At that end of the site the axial avenue is split into two forks, of which the eastern ought to be wider than is shown, as it would be used almost exclusively by the through motor traffic, of which there would be a good deal. If the motors traversed both forks, they would render access to the school, which is located on the space between them, dangerous from both sides. A few cul-de-sac call for through connections. The total number of houses provided for is 7,612.

THE £100 PREMIUM SCHEME.

Mr. Hornblower's scheme, placed second, is of a more winding character, and would probably work out with more picturesqueness. Its principal feature is a long gently-curving road from Northwood on the north, to Northolt Junction Station on the south, along which a tram-line is suggested; but at one point a considerable amount of cutting would be necessary. Otherwise, and as a general rule, the contours have been fully and cleverly dealt with, while the two streams which traverse the site in addition to the River Pinn, have all been utilised, and ornamental grounds arranged round them. They are ignored in a most unfortunate way in the selected design. In short, Mr. Hornblower's Ruislip would be a more pleasant place to live in than Messrs. Soutar's, but less profitable to the owners of the land. No large unpolicied areas of woodland have been reserved, these being thought to be undesirable, and a nuisance at holiday times, the alternative being adopted of devoting the woodland areas to larger houses or plots of land where the bulk of the trees might be preserved, and the general character retained. Economy of road construction has been a consideration, 145 acres only being devoted to roads, while open spaces account for 137 acres, leaving 994 acres available for building plots.

THE £50 PREMIUM SCHEME.

The third design, by Mr. H. R. Gardner, seems to have been based upon the idea that the church should be placed on the highest point, with no ready means of access to it from the north "island" portion of the site. Much is made of a Civil centre, and of a direct North and South road, regardless of contour, from church to swimming-baths, while roads with dead ends are numerous, introduced without compunction to solve every difficulty.

There are several better schemes than this one by Mr. Gardner, including one by Mr. Geoffry Lucas, having a good axial road, broken into unfortunately short lengths, by forking it again and again round the principal civil buildings; and another by Mr. Percy B. Tubbs and Miss L. A. Dunnington, the characteristic of which is an attempt to follow the outline of the site and the contours. Other excellent plans are those illustrating the somewhat formal schemes of Mr. J. E. Pennington and Messrs. W. H. Thorp and Son, while the most original idea is Mr. R. E. Crossland's, with the gardens of almost all the houses backing on to small enclosed patches of common land.

The drawings will be on view in the Alpine Club Gallery, Mill-street, Conduit street, up to and including the 14th inst.

TIMBER PRESERVATION: ITS DEVELOPMENT AND PRESENT SCOPE.*

By Walter Buehler, M.Am.Soc.C.E.

Timber preservation has not been developed from any one process, but from many; it has included the elimination of those not bringing results, the retention and development of those showing results, and the addition of new processes. The first authentic report on timber preservation was probably that of a special committee appointed by this society in 1880, which report was published in 1885. The special committee discussed the various processes in use at that time in great detail, and prepared a number of tables showing the results obtained; and it is interesting to know that a great many of its conclusions are accepted to-day by those conversant with the subject. The writer will not attempt to review in detail the development of all the processes in use in 1880, but will confine this paper to the two basic processes—namely, Burnettising and creosoting, as practically all those in use to-day are either the developed basic processes or modifications of them. The Burnettising process was patented by Burnett in 1838. The original mode of application was to steep the timber in an open tank. Burnett, however, soon adopted the "Bethell" method of placing it in closed retorts, thus forming a partial vacuum, in order to remove all the air and sap, and then injecting the liquid under pressure. The Burnett process was introduced in the United States at Lowell, Mass., in 1850, and was there worked by the Bethell method until about 1862. It seems to have been quite generally used in the fifties by a number of railroads, but with indifferent success. In fact, these failures caused its abandonment for a time, and the substitution of the old "Kyan" process, or use of chloride of mercury. The special committee, after a thorough investigation of these failures, reported as follows:—"(1) Original imperfections in the 'Bethell' process. The partial vacuum did not properly clear the timber of sap. This has since been improved upon by previously steaming the timber, to liquefy and vaporise the sap, before the vacuum is applied. (2) It was probably a mistake to select bridge timber for this experiment; imperfectly as the work was done, it would have proved a far greater success if it had been applied to cross ties. (3) Operating upon unseasoned timber. As practised in Europe, Burnettising is exclusively applied to seasoned timber. This being generally imported from a distance, has a chance to dry in transit; or, if cut in the vicinity of the works, it is piled up for several months before treatment, or is thoroughly steamed, so that the water may evaporate and make room for the solution. Moreover, it is also well dried before using, to prevent the zinc from washing out. As a confirmation of this view, it may be mentioned that while the bridge timber did not last well, several sets of switch-ties which had been cut about eight months and seasoned, were Burnettised at Owego, for the road department of the Erie Railway, and laid in its tracks, with the result that nine years afterward they did not show a particle of decay. These ties have been lost sight of since, but your committee has in its possession an oak tie, one of a lot of two car loads, seasoned and Burnettised at Owego, which lay in the track at Susquehanna station for seventeen years, and is almost perfectly sound to-day. (4) Insufficient pressure. It has been suggested that the pressure ought to have been one 200lb. per square inch, and continued eight hours, instead of four. This might have produced somewhat better results; but it is believed that the last cause, which remains to be mentioned, more fully accounts for the partial want of success. (5) Undue haste in treatment. In accordance with the usual railroad practice of never ordering materials until they are imperatively required, the timber was not procured until the bridge which it was intended to rebuild was about ready to come down. Then there was great haste; the Burnettising works were hurried up, and the timber went straight from the stump into the cylinder, and from that into the bridge, with very imperfect treatment. A pressure was applied to the operatives, instead of to the cylinder, and, as a result, the timber was 'put through,' without sufficient preparation, some of it hard frozen in winter. . . . It has been found, however, both in this country and in Europe, that when zinc solutions are employed, weak enough not to injure the strength of the timber, they are likely to wash out under the action of rains and moisture, and to leave the timber unprotected. This is quite well shown by the ties on the Chicago, Rock Island and Pacific Railroad (Experiment No. 8), which are decayed and exfoliated on the outside." The following is a summary of the various causes of failure, brought out by the special committee:—First, class of material treated; second, condition of seasoning; third, use immediately after treatment, instead of allowing timber to season; fourth, insufficient pressure; fifth, too much haste, and consequent poor work; sixth, the leaching out of the salt. It is along these lines that the Burnettising process has been developed. Engineers to-day do not advocate the treatment of bridge timbers, nor, in fact, any timbers, with a solution of chloride of zinc, such treatment being confined principally to ties. The value of preliminary seasoning is realised, and at present few ties are treated without it. It is also known that, in order to obtain the best results, it is absolutely necessary to dry zinc-treated timber after treatment. The writer agrees absolutely with the fifth cause for failure, as reported by the special committee, that is "undue haste, and consequent poor work," which probably has had more to do with failures then and now than any other cause. It is now realised that the sixth conclusion, in the report of the special committee, was correct, and, profiting by this knowledge, the Burnettising method is not condemned; but its use has been restricted. At present only certain timbers are treated with zinc chloride, and more care is exercised in the selection of the uses and localities for which it is recommended. The fact that zinc chloride is a good preservative and the cheapest, warrants its continued use, provided discretion is exercised. It would be as foolish to pay the additional cost for creosoting ties in arid countries as it would be to try to economise by the use of zinc chloride in swampy countries. The strength of the solution to be used was mentioned in the report of the special committee, and it was concluded that too great a strength caused timber to become brittle. This is true to-day, and a 5 per cent. solution is probably the strongest now in use. The strengths of the solutions vary from 2 to 5 per cent., depending on the character of the timber to be treated; naturally, the denser the timber, the denser the solution. The Bethell process, or creosoting, was invented and brought into use in 1838 by Mr. John Bethell, of England, and in his discussion of the paper by Mr. H. P. Burt, in 1853, he made the following remarks:—"Experiment proved that oil of tar, or creosote, was perhaps the most powerful coagulator of the albumen [of wood], whilst it, at the same time, furnished a waterproof covering for the fibre, and its antiseptic properties prevented putrefaction. It, then, the operation of injection was well performed, there was every reason to anticipate the perfect success of the system. He found that by forcing at least 7lb. of creosote oil into each cubic foot of timber the process was perfect. . . . For railway work, 7lb. per cubic foot would

* Read before the American Society of Civil Engineers, Dec. 21.

suffice; but, for marine work, it was better not to have less than 10lb. per cubic foot. He was inclined to prefer the employment of porous timber; it absorbed the creosote more readily, was more perfectly saturated, was cheaper in its first cost, and, when properly prepared, would last longer than heart of oak or any other very solid timber. . . . The best timber for use was young, growing wood, *thoroughly dried*; if it was fresh cut, or had been floated, so as to saturate the pores with water, there was great difficulty in creosoting it. . . . Mr. Bethell had experienced so much difficulty in procuring a proper quality of oil of tar, that he was compelled to establish manufactories and to distil it, to suit his own purposes." Speaking further of its use and success, the special committee reports that:—"As a protection against marine worms (the Teredo navalis and Limnoria terebrans), creosote is the only known preservative, and if there be enough of it injected it is thoroughly efficient. All other substances which have been tried have failed; but the success of creosote has been established by abundant evidence all the world over. The English have found 10 to 12lb. to the cubic foot sufficient in their harbours. The Dutch and Belgian engineers use about the same. But the French, relying upon a series of very careful experiments, extending over a series of years, by Mr. A. Forestier, consider that about 19lb. to the cubic foot is required in their harbours in order to be quite safe afiainst the teredo. This latter quantity has been used in this country by Mr. J. W. Putman for piles exposed along the Gulf of Mexico, and it seems probable that the higher temperature of the sea-water, and consequent greater activity of the teredo in the French and our own southern harbours, requires a more thorough impregnation with creosote than in the northerly waters to afford immunity. The conditions under which creosoting is done in England differ from those in this country in two important particulars: (1) The English operate upon *seasoned* timber, which, as it is chiefly brought from the islands of the Baltic, from Norway, and from Sweden, generally reaches them some five or six months after it is cut, and frequently remains stacked up some months more after arrival before it is creosoted. All the English engineers specify that 'the timbers shall be thoroughly dry before being creosoted,' while in this country we have almost invariably operated upon freshly-cut timber, full of sap. This has led to steaming the timber previous to its injection with creosote (as well as with the metallic salts), in order to vaporise the moisture and make room for the solution. There are several methods of effecting this steaming, covered by a number of patents more or less meritorious; but the committee has included them under the general head of steaming in describing some American experiments. It is understood that steaming is now also used abroad, particularly in Germany, even when seasoned timber is injected, it being considered a valuable improvement upon the original process of Mr. Bethell. (2) Creosote is cheap and abundant in England, while it is comparatively scarce and dear in this country. This, together with the higher price of labour, and the longer time required to operate upon freshly-cut timber, has made creosoting so much more expensive here than in England, that, in a majority of cases, calculation showed that it was cheaper to let the timber rot and to replace it than to go to the expense of preparing it against decay. This condition of affairs brought about a considerable number of inventions and experiments to circumvent the foreign experience, and to make a little creosote perform as much as a great deal. None of these can be said to have been successful, and it is one of the anomalies which at first much puzzled your committee that the record of creosoting experience in this country should chiefly consist of failures, while the process is a thorough success in England." In this short comment on creosoting, the special committee has dealt with all questions of importance, namely:—The quantity of creosote, the character of the creosote, the kind of timber to be treated, the conditions of timber best for treatment, the best method of seasoning the timber efficiently. It is by reason of a better understanding of these questions that the art of creosoting has developed. Differences of opinion will be found on all these matters; but, nevertheless, the art, as a whole, has progressed. Timber must be potected against decay, attacks of land and water insects, and, for some uses, it must be waterproof. In order to answer properly any of these questions, one must have a thorough understanding of decay, of the characteristics of the insects to be guarded against, of the timber itself, and of the preservative. In order to answer properly the question in regard to the quantity of creosote to be used, it is necessary to know whether the timber is to be preserved against decay, against mechanical destruction by insects, or whether it is to be waterproofed. If it is to be protected against decay, the locality in which it is to be used must be known, as well as the climatic conditions. If timber is to be protected against marine insects, it is necessary to know whether it is to be used in Southern or Northern waters. If it is to be waterproofed, it is necessary to know for what uses it is intended, and its characteristics. The cause of decay is now generally understood, and the proper quantity of creosote necessary for its prevention is receiving considerable attention. Owing to the increased cost of creosote oil, and its comparative scarcity in the United States, processes have been developed, in the past few years, in which small quantities of oil are used, which, it is claimed, will produce the same results as the larger quantities used in the past. These processes are now commonly known as the empty-cell processes. The older process is known as the full-cell process, and its advocates claim that in order to preserve timber effectually, it is necessary to use enough creosote to fill the cell structures. They also claim that the desire to reduce the cost of preserved timber by the use of smaller quantities of oil has produced certain patented processes, the claims for which cannot be fulfilled. Advocates of the empty-cell process claim that it is only necessary to paint the cell walls to prevent decay, and that, by their special process, it is possible to fill the cell structure completely with oil, and then withdraw most of it. Thus the cell structure is virtually painted with a small quantity of oil. It is not the writer's intention to go into this controversy, and he will only state that it is known that timber can be preserved by the full-cell process. All the information we have to-day, as to the value of creosote as a preservative, is based on the resistance to decay of timbers which have been treated by the full-cell process, and whether it will be possible to reduce the cost by the use of smaller quantities of oil, is still an open question. It will only be answered when sufficient time has elapsed to demonstrate thoroughly its efficiency by actual experience. It is to be hoped, however, that this endeavour to reduce the cost of preserving timber will not lead to false economies, and, consequently, to false impressions of a good preservative. In the protection of timber against marine insects in Southern waters, present experience would indicate the use of at least from 18 to 20lb., and, in some timbers, as much as 26lb. of creosote oil per cubic foot. If the timber is to be used in Northern waters, from 16 to 16lb. per cubic foot is advocated, depending on the character of the timber to be treated. There are certain purposes for which timber is used to-day, such as the modern wood-block pavement, in which that quality which makes creosote a good preservative is of less importance than that which makes it a good waterproofing material. When creosote was first used in the United States to preserve timber for paving purposes, it was thought that it was only necessary to prevent decay, and specifications were based on experience with creosote in preserving timbers for ties and other purposes. These specifications naturally called for an oil similar to that which had been most effective in such preservation. It was soon found, however, that something more than a preservative was necessary. The timbers absorbed large quantities of water, expanded greatly, and destroyed the surface of the roadway. The natural development was to increase the quantity of oil used; this eliminated the trouble for a number of years; but it was discovered that in a short time the oil disappeared from the timber, absorption again took place, and trouble from expansion and contraction necessarily followed. This led to a study of the creosote itself, not only as a preservative for paving-blocks, but also for timber, for it was naturally thought that if it disappeared from paving-blocks, it would also disappear from timber. This deeper study into the preservative itself has developed it considerably. It is now customary to differentiate the oils into those suitable for the preservation of timber, for paving-blocks, and, possibly, for the protection of timbers against marine insects. It is now generally conceded that the higher boiling constituents of the oil are the valuable ones, and whereas formerly high percentages of tar acids and naphthalene were specified, it is now customary to require low percentages of both. In fact, although early specifications called for not less than 10 per cent. tar acids and 40 per cent. naphthalene, those of to-day demand not more than 5 per cent. of the former and 25 per cent. of the latter. When this oil is to be used for the treatment of paving-blocks, the allowable tar acids are cut down to 1 to 2 per cent., and the naphthalene to 10 or 12 per cent.; but where the timber is to be protected against marine insects, it is still customary to use oils with large percentages of naphthalene, for experience seems to prove that the best protection is afforded by oils of lower gravity. Due to the development of creosote oil, and its increase in gravity and viscosity, another question of importance was presented to the wood-preserver, namely, the characteristics of the timber itself. It was discovered that oils would penetrate certain timbers more easily than others; thus the timbers could be classified, those in each group having about the same factor of absorption. Mr. F. J. Angier, Superintendent of Timber Preservation of the Chicago, Burlington, and Quincy Railroad, who has made a thorough study of this particular question, divides the timber into three groups, which he classes, A, B, and C, Class A absorbing less than 22 per cent. in volume; Class B absorbing between 23 and 30 per cent.; Class C absorbing more than 30 per cent. In Class A, he places such woods as red oak, pin oak, beech, and tamarac; in Class B, sweet gum, chestnut, sycamore, and poplar; and in Class C, tupelo gum, shortleaf pine, cypress, birch, and cottonwood. Another classification which must be made is that of seasoned and green timbers. There seems to be no difference of opinion, at the present time, as to the fact that it is best, in all cases, to air-season timber before treatment; but conditions are such that this is not always possible, especially in the case of structural timbers. Almost all railroad ties in use to-day are being air-seasoned before treatment, but practically no bridge or structural timbers, and conditions are such that probably it will never be possible to air-season such timbers. Necessarily, then, some method must be devised to season them artificially. The writer will not attempt to go into the details of all the various methods in use to-day. Investigation has shown that, if timber is to be treated with an oil, it should be seasoned with oil, and if it is to be treated by a water solution, it should be seasoned in a bath of steam, precaution being taken not to steam it at too high a pressure, nor for too long a period, as excessive steaming materially reduces its strength. The writer has attempted to bring out the important lines along which the art of timber preservation has developed, and it will be noted that this development has been practically that of the original basic processes—namely, Burnettising and creosoting. Another development, which he wishes to review briefly, is that of the modified basic processes, which are, with one exception, a combination of creosote and zinc chloride. The exception is the "Wellhouse" process, which is a combination of zinc chloride, tannin, and glue. There are three processes

HOMEWOOD, KNEBWORTH.—ENTRANCE FRONT. Mr. E. L. Lutyens, Architect.
(From "Small Country Houses of To-day.")

chloride as a preservative namely, the Rütgers, Allerdyce and Card processes. In the "Rütgers" process these two liquids are injected in a mixed condition, the object being to maintain a uniform mixture by regulating the gravities of the two liquids so that one will remain practically suspended in the other. This method, while still in use to some extent abroad, has had very little success in the United States, and the writer knows of no plant now operating under this process. The "Allerdyce" process is also a one process, the zinc chloride being injected first, and then the creosote oil. In the "Card" process, which is practically new, having only been patented in March, 1906, the creosote is injected, mixed with the zinc chloride, the mixture being maintained under pressure by a centrifugal pump. This, of course, has the advantage over the Allerdyce process by reason of its being a one treatment process, and in addition to this it probably carries further into the wood, and more evenly distributes, the preservative, and undoubtedly has considerable merit. The "Card" process is essential, providing the zinc chloride penetrates to the heart of the timber and the creosote sufficiently to act as a plug to prevent it from leaching out. The heart wood of certain timbers seems to resist penetration by creosote alone, although it is susceptible of penetration by zinc chloride. The main objection to the injection of zinc chloride alone is as stated before, that the uses of timbers so treated are restricted, due to the fact that the zinc, being a soluble salt, soon leaches out. This objection is overcome if the leaching can be prevented, and to do this the creosote oil is injected. There seems to be little question that this process is of more value than straight Burnettising; but it is never claimed that it is as effective as straight creosoting. Its cost is slightly more than Burnettising, and slightly less than creosoting. For the preservation of railroad ties on properly selected territories, it is undoubtedly of great value. In this paper the writer has endeavoured to give a brief history of the development of wood preservation. He has abstained entirely from the use of figures in showing this development, and has attempted to bring out only those phases of the question which to him seemed to be important.

GARDEN FRONT, ROSEWALL, WIMBLEDON.—Mr. M. H. Baillie-Scott, Architect.
(From "Small Country Houses of To-day.")

The new premises of Messrs. Briggs in Parliament street, Winchester, erected on the ancient Shulworth's or Crane property, Upper Brooks, at an expense of £5,000, besides the site, were opened at work

SMALL COUNTRY HOUSES OF TO-DAY

WITH ILLUSTRATIONS.

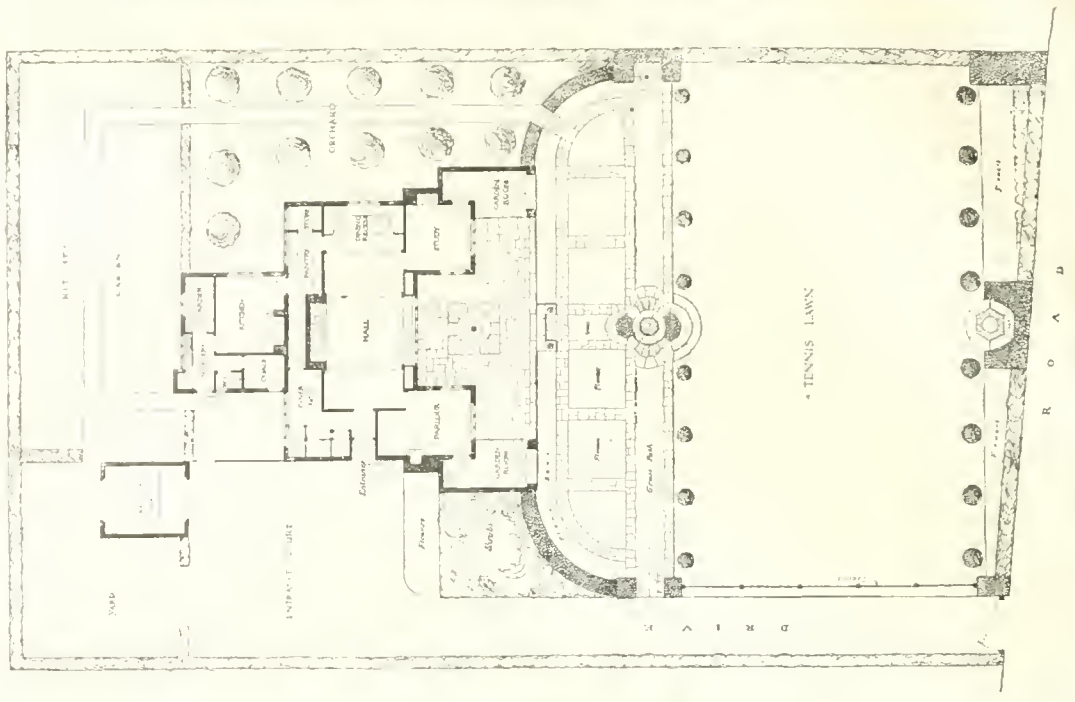
Mr. Lawrence Weaver, Hon. Assoc. R.I.B.A., has edited a handy, handsome volume* of artistic photographic views and plans of contemporary Domestic work of the lesser

* Small Country Houses of To-day. Edited by Lawrence Weaver. London: *Country Life* Library, Covent Garden. 1910. 7s. net.

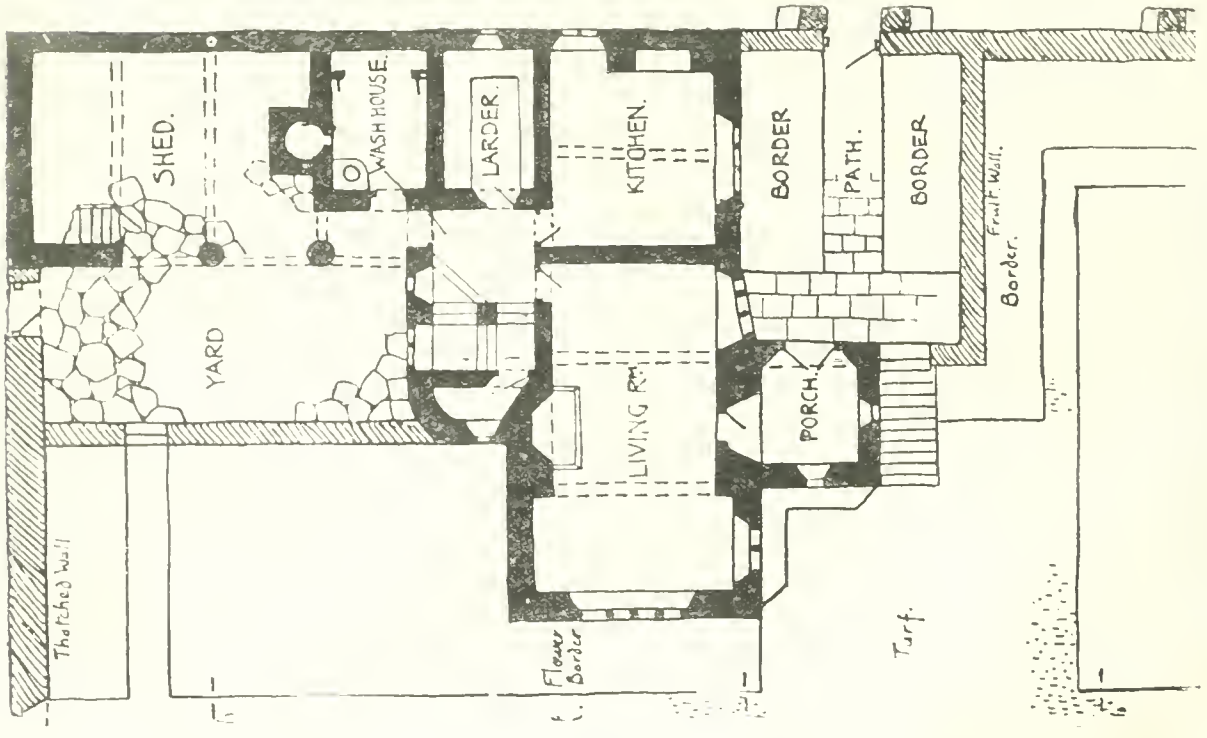
A HOUSE AT SAPPERTON, DANEWAY. Mr. Ernest Gimson, Architect.

(From "Small Country Houses of To-day.")

degree, showing examples of refined and pleasantly designed residences from various parts of England, built by several well-known architects, who have done their share in improving this class of property and in developing it mainly with architectural propriety in view. The choice of the subjects has been made to illustrate this same idea, besides comprehending the practical as well as the æsthetic standpoint. The Editor also has included in the text not a few more or less successfully written critical explanations, which, however, trend somewhat too exclusively towards the laudatory mode of description, perhaps not always easy to avoid. The writer is on safer ground, however, in dealing with the immediate past, when the foundations of an improved mode of house-building were laid, some half a century ago, or even less, may be, by the earlier works of Philip Webb, George Devey, Eden Nesfield, and Norman Shaw, who alone received Academic reward. In the book under notice attention is drawn to the relative economic values of the "Builder's house" as contrasted with "the Architect's house," and if by this inquiry Mr Weaver may by any chance bring home to the sceptical mind of the generally well-informed public, the actual facts to be derived from a large number of suchlike building undertakings, the publication of this parlour-table book of houses will insure an eminently practical workshop purpose, not only in the interest of the architect, but to the gain of many prospective building owners who are wanting a convenient and artistic dwelling at reasonable outlay. The estimating price of sixpence and sevenpence per foot cube for houses built in a solid way, with definite taste and architectural qualities of their own, is not only possible in country places, but has been, and is being, realised, when entrusted to expert hands, capable of insuring successful results. Nevertheless it must not be presumed by any means that all the examples illustrated in this volume, with their wainscoting and other necessarily expensive finishings can be included for so moderate an estimate. Indeed, the Editor rightly enough points out that "an extra cost



ROSEWALL, WIMBLEDON. Mr. M. H. Baillie Scott, Architect.

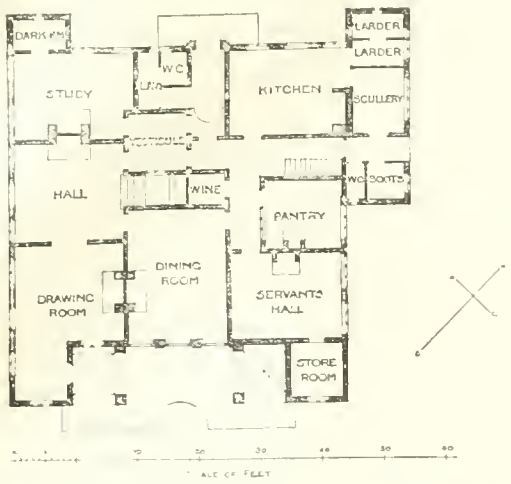


GROUND PLAN, HOUSE AT SAPPERTON.
Mr. Ernest Gimson, Architect.
(From "Small Country Houses of Today.")

£1 over two hundred pounds may easily be incurred without the addition of a single extra cubic foot of useful space in the house." He adds several appropriate, if trite, but well considered hints on a variety of incidental subjects. In none is he more right than in the well timed assertion as to the impossibility of advantageously making any hard and fast rules about house building unless it be that a reliable architect and honest builder are absolutely essential; both men, moreover, must be appropriate to the size of the job, each occupying such a relative position as to insure the needful attention to the particular undertaking, which must be worth their while in reference to the amount of work they otherwise have to do. When either an architect or builder becomes so busy that he has to relegate his supervision to assistants, when personal attention cannot be insured, it is time for others to be employed, for experience shows that the best work is often done by those who have little else to do. Once a man becomes the vogue something has to suffer, and prices, with fashionable repute, are liable to be correspondingly exalted in proportion. "An overstocked orchard does not produce the best fruit."

Each exampler in this book is accompanied by a readable descriptive article, and for all but ten of these so called monographs the Editor accepts personal responsibility, each bearing as it does the writer's initial, as when they appeared in *Country Life*, from the pages of which journal this assembly of pictures, plans, and particulars has been got together for this pretty volume. It would be invidious to single out any man's work as the best, and there is no need to contrast the merits of these designs, or even to here discuss them in detail, neither do we propose to find fault. The best service which we can render both to the reader and to the success of the publication itself, including the interests of contributors themselves, is to give a few samples as typical of the remainder, thus inducing a further acquaintance with its contents, which are very varied and representative, so far as they have gone, for the series is by no means completed, still being in progress in our contemporary.

Our first selection shows a view and plan of Mr. Ernest Gimson's thatched house at Sapperton, near Daneway, which he built for his own occupation in a very charming part of the country, standing on "the top of its ground and looking down into a narrow vale." The description somewhat needlessly sniggers at Professor Kerr's old-fashioned and, no doubt, none too artistic ideal of a "Gentleman's House," and the charm of this little, unpretentious, cottage-like dwelling is not enhanced by such sneers at Old Burlington-street Pecksniffian pomposity. This house is not everybody's of course not; it was built for the owner, and that he has imprinted his mark upon it makes it precisely what it is. Nevertheless, there was no need to write in this fashion about it: "The road to success in the domain of Art is apt to be through a very Slough of Despond. But it is the part of Art to hide the effort, and the faltering of its footsteps, and appear clean-footed and clear browed at the goal of its endeavour," and so on. "Homewood" is a grey, wooden gabled house, built at Knebworth in 1897 by Mr. E. L. Lutyens, as



HOMEWOOD, KNEBWORTH.—Mr. E. L. LUTYENS, Architect.
(From "Small Country Houses of To-day.")

shown by the accompanying compact and ingeniously-contrived plan, eminently picturesque and symmetrically handled on both fronts. The same idea of balance, and in some other ways very similar, occurs in "Rosewall" at Wimbledon, designed by Mr. M. H. Baillie-Scott in red brick and half-timber, a great hall making the internal feature of the house, as shown by this characteristic plan here reproduced, including also the gardens. The work cost eightpence per foot cube. These illustrations sufficiently indicate the class of work represented by Mr. Weaver in this capitally printed and nicely-bound work, which would make a welcome addition to any art library.

THE NEW GENERAL POST OFFICE.

At the meeting on Monday evening of the Royal Institute of British Architects, a paper was read descriptive of "The New General Post Office," by Sir Henry Tanner, I.S.O., F.R.I.B.A.

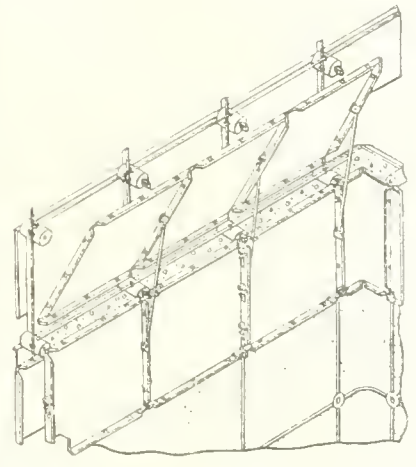
When the expansion of postal business rendered it necessary to build a new General Post Office, Sir Henry Tanner said he was induced to inspect several buildings in which reinforced concrete was used, with the result that he came to the conclusion that the system was excellently adapted for the purpose of this building. The lecturer found that if built in the ordinary way with steel construction, the approximate cost, exclusive of fittings, would be £355,000, but if in reinforced concrete, £295,000 would probably suffice. The latter figure proved to be correct, so that there had been an approximate saving of £60,000, and apart from this, considerable space had been gained due to the great reduction in wall thicknesses. The cost per foot cube of the reinforced concrete structure was about 2¼d. The sum of £295,000 was exclusive of engineering work, such as heating, lighting, lifts, telephones, and conveyors. In February, 1906, the Commissioners of Works agreed to his proposal to adopt this system. Towards the end of 1906 tenders were received, and in March, 1907, a commencement was made by Messrs. Holloway Bros. In arranging preliminaries, the lecturer stipulated that the columns were to be as few and as small as possible, in order to give the largest practicable unobstructed areas, that the beams were to be of the minimum depth, that the eastern platform was to be unobstructed by columns, that there must be a bridge connecting the two buildings at the second floor level, and that two subways were to be constructed under King Edward-street, connecting the new building with those existing. He also arranged the superloads at 1cwt. for the ground floor, and ¾cwt. for the remaining floors, 65lb. for the roof, and the factor of safety at 4. Externally, the concrete walls were covered with a thin rendering of cement, practically applied in one coat, as the skimming was not allowed to dry before being finished with a wooden float. This rendering was gauged in the proportion of 1 cement to 2 of sand. It would have been better with a larger proportion of sand. The tendency for hair cracks to appear seemed to increase with the strength of the mixture. The projections had been roughly formed in concrete. The cornices, however, were cast in moulds (in situ), the faces of which had been sanded; the modillions were cast down with steel rods projecting from them for attachment. These were laid in the moulds and the cornices cast upon them. The walls and floors being very thin, there was no opportunity to form chases or channels in the ordinary way. Ducts for wires in connection with basement trenches are formed alongside each external column, and extend to the full height of the building, while the horizontal wiring is carried in thin metal ducts fixed on the face of walls below window-sills and in ordinary casing along beams. Around the internal columns in various positions reinforced concrete ducts are constructed for ventilating purposes. Arrangements for fixing casings for wires, lifts, and guides were carefully considered, and many thousands of wood plugs left in the concrete as the work proceeded; but in many cases engineering requirements were afterwards altered, and from his experience on this building the author considered that much expense would be avoided if such work were left until the engineering contractors appear on the scene, and the necessary holes cut where required by them. The reinforcement throughout is of round steel rods varying in size up to 2¼in. diameter. The ends are split. All were rolled to the length required, no welding was permitted, and the bending was done cold. The stirrups are of hoop steel. The steel is mild, and was required not to fracture with a less tensile stress than twenty-eight tons, or more than thirty-two tons per square inch, with contraction of area at plane of fracture not less than 40 per cent., and with an ultimate extension of 20 per cent. in 8in. The cement used had to be superior to the usual British standard quality. Thames ballast was used throughout, crushed to pass through a ¾in. mesh, but to be retained on a ¼in. mesh, and a good sharp sand to pass ⅛in. mesh. The concrete was mixed in the proportion of 27cu.ft. of crushed ballast and 13½cu.ft. of sand to 7cwt. of cement in work below ground, and 6cwt. above. A mechanical mixer was used. No concrete that had begun to set was allowed to be used, and when thinning was necessary cement grout was insisted upon. The work has proved reasonably watertight: nothing whatever has passed through the retaining walls, which average 7½in. thick. There is no asphalte lining, but ordinary cement concrete, 8 to 1, several inches thick, was used for filling up the space occupied by the false work at the back of the walls. Some trouble was, however, experienced in keeping the ducts dry where the building was on the clay. This difficulty has, however, been overcome by forming two sumps, and taking a drain from them into the outcrop of the gravel. The second contract consisted of the Portland stone and granite work, and the third contract the remainder of builder's work, including internal brick divisions, joinery, plastering, tiling, sanitary work, and painting. These two contracts were also carried out by Messrs. Holloway Bros.

A vote of thanks to Sir Henry Tanner was proposed by Sir Matthew Nathan, and seconded by Mr. H. D. Searles-Wood. It was supported by Professor Beresford Pite, who remarked that utilitarian rather than æsthetic considerations appeared to have influenced the lecturer in designing the building—and by Sir Aston Webb, R.A., Messrs. Max Clarke, J. E. Franck, Meik, Professor Henry Adams, H. H. Statham, and D. Vezian. Sir Henry Tanner briefly replied to the points raised in the discussion.

METAL WALL-FORMS FOR CONCRETE HOUSES

Last winter it was announced at the convention of the National Association of Cement Users that steel moulds were to be used in the construction of all concrete dwellings at Virginia Highlands, across the Potomac River from Washington. The work has been prosecuted during the past summer, according to the *Engineering Record*, and at present three houses are completed, and three more under construction.

The forms consist of panels of No. 13 gauge sheet steel, 24in. square, flanged on



all four sides by a right angled bend of the sheet. Each flange is punched at three points to receive wedge keys for locking the forms together. The panels are used in sets each two tiers high. In order to facilitate moving, the tiers are connected together by light rods attached to the panels at the mid height of each joint, so that three or four of the panels of a tier are left rigidly fastened together in raising, the set being simply revolved by the aid of the rods to the new position for the next lift of concrete.

To obtain the required wall thickness a pipe or circular spacing block of the proper length is placed between the inside and outside forms at the meeting-point of four panels. A thin metal strap passes through the spacing pipe or block. The strap projects beyond the ends of the pipe or block and is punched to receive a wedge placed outside the forms, thus locking the latter to the block. The entire equipment is held together by wedges, so that any joint may be loosened by a stroke of the hammer. The entire form has ten different parts. At building corners bent panels are used, and for filling out and piecing where full-size panels cannot be used wood and galvanised iron sheets are employed.

Experience has shown that the forms are quite rigid, and do not, as a rule, need any outside bracing. Each time before using the forms are cleaned and greased. The same forms are also used for the floor construction. The reinforcement and spacing blocks are placed on the metal panels, the concrete poured, and the upper form then slid into place, forcing out the surplus concrete. As a result, very little finishing of the floor space is required. The spacing

... for the floor ... with projecting ... considerable ... upon the ... particular neigh... and the ... the lower plates ... removed after three days. A post is ... under ... upon ... the floor ... in ... until the ... the ...

It has been ... surface ... to ... ing blocks ... on ... body concrete ... for ornamental ... gauging blocks ... a portion ... mixing a portion ... cleaning. A slapping ... mixture ... rammed well in ... The concrete was ... in proportions of 1 of ... to 6 of gravel. A slight amount of ... was added to secure ... tightness. Upon the removal of the forms the surface is ... with a trowel, in order to secure an even ... finish.

The window and door frames are made of the same thickness as the walls. A dovetailed trip is nailed to them, they are then dropped into the moulds, and the walls poured around them. It is stated that the entire equipment of forms for a dwelling measuring 28ft. by 28ft. on plan cost about £600. Experience during the summer just passed indicates that the forms have a very long life, giving a low cost per house. The forms were designed by Mr. Milton Daniel Morrill, architect, Washington, who also built the houses and superintended their erection.

FIRE RESISTANCE OF BRICKS.

In the Proceedings of the Engineers' Society of Western Pennsylvania particulars are given of experiments conducted on different classes of bricks. It was found that with mixtures of magnetite and marble with which the refractoriness of the magnetite brick decreases as the amount of clay increases, and the same applies to the addition of lime. With mixtures of alumina and clay, additions of kaolin bring down the melting point of pure alumina considerably below the normal value of about 2,000deg. C., and if quartz be added with 9 per cent. thereto the melting point is reduced to about 1,565deg. C., after which a very small amount of alumina raises the melting point rapidly to 1,790deg. C., the melting point of pure silica. In the case of a silica brick with a certain amount of clay introduced as a binder it was found that as the amount of clay is increased the refractoriness rapidly falls off after the added amount reaches 6 per cent. This points to the desirability of making bricks either very high in silica or entirely of clay. Other investigations indicated the effect of potash, soda, lime, magnesia, and iron on the melting point of clay. Slight additions of the fluxes named reduced the melting point, the reduction being proportionate to the quantities added.

Messrs. Logan and Hemmingway have secured the contract for the construction of the first section of 12¼ miles of the Hull and Barnsley and Great Central Joint Railway.

The Mersey Docks and Harbour Board propose to proceed with another investment scheme commencing at the south end of the Birkenhead Dock wall, and extending to a point to the west of Fulwood road.

The death has occurred at Budge villa, Ashcroke road, Sunderland, of Mr. John William Hering, assistant engineer to the River Wear Commission, with whom he had been connected for nearly forty years. He was 78 years of age, and brother to Alderman Robt. Hering, who was some years ago Mayor of Durham.

A new school erected at Urpeth Colliery by the Education Authority of the Durham County Council was opened on Tuesday. The school is a single story building, and accommodation is provided for 200 infants in four small classrooms and a larger classroom divided by a folding partition. The site has cost £791 11s. 6d., the building cost £2,743 16s. 1d., and the furniture £188, a total of £3,463 19s. 5d. The Durham County Education Committee's architect, Mr. Rushworth, was the architect, and the contractor was Mr. D. Glen, of Jarrow.

OBITUARY.

We regret to learn that Mr. John Hegarty Colls, of 63, Park crescent, Portland place, and 6, Clement's inn, E.C., the joint chairman of the firm of George Trollope and Sons and Colls and Sons, Limited, died at Buenos Ayres on Thursday in last week. Mr. Colls, who was 64 years of age, was on a voyage for the benefit of his health, accompanied by his son-in-law, Mr. Nield, and would have started on the voyage home on Friday last, but for heart failure, which resulted in his death. The firm of Colls and Sons was founded seventy years ago by his father, the late Mr. Benjamin Colls. Mr. Howard Colls, whose portrait was given in our issue of March 28, 1890, had been president of the Institute of Builders (1887 and 1888), the National Federation of Building Trade Employers (1889 and 1890), the London Master Builders' Association (1890 and 1891), and with great geniality and generosity served the office of president in the various charities connected with the building trade and builders' clerks. He was president of the Builders' Benevolent Institution in 1888, and had been treasurer and trustee since 1893, while his presidency of the Builders' Clerks' Benevolent Institution dated as far back as 1883. His portrait (by the late Sir W. Quiller Orchardson, R.A.) was presented to him by the building trade and other interests in recognition of the part he took in the leading case on "ancient lights" of "The Home and Colonial Stores v. Colls." At the invitation of Mr. Chamberlain, Mr. Colls became a member of the Tariff Commission at its inception, and carried out an energetic crusade on behalf of Tariff Reform. He was a director of the Builders' Accident Insurance Company, and of Messrs. Hobbs, Hart, and Co., Ltd., and a member of the Carpenters', Fishmongers', and Gold and Silver Wyre Drawers' Companies. Mr. Colls had been honorary secretary of the Coleman-street Ward Club for over thirty years, and treasurer since 1904, and was a member of the committee of the Evelina Hospital. He leaves a widow, one son, and seven daughters. The memorial service was held at All Saints' Church, Margate-street, W.C., at noon yesterday (Thursday), and was numerously attended.

Mr. C. J. Fox Allin, borough surveyor of Smethwick, died on Saturday, after undergoing an operation. A few weeks ago Mr. Fox Allin tripped over a chain while walking on Sandon road, where he lives. He was thrown heavily to the ground and injured his shoulder. An operation was performed on Saturday morning, but the patient collapsed and died before recovering from the effects of the chloroform. Mr. Fox Allin had spent practically all his life in the service of the council. Many large municipal undertakings had been devised and successfully carried out by him, the latest being the establishment of a depot in Rolfe street, which, besides being the headquarters of the highway department, includes a destructor and fire station. The funeral took place at the Uplands Cemetery, Smethwick, on Wednesday afternoon, with firemen's honours, there being over a hundred representatives of various local brigades present, including Captain Chilcott, Brierley Hill, chief officer of the Midland Fire Brigades Union, who was in charge. The funeral cortege started from the deceased's residence, Sandon road, Edgbaston, headed by the local police under Inspector Newey, and the firemen, nearly all of whom carried wreaths. Among those present at the cemetery were the Mayor of Smethwick, all the officials of the corporation, representatives from Birmingham City Council, the Birmingham Tame and Rea Drainage Board, Aston Town Council, Smethwick and Oldbury Joint Hospital Committee, and Oldbury District Council.

The death took place on Friday of Mr. Alexander Calder, builder, at his residence, 21, Greenhill gardens, Edinburgh. Mr. Calder was a native of Morayshire, and went to Edinburgh over 45 years ago. His firm of A. Calder and Son had the contract for the greater part of the buildings of the recent Exhibition in Edinburgh.

The German sculptor, Professor Joseph Uphues, died on Monday in Berlin, aged 69 years. He was born in Westphalia, and studied at the Berlin Academy and in the studio of Reinhold Begas. "The Bowstrung," produced in 1888, was bought for the National Gallery at Sydney. Later he attracted the attention of the Emperor William, who frequently sat to him himself, and ordered from him portrait busts of various members of the Imperial Family. Uphues afterwards produced nothing but monuments of historical personages to official order. Perhaps the best was his marble statue of Moltke, in the Königsplatz in Berlin, in front of Kroll's Theatre.

CHIPS.

The dissolution is announced of the partnership heretofore subsisting between Clement Albert Robertson and Sydney Frederick Burrell, Chancery-lane surveyors.

Canon Howson, rural dean of Huddersfield, has erected a new Sunday school and church institute at Holme Bridge, Holmfirth, on Saturday. The outlay has been £4,000.

Mr. James Rogers Treadwell, highways surveyor to the Beckingham Rural District Council, has been appointed surveyor of highways by the Easthampstead Rural District Council.

Mr. F. Boaz, the late surveyor and sanitary inspector to the Pressall Council, has been appointed out of eighty applicants to fill the position of district surveyor for Nailsworth, Gloucestershire.

Princess Christian of Schleswig-Holstein will visit Southfields, Wandsworth, in February to lay the foundation of new Church schools to be erected in connection with St. Michael's at a cost of £5,000.

Mr. Robert Richmond has tendered to the Malton Urban District Council his resignation of the offices of surveyor and inspector of nuisances and other appointments held by him as from March 25.

Construction will be commenced on the Southern Central Pacific Railway. This road will run in an almost direct line from Vancouver B.C., to a port on Hudson's Bay some 150 miles to the north of Fort Churchill.

To the parish church of Woolton erected five and twenty years ago a morning chapel has just been added at the cost of a parishioner. The addition was dedicated by the Bishop of Liverpool on Friday. The architects are Messrs. Austin and Paley, of Lancaster.

An inquest was held at Ladock, Cornwall, on the 29th ult. into the circumstances attending the death of James Henry Crocker, aged 45, a builder, whose body was found in the river on the previous day. A verdict of "Suicide whilst insane" was returned by the jury.

New elementary schools for the Blyth Education Committee, situated on the Morpeth road, Cowpen Quay, were opened on Saturday. Accommodation is provided for 750 scholars, 500 in mixed and 250 infants', in separate blocks, all on the ground floor. The cost has been £8,000. The general contractors were Messrs. J. and W. Simpson, of Blyth.

The Duchess of Albany has presented to the committee responsible for the restoration of St. George's Church, Esher, a marble monument to Princess Charlotte, who during her residence at Claremont was a regular worshipper in the church. It is the work of Mr. F. G. Williamson, sculptor to Queen Victoria, by whose command it was executed, and until now it has found a place in Claremont Palace.

Bergen municipal authorities have voted about £50,400 for the construction of a new quay to extend from the present fortress quay to the Skoltegrund mole, closing the present main entrance to Vaagen harbour. All traffic will thus have to pass into the Vaagen harbour by the western channel which will, accordingly have to be deepened. It is estimated that the construction of the quay will take four years.

The contract for thirty-eight bridge spans required in connection with the extensions of the East Indian Railway system has recently been placed with Dorman, Long, and Co., of Middlesbrough, which firm has also received an order for the supply of several thousand tons of galvanised iron sheets for the Assam-Bengal Railway Company. The latter company has placed with T. Turton and Sons, of Sheffield, an order for the supply of laminated springs for rolling stock, and another with Sir W. G. Armstrong, Whitworth, and Co., for a 5-ton steam breakdown crane.

Building Intelligence.

BLOOMSBURY.—The Italian Ambassador, accompanied by the Marchesa Imperiali, will open to-morrow (Saturday) an addition which has just been made to the Italian Hospital in Queen-square, Bloomsbury, at the cost of Mme. Angiola Ortelli. The new buildings occupy a site formerly covered by two houses in Devonshire-street. They have been designed by Mr. J. D. Slater, of John-street, Bedford-row, and the builders are Messrs. Roome and Co., Basinghall-street. The addition consists of a small block with basement, ground floor, and three upper floors. The basement will be used for the laundry, mortuary, and post-mortem room.

BLYTH. — New elementary schools at Morpeth-road have been building during the past year, and will shortly be opened. Accommodation is provided for 750 scholars: 500 mixed and 250 infants in separate blocks, on the ground floor. The total cost of the schools will be under £8,000, and thoroughly sound materials and workmanship have been used throughout. The design of the buildings is suitable for the locality. The general contractors were Messrs. J. and W. Simpson, of Blyth. The whole has been carried out from the designs, and under the superintendence of, Mr. Hal Wright, F.R.I.B.A., of Messrs. Armstrong and Wright, architects, Newcastle-on-Tyne. Quantities by Mr. S. Addison Smith, Newcastle; Mr. R. Robinson, of Blyth, acted as clerk of works. Mr. Thomas Burt, M.P., performed the opening ceremony on the 31st ult.

BURNHAM.—The Urban District Council of Burnham have received the sanction of the Local Government Board to borrow £6,836, the estimated cost of the new pavilion, sea-front extension, and other work. The plans approved are those of Mr. W. H. Chowins, surveyor to the council, and Mr. W. T. Douglass, of Westminster, has been the consulting engineer. The main contract has been entrusted to Mr. G. Morgan, of Pontypridd; the pavilion will be built by Messrs. Walter Macfarlane and Co., of Glasgow, at a cost of £1,350; while the tender of Mr. W. J. Pople, of Burnham, for work amounting to over £1,000, has been accepted. The work is to be put in hand at once.

CANTERBURY CATHEDRAL. — On Friday last the Primate ascended to the summit of the north-west tower of Canterbury Cathedral and placed in position the last of the four pinnacles, which have been rebuilt under the direction of the architect to the Dean and Chapter, Mr. W. D. Caroe, F.S.A. The Dean, Dr. Ware, has just issued an appeal for the £12,000, which is all that is now required to complete external reparation. Dr. Ware remarks that the interior of the Cathedral and its Chapter-house having been restored to a sound condition under his predecessor, Dean Farrar, at a cost of £20,000, the Chapter have during the last six years been engaged on the reparation of the exterior, particularly of the towers, which had fallen into grievous and dangerous decay. The reparation of the great central tower was completed in April, 1908, at a cost of £15,000, including the anxious but invaluable work of grouting in and strengthening the great tower piers. But they then had to deal with the two western towers, of which the surface and pinnacles were so much decayed that there were dangerous falls of stone. They commenced with the north-west tower, which proved, when it could be examined from the scaffolding, to be in even a worse condition than the central tower. Its reparation was commenced in July, 1908, and has been partially finished at a cost of about £7,700. But about £2,000 is still required for completing the external reparation of this tower; and they have then to repair the south-west tower, at an estimated cost of £5,228, and then the nave pinnacles, and some other parts of the building, at an estimated cost of £6,000. To complete the work, therefore, about £14,000 is needed, in addition to the £22,500 already raised and spent. Of this £14,000, the Ecclesiastical Commissioners have promised £3,000 in the proportion of £1,000 to every £4,000 spent.

RUGBY.—The new Palace Theatre in Railway-terrace and Market-street was opened on Boxing Day. It has a frontage to Railway-terrace of 61ft., and a depth of 98ft. Externally, the theatre is treated in Free Classic detail. Seating accommodation is provided for 800 people. There are two boxes with foyers beneath, and the auditorium includes pit-stalls, pit, dress circle, and gallery. The fronts have been treated in fibrous plaster and decorated in high colours. The stage measures 50ft. by 36ft., and is separated from the auditorium by fire-resisting doors and curtain. Electric lights are provided, and the building is heated on the low-pressure system. The building has been erected by Mr. C. Cockerill, of Murray-road, Rugby, from plans prepared by Messrs. Franklin and Newman, architects, of Regent-street, in that town. The cost has been £4,500.

Surveyors are engaged in taking measurements and superintending excavations in connection with the building of additional barracks in the Castle Park, Dunbar.

New premises are in course of erection for the Royal Society of Medicine on a site at the corner of Wimpole- and Henrietta-streets, W., the architect being Mr. John Belcher, R.A.

Mr. J. Griffith, the surveyor to the Gwyrfai Rural District Council, has tendered his resignation, to take effect in three months. Mr. Griffith intends to emigrate to America.

The corporation of Morley have authorised Mr. Hamilton, of Leeds, consulting tramways engineer of the Council, to obtain tenders for the construction of a line of tramways from the Leeds boundary at Churwell Hill to the Fountain Inn, Morley.

The new Crown Electric Theatre, erected in Scotswood-road, Elswick, has been formally opened. The building has accommodation for 1,500 persons. The architects were Messrs. White and Stephenson, of Newcastle, and the contractor was Mr. W. T. Weir, of Howdon.

On the invitation of Professor Hopkinson, of the engineering department of the University of Cambridge, Mr. A. C. Davis, of the Saxon Portland Cement Co., Ltd., is lecturing on the manufacture, testing, and uses of cement and on theoretical and practical concrete engineering.

In connection with the preparation of the scheme of works which they had recommended to the Roads Board as being desirable to be carried out, the Worcestershire County Council have resolved to grant an honorarium of twenty-five guineas to the county road surveyor, Mr. J. H. Garrett, and ten guineas to Mr. W. H. Darby, his assistant.

A proposal is made for the restoring of the house in which Henry Bell, the inventor of the steamboat, was born—Old Torphichen Parish Mill, Linlithgow—and of placing a suitable inscription on the building. Nothing remains at present but the southern gable and part of the mill wall. It is suggested that the reconstruction or repair of the mill would be appropriate in view of the approaching centenary of the construction and launching on the Clyde of Bell's famous steamboat Comet.

A site in Netherton Broad-street, Dunfermline, has been purchased by the Carnegie Trust for the erection of an institute for the south side of the town. There will be room on the site for a bowling-green, as well as for a building similar to that erected at Baldridgeburn and at Townhill. For the erection of a women's institute a site in Bath-street has been purchased from the School Board, the frontage on Bath-street being 67ft., and the depth being 80ft. It is proposed that architects should be invited to send in competitive designs for the erection of the women's institute.

With reference to the notice on p. 608 of the "Board of Trade Journal" of 20th December, 1909, relative to the projected erection of a municipal slaughterhouse at Adelaide, the Commercial Intelligence Branch of the Board of Trade is now in receipt of the report of a select committee of the South Australian House of Assembly on the Metropolitan Abattoirs Act Amendment Bill. The committee report favourably on the proposal in the Bill that the loan expenditure authorised for the erection and equipment of the abattoirs shall be increased from £100,000 as provided in the Metropolitan Abattoirs Act, 1908, to £250,000.

PROFESSIONAL AND TRADE SOCIETIES.

THE INSTITUTION OF MUNICIPAL ENGINEERS.—At a council meeting on Dec. 28, 1910, the examination board presented their report, with full syllabus of examinations, and it was decided that the syllabus be printed with the amended regulations and issued in book form. It was decided further that the first examination be held in the latter part of October, and that applications be sent in by September 15. Members are requested to note that a copy of the syllabus will be sent to applicants, including those who have already applied, as soon as it is in print.

LIVERPOOL ARCHITECTURAL SOCIETY (Incorporated).—The secretaries of this Society (Messrs. Gilbert Frazer and Ernest C. Aldridge) write that, owing to the illness of Mr. P. Morley Horder, who was to have read a paper before the Society, the fourth ordinary meeting, arranged for Monday next, will be postponed.

Mrs. Margaret Seddon, wife of the late Mr. John Pollard Seddon, F.R.I.B.A., died on Saturday last at 62, Albany Mansions, Albert Bridge, Battersea.

A memorial tablet to King Edward is to be placed in the church at Marienbad. The tablet will be hewn out of one piece of marble, and will be the work of Professor W. R. Lethaby.

The Charteris Memorial Church is about to be erected in the Pleasance, Edinburgh, on the site of some dilapidated tenement property. The architect is Mr. James B. Dunn, F.R.I.B.A., of Hanover-street, Edinburgh.

The clergy of Hampshire have placed a memorial tablet in the nave of Winchester Cathedral in memory of the late Mr. William Nicholson, of Basing Park, who a few years ago gave a large sum of money for the augmentation of clerical incomes in Hampshire.

An extension of accommodation at King's Cross Fever Hospital, just completed, was inspected by Dundee Town Council on Friday. The additions consist of a ward for twenty-four beds and dormitory accommodation for eleven nurses, with duty-rooms and offices. The work is carried out in corrugated iron, and cost £2,100.

A memorial statue to General Wolfe was unveiled at Westerham on Monday by Earl Roberts. The sculptor is Mr. F. Derwent Wood, A.R.A., who has depended for his likeness of the hero of Quebec on the pencil sketch made by Captain Hervey Smith, the general's aide-de-camp, said by Wolfe's friend General Warde to be "the most like thing ever done of him."

The city council of Liverpool have accepted the offer by the Commissioners of the Royal Hospital, Chelsea, of the Runic cross commemorative of the King's (Liverpool Regiment) now in the grounds of the hospital, and the inclusion in the estimates of £173 (exclusive of £52 to be paid by His Majesty's Office of Works) for removal and re-erection of the cross in Whitley Gardens, Liverpool.

M. Gustave Colin, the landscape painter, died in Paris on Friday, in his eighty-third year. During the earlier period of his career M. Colin was noted for his Basque and Spanish scenes. Among his works were "Quartier de Gitanos" (now in the Luxembourg), "La Barre de la Bidassoa," "La Messe du Matin en Navarre," and "Tempête dans le Golfe de Gascogne." In later years he became a successful seascapist.

The Wallasey Town Council, at its monthly meeting last (Thursday) evening, were asked to sanction a scheme for the laying out of the area covered by the late "Ham and Egg Parade," New Brighton, acquired this year under statutory powers. The committee recommended that the site be laid out as gardens and walks and that a colosseum, in the arena of which instrumental music will be rendered, be provided. The estimated outlay is £6,000.

The strength of track fastenings has been investigated by an engineering board representing the city of Chicago and the local traction companies. The results show that screw spikes have far greater holding power than ordinary spikes. The holding power of screw spikes in untreated oak was about 9,000lb., and that of spikes was 5,900lb. The figures were 7,000lb. and 3,500lb. for untreated yellow pine, 6,200lb. and 3,500lb. for short-leaf pine treated by the zinc-chloride process, and 5,500lb. and 2,900lb. for treated loblolly pine.

COMPETITIONS.

BERNE INTERNATIONAL TELEGRAPH UNION.—The Swiss Federal Council has issued a revised programme of a competition for the erection of a monument at Berne to commemorate the foundation of the International Telegraph Union, none of the 92 designs submitted in the last competition which took place in connection with the Jubilee of last year having met with the approval of the international jury appointed for them. The new competition is open to all artists in the world, and the international jury, on which Sir George Frampton, R.A., is the British representative, will pronounce on the merits of the designs submitted. The artist chosen for the purpose will be entrusted with the execution of the monument at a cost not exceeding £5,860. The jury will have at their disposal the sum of £800 for premiums. Models must be deposited at the Federal Palace, Berne, before August 15 next, and British artists who seriously intend to compete can obtain copies of the programme on application to the Secretary to the General Post Office, London, E.C. Sir George Frampton, R.A., 90, Carlton hill, St. John's Wood, N.W., will furnish information to intending competitors with regard to the site of the monument and its surrounding. Three copies of the programme may be seen at the R.I.B.A. Library, 9, Conduit street, W.

RUISLIP MANOR GARDEN SUBURB.—We give elsewhere a notice and plan of the first premiated scheme. Sir Aston Webb, R.A., and Mr. Raymond Unwin, F.R.I.B.A., were the assessors. Messrs. A. and J. Soutar, Westoverroad, Wandsworth, are the authors of the first premiated and selected design. These architects have had considerable experience in working out the housing schemes carried into execution by the London County Council under the generalship of Mr. W. E. Riley, F.R.I.B.A. The present scheme is the first great undertaking under the Town Planning Act. The second premium has been awarded to Mr. George Hornblower, Devonshire terrace, W., and the third premium to Mr. H. R. Gardiner, of Leatherhead. The plans have been on view this week in the Alpine Club, Conduit street, W. Messrs. Reynolds and Bacon, of Lincoln's Innfields, write pointing out that the winning design devotes two-thirds of the total area of 1,300 acres to 7,642 houses—that is, an average of nearly nine houses to an acre—whereas paragraph 2 of the conditions issued to the competitors says, "The number of houses to be placed on the estate should not exceed an average of six houses to an acre." They add: "It would be interesting to know why the reports of the three premiated architects are not to be seen at the exhibition of the designs."

SOUTHAMPTON.—A special meeting of the Hartley Council, for the purpose of receiving the report of Mr. C. G. Montefiore, the Acting President, on his interview with Mr. Leonard Stokes, F.R.I.B.A., was held on Thursday afternoon in last week, in the Library of the Hartley University College. Mr. Montefiore explained that the council recently passed a resolution to the effect that, should there be an open competition for designs, a fee of one hundred guineas should be awarded to the successful competitor. Mr. R. E. Gutteridge, F.R.I.B.A., of Southampton, assured them that for one hundred guineas they would not get the best architects to compete, and it was accordingly decided to consult Mr. Stokes on the matter. He had accordingly interviewed the President of the Royal Institute of British Architects, and he now recommended that Mr. H. T. Hare be appointed as assessor at a fee of £230, and that premiums of £150, £100, and £50 be offered, the first premium to merge in a commission of five per cent. if the work be carried out. He further stated that it was ultimately proposed to build a college for 400 students, at an estimated cost of about £100,000, but that at present it was only proposed to invite complete plans for the arts and administrative block, at an estimated outlay of £35,000. Towards the amount ultimately required the governors had in hand only between £12,000 and £13,000, about one fourth of which would be required to pay for the site at Highfield. After some discussion it was unanimously agreed that the building committee be authorised to engage the services of Mr. Hare as assessor, and to advertise for plans upon the terms of, and in accordance with, the regulations of the Royal Institute of British Architects.

Engineering Notes.

SHREWSBURY AND LLANYMYNECH LIGHT RAILWAY.—In a month or two the Old Potteries Railway, which runs between Shrewsbury and Llanymynech, a distance of about eighteen miles, will be opened as a light railway. Its original construction was authorised by Parliament in 1862. Over-capitalisation and extravagance in the management of the line proved fatal to the success of the undertaking, and nearly thirty years ago the railway was closed. Subsequent efforts to resuscitate the line were made and new rails laid; but here the work ended, and the railway, upon which an aggregate of £1,887,726 had been spent, remained derelict. The system received its title from the fact that it was originally intended to continue it to Market Drayton, and there to connect it with the Potteries Railway; but that part of the scheme was nipped in the bud. Under the present scheme the company will have running powers over the Cambrian line from Llanymynech to Oswestry. Junctions also will be made with the L. and N.W.R. and the G.W.R. at Shrewsbury. The cost of the reconstruction works, equipment, and other expenses has been £32,000. Considerable progress has been made with the work of repairing the line, under the superintendence of the managing director and engineer, Mr. H. F. Stephens.

Mr Duncan Mackennan, A.M.I.E.E., Glasgow, has been appointed burgh electrical engineer for Oban out of 171 applicants.

The death is announced of Mr. W. Rapley, at Holmwood, who for 50 years acted as surveyor of highways in the Dorking district.

The American Institute of Architects will hold its forty-fourth annual convention in San Francisco on Tuesday, Wednesday, and Thursday week the 17th, 18th, and 19th inst.

Plans have been approved by Wheatley Urban Council for the enlargement of St. Mary's Church, Doncaster. A new chancel, organ-chamber, and vestry are to be provided.

The Standard Electric Theatre in the High-street at Crewe was formally opened last week by the mayor. It is seated for 700 persons, and has been built by Councillor J. R. Goulder on the site of some furniture stores previously the old post office.

A proposal is under consideration to reconstruct Chester Infirmary as a memorial of King Edward. An anonymous donor has offered to contribute £1,000 provided the work is begun at once. The scheme will, it is estimated, cost from £15,000 to £25,000.

The Argentine "British Official" of 23rd November publishes a law granting, in favour of the Department of the Interior, a credit of $34,584 pesos (about £32,000) for the erection of five stations in Buenos Aires, and 140,000 pesos (about £13,000) for the purchase of revolvers for the Buenos Aires police force.

According to the "Handelsmuseum" (Vienna) of 15th December, it has been decided to establish a new Army Corps at Uskub and in consequence building operations on a considerable scale will have to be undertaken, including the erection of barracks, hospitals, etc. It is expected that military buildings will have to be erected also in other towns in the Kossovo Vilayet.

At Tidworth, on the borders of the dioceses of Salisbury and Winchester, and partly within both there are now 2,000 soldiers, besides wives and children, without a church in which to worship. A grant of £1,000 has been made by the War Office towards the cost of a garrison church, and a committee have collected £1,800. The committee have adopted a plan for a clerestoried church in terracotta, estimated to cost £4,800, and they propose to build the chancel and part of the nave, to seat 750, at an outlay of £3,800.

Our Illustrations.

ROYAL ACADEMY PRIZE CARTOON FOR A DRAPED FIGURE. "SILENCE," BY MARGARET LINDSAY WILLIAMS.

The exquisite draperies of this figure of "Silence" are deserving of much praise, and the graceful excellence of Miss Williams' conception of the subject leaves no doubt whatever as to the merit of her work, which worthily won the £40 and first place in this competition at the Royal Academy in December.

NATIONAL GOLD MEDAL DESIGNS FOR STAINED GLASS, BY EDWARD RIDLEY.

Throughout England and Wales only 14 Gold Medals, all told, were awarded. Last year, England and Wales, Birmingham and Nottingham, took two each; Liverpool, Bradford, and Bournemouth one each; while the whole of the Metropolis recorded seven Gold Medals in the last National Competition for 1910. The Gold Medal for stained glass was won by Mr. Edward Ridley, of Birmingham. The official report referring to his work says:—"The examiners are pleased to be able to report a distinct improvement in this class. A Gold Medal has been awarded to Edward Ridley, of Birmingham, Margaret-street School of Art, for a set of drawings in which sense of fitness is combined with good draughtsmanship and inventive design, and in which human character and the dramatic interest of the legend is well expressed." We reproduce the cartoon for the upper compartment of the window, and those of the remainder shall follow shortly, so soon as space allows.

NATIONAL GOLD MEDAL DRAWINGS: WATERSIDE SKETCHES—"POOLE HARBOUR," BY LESLIE M. WARD.

Messrs. John Byam Shaw, Walter Crane, R. W. S. and G. W. Eve, R.E., the examiners, reported as follows on these subjects:—"A Gold Medal has been awarded to Mr. Leslie M. Ward, of Bournemouth, Drummond-road School of Art, for a fine set of drawings of shipping and sea-port subjects, which are singularly individual in style and treatment, and effective as black-and-white work. The designs are also remarkable for the skill with which natural form and movement have been rendered in pen line. . . . The drawings are suggestive and imaginative, and show keen observation." We need add nothing to this judgment of the assessors save to endorse their opinion as quoted. To-day we print photo-lithographs of two of our premier choice.—"The Quay-Side," and "Belben's Flour Mill," Poole. In both of these Dorsetshire studies the decorative idea is more than suggested—it pervades the whole thing—and the colour obtained is managed capitally, while the brilliance of the sparkling waters is insured in a most distinctly capable and effective manner. We shall illustrate some more from the same series at an early day.

THE CHURCH OF SANT ANTONIO AT PADUA.

FROM A WATER-COLOUR BY PROFESSOR A. WALLACE RIMINGTON, R.B.A., A.R.E.

On the death of Sant Antonio, in 1231, the citizens of Padua decided that a magnificent church should be erected in honour of their patron saint. The work was entrusted to Niccolo Da Pisa. He adopted a mixed style of North Italian Gothic, in which many buildings were then being erected, and Byzantine, more or less borrowed from St. Mark's, Venice. The church has eight cupolas, which give it a very Oriental character, and is planned on a Latin cross, 280ft. in length and 138ft. in width across the transept. It was completed, or nearly completed, in 1307. The interior is remarkable for its elaborate and sometimes very beautiful decorations. Especially celebrated is the Capella S. Felice, which was constructed in 1376. It is faced by Gothic

arches and red Veronese marble, above which rises an entablature of white and red marbles. The walls, lunettes, and vaulting are covered with early frescoes by Jacopo d'Avanzo and Zevio. Messrs. Crowe and Cavalesce describe it as "the noblest monument of pictorial art of the 14th century in North Italy." The choir is enclosed by red marble balustrades and bronze doors, and has many statues in marble. The cloisters are approximately of the same date as the church, and contain many very beautiful Gothic tombs.

RATHHAUS, HALBERSTADT.

This very interesting building stands on one side of the spacious and picturesque market-place at Halberstadt, and its Gothic front, of plain design, faces the Platz. The Renaissance porch, which forms the subject of the accompanying plate, occurs on the return elevation, down a side street, where there are several exceedingly quaint old houses, some being of florid timber framing similar to those in the Markt Platz, and dating from 1440 to 1580. The Rathskeller and Schuhhof are particularly elaborate in the shapings and carvings of their woodwork. The Rathhaus has been restored, and, in lieu of the somewhat incongruous window to the left of the drawing, an oriel has been introduced; but that alteration does not affect the illustration of the 17th-century portal, with its double flight of steps. The date accorded to the earlier part of the building is 1545. Next to its façade stands the Brobdingnagian Rolandsaule, such as may be seen in many other towns in North Germany. These erections consist of a tall stone statue of a man about 8ft. high, holding a sword, and having a human head at the feet, emblematic of Law and Life. They were put up after the conversion of Germany to the Christian faith, and replaced wooden columns set round sacred trees planted in pagan times to mark the places of assembly for the chief men of the nation. In the middle of the Market Platz is a Late and swag-foliated fountain. The Cathedral dominates the city, which was encircled by walls, having seven gates. The lofty and handsome interior of the Dom is set off by a rood-loft and mural monuments of elegant redundance in design. It is extraordinarily rich in Mediæval art, preserved in what we should call *the Treasury*, the assemblage including vestments from the 12th to 16th centuries. The cathedral dates from 1235 to 1491; but the lower part of the west front is earlier. Little dormers, like the lower one seen on the roof beyond the highly-elaborated gable of the porch of the Rathhaus, are repeated on the main front in three heights, cleverly arranged to increase the effect of its scale. To the right of the square over against the Rathhaus stands the Steueramt (1596), with its gabled wings projecting into the street, and on the left hand the church twin spires rise to a great height in plain simplicity.

PRINCIPAL ENTRANCE HALL, ROYAL INFIRMARY, NEWCASTLE.

This interior shows the Principal Entrance Hall, Newcastle Royal Infirmary. The plasterwork of ceiling and frieze are delicately detailed, and the panelling, which is of teak, is inlaid with ebony and boxwood. The spandrel is fitted with lacquered leather, and the floor is of black and white marble The architect was Mr. H. Percy Adams, in conjunction with Mr. W. L. Newcombe, of Newcastle.

BRISTOL PUBLIC LIBRARY: PRINCIPAL ENTRANCE.

This detail of the Main Entrance shows some fine carving by Mr. Aumonier from sketches supplied by the architect, all the work being in Bath stone. The entrance doors are of teak. Mr. H. Percy Adams, F.R.I.B.A., is the architect.

STAIRCASE, ARDENRUN PLACE, SURREY.

This Staircase is of very fine figured Italian walnut. The balustrade is of lime-wood. The floor is of Arni alto marble, with Siberian green border. The ceiling has a big enriched moulding. The balustrade was done by Messrs. Aumonier. The architect is Mr. Ernest Newton, V.P.R.I.B.A. We illustrated the exterior of Ardenrun Place, from the architect's Royal Academy drawings, in our issue for January 28, 1910, when a general view and plan appeared; and on February 4 last, when we reproduced a detail view of the entrance on a further double-page plate. We give a third view of the stairs.

ST. MARY REDCLIFFE, BRISTOL.

This church, once well described as "The pride of Bristowe and the Western Londe," still holds its own for the beauty of its thirteenth-century tower and Edwardian spire, which for long remained only a stump, being damaged, they said, by lightning, though of this there is no certainty. In 1872 the parson of the parish, accompanied by the mayor and mayoress, early in May ascended to the summit of the scaffold, when the "restoration" was completed, and put up the topmost stone, which measures 280ft. from the ground. The work done up to then had cost something like £40,500. The interior suffered most by the "restoration," though as that process commenced in 1842, it would be unfair to saddle all the blame on the late George Godwin, whose connection with the building began some time after that, and extended over a period of years. He it was who renewed the top of the spire, and made the building weather tight. In 1871 Mr. Godwin erected the reredos in Caen stone, with mosaic work by Salviati. The east end was till then covered up with three big paintings by Hogarth. The ambulatory was reformed and completed, with the side screens, and the Lady-chapel was opened up into the vista, as seen from the choir. The total length of the church is 239ft., and it is one of the five churches in England with both eastern and western aisles to the transepts, the others being at Wells, York, Ely, and Westminster. The variety of the groining inside is remarkable, with 1,100 bosses, no two being alike, and tracery covers some of the vaults. The accompanying view of the west end gives an excellent idea of the florid character of the work and the beauty of the tower. The drawing was made by Mr. A. C. Fare, of the firm of Messrs. Fare and Cannon.

NATIONAL SILVER MEDAL MONOCHROME PAINTING OF ORNAMENT BY MAY SIMPSON.

The examiners appointed by the Board of Education, Sir W. B. Richmond, R.A., and Messrs. Seymour Lucas, R.A., and Herbert J. Draper, reported on the works of the class in which this beautiful study of the Acanthus, by Miss May Simpson, won a Silver Medal, that the competitors evinced a marked progress on the achievements of previous years, and the studies submitted were, in many cases, excellent. A reference to the example here reproduced fully bears out this comment, and the illustration of so spirited a representation of the Classic leaf cannot fail to be useful to ornamentalists and carvers.

THE BATHERS: ROYAL ACADEMY OF ARTS PRIZE DESIGN FOR THE DECORATION OF A PUBLIC BUILDING, BY R. LONGSTAFF.

This subject, set by the competition conditions, obviously permitted an abundance of transpicuousness and breadth of treatment without trammelling the designer, while its conventional application to decorative effect allowed of considerable latitude, even to the margin of scenic possibilities which can never properly be combined with a successful mural enrichment. The majority of the designs submitted were distinguished by a failing in that direction, which is also the fault of much of the decorative figure-work of the present time. Mr. Longstaff's composition, illustrated to-day, represents an evening scene, backed by a broad belt of foliage, forcibly emphasising the nude figures which somewhat disturb the composition, a result which is also due to the strong flush of light thrown across the picture in front of the vase, catching the figure of the crouching maid standing in the pool, and bringing out the full length of the girl seen on the verge divesting herself of her raiment. The result is somewhat scattered in effect, but the forcible power displayed by the painter probably placed him above his competitors. The low key of his colour scheme also contributed largely to this success, and allowed a reproduction of the design in monochrome to be made without detracting much from its relative values, such as they are.

STATUES, MEMORIALS, &c.

THE KING EDWARD STATUE FOR ABERDEEN.—Lord Provost Wilson presided on Friday at a meeting of the executive committee having to do with the movement for the erection of a granite statue in Aberdeen commemorative of King Edward VII., held in the Aberdeen Art Gallery, and the model exhibited in the gallery by Mr. Alfred Drury, A.R.A., London, the selected sculptor, was unanimously approved. It was stated that the cost would probably be over £3,000. The statue of white granite will be moulded on a pedestal of red granite, and will occupy a site near the Art Gallery, at the junction of Rosemount-viaduct and Woolmanhill.

INDIAN MUTINY MONUMENT FOR LUCKNOW.—A monument to be erected at Lucknow to the memory of the officers and men of the 93rd Sutherland Highlanders has just been completed. The monument is in the form of an obelisk, in unpolished light grey granite, rising from a moulded pedestal. The total height is over 20ft., and the width at the base of the pedestal is 4ft. 6in. The shaft of the obelisk is relieved with the regimental crest in bronze, and on the pedestal a bronze panel bears an inscription. The memorial was designed and executed by Messrs. Stewart, M'Glashan, and Son, Ltd., Canonmills Bridge, Warrington-road, Edinburgh.

Mr. G. H. Fox, district engineer of the Federated Malay States Railways, has been promoted Chief Resident Engineer for Construction.

On the invitation of Professor Hopkinson, of the Engineering Department of the University of Cambridge, Mr. A. C. Davis, of the Saxon Portland Cement Company, Ltd., is lecturing on the manufacture, testing, and uses of cement and on theoretical and practical concrete engineering.

Mr. David Paton Low, architect, Glasgow, died on the 23rd ult., aged 83 years. He was articled to a Dundee architect, and afterwards entered the office of Mr. E. W. Godwin in London. In 1863 he was awarded the Soane Medallion for a design for a sanatorium. He afterwards commenced practice in Glasgow.

The partnership hitherto subsisting between John Peattie, McDonald Munro Alexander Peattie, and William Dean Peattie (trading as John Peattie and Sons), Victoria-grove, Gloucester-road, Kensington (formerly at Dorset-street, Marylebone), Braden-street, Paddington and High-street, Oxford, builders and decorators, has been dissolved.

During the past year Coventry City Council has, according to the report of the city engineer (Mr. J. E. Swindlehurst), approved plans for 1,205 houses, 34 factories and workshops, 62 alterations and additions to buildings, 141 miscellaneous works, 2 public buildings, 1 chapel, 2 schools, and 30 streets. In the same period 1,103 buildings have been completed. There are now about 280 thoroughfares in the city.

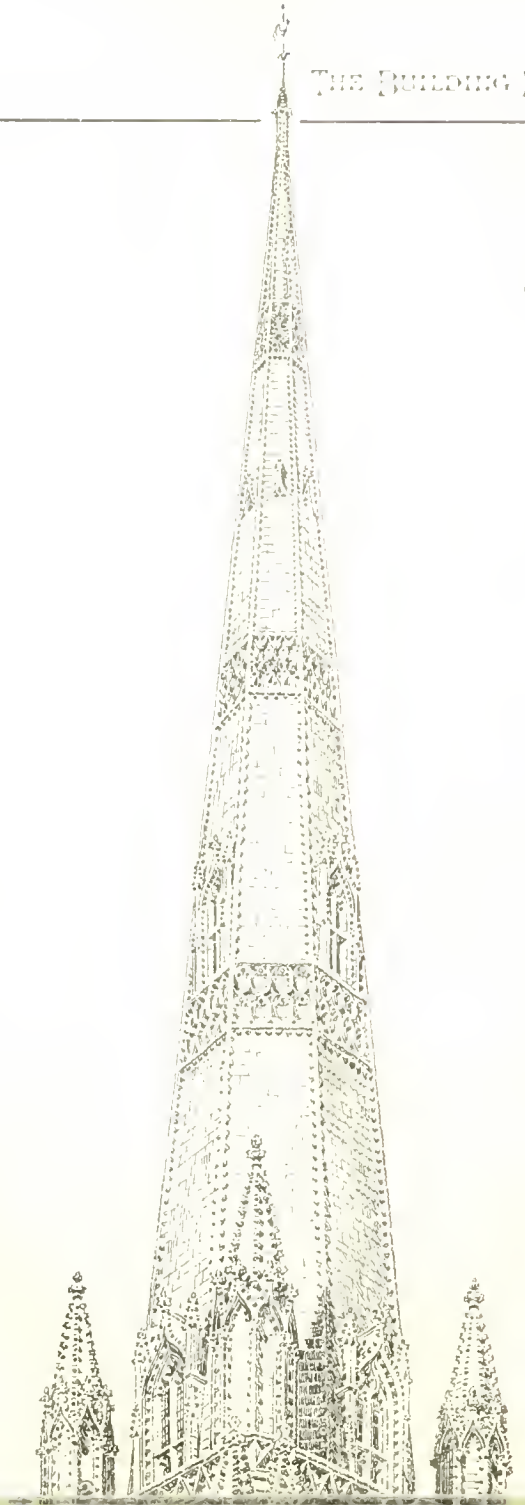
The bust of the late Hon. C. S. Rolls, upon which Mr. W. C. May, sculptor, has been engaged, has been finally approved. It is carried on a four-sided pedestal, each side being ornamented with a panel descriptive of a notable event in Mr. Rolls's career. These panels represent the Paris to Sherborne (Norfolk) balloon voyage, starting for Calais (aeroplane flight), Paris to Berlin (motor race), Dover to Calais and back (aeroplane flight).

At Hereford some interest has been excited by the opening out of an old vaulted cellar in St. Owen-street, just outside the old city walls. The walls to the height of 3ft. are in dressed stonework, and off this dwarf wall a barrel vault is carried over in brickwork. It was at first conjectured to be the crypt of the old church of St. Owen, destroyed during the Civil War; but Mr. Herbert Skryme writes showing that that edifice undoubtedly stood on the opposite side of the street, on land now covered by the municipal cottages, and that the cellar was merely one of those constructed beneath business premises, probably under an old hostelry. There are others in Hereford to be seen in High Town, Elgin-street, and Widemarsh-street.

STAIRCASE, ARDENRUN PLACE, BLINDLEY HEATH, SURREY.—Mr. Ernest Newton, V.P.R.I.B.A., Architect.

"THE BATHERS." Royal Academy of Arts Prize Design f

the Decoration of a Public Building. By R. Longstaff, 1910.



CHURCH OF ST MARY REDCLIFFE
BRISTOL
DRAWN BY A.C. FARE

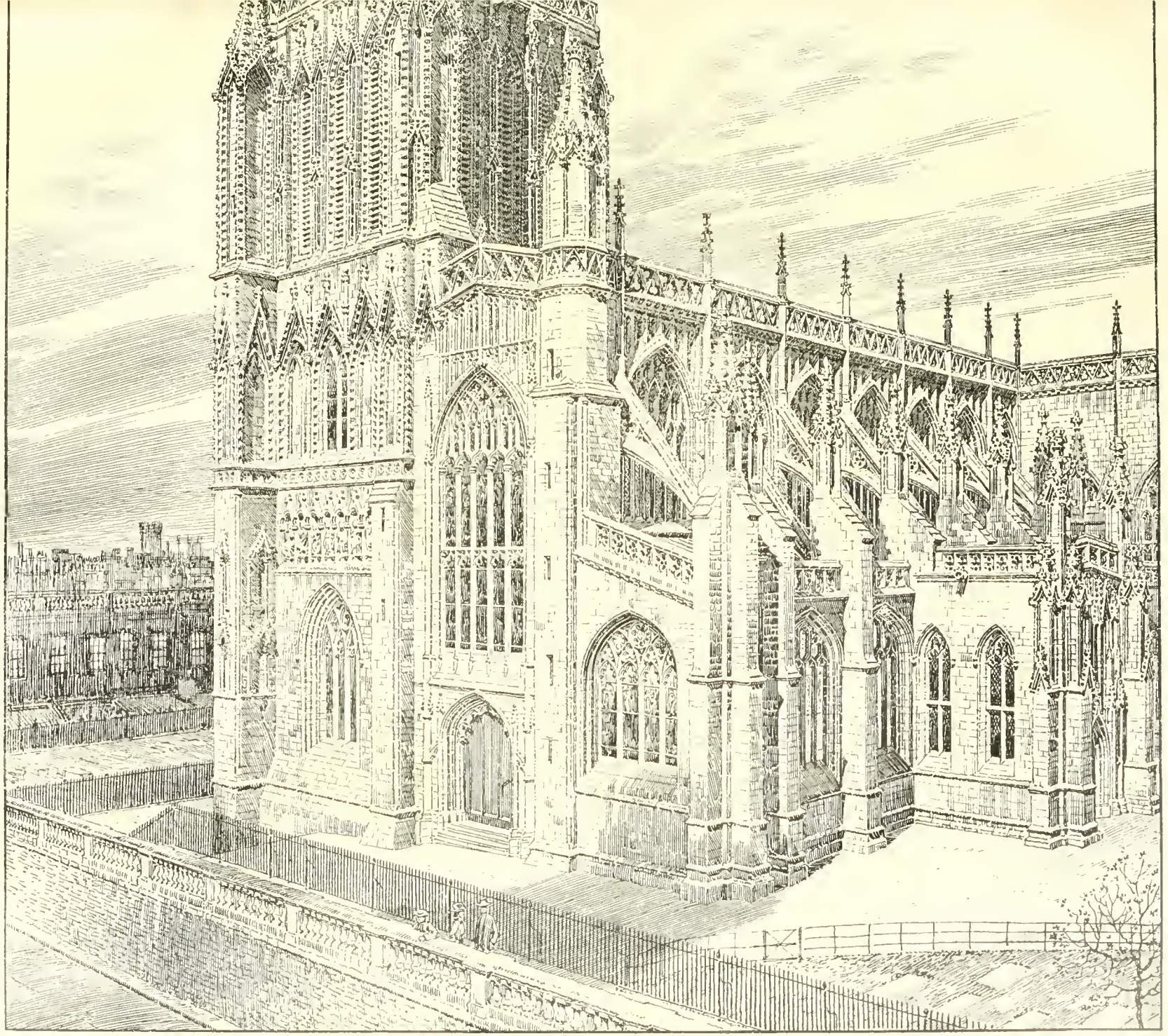
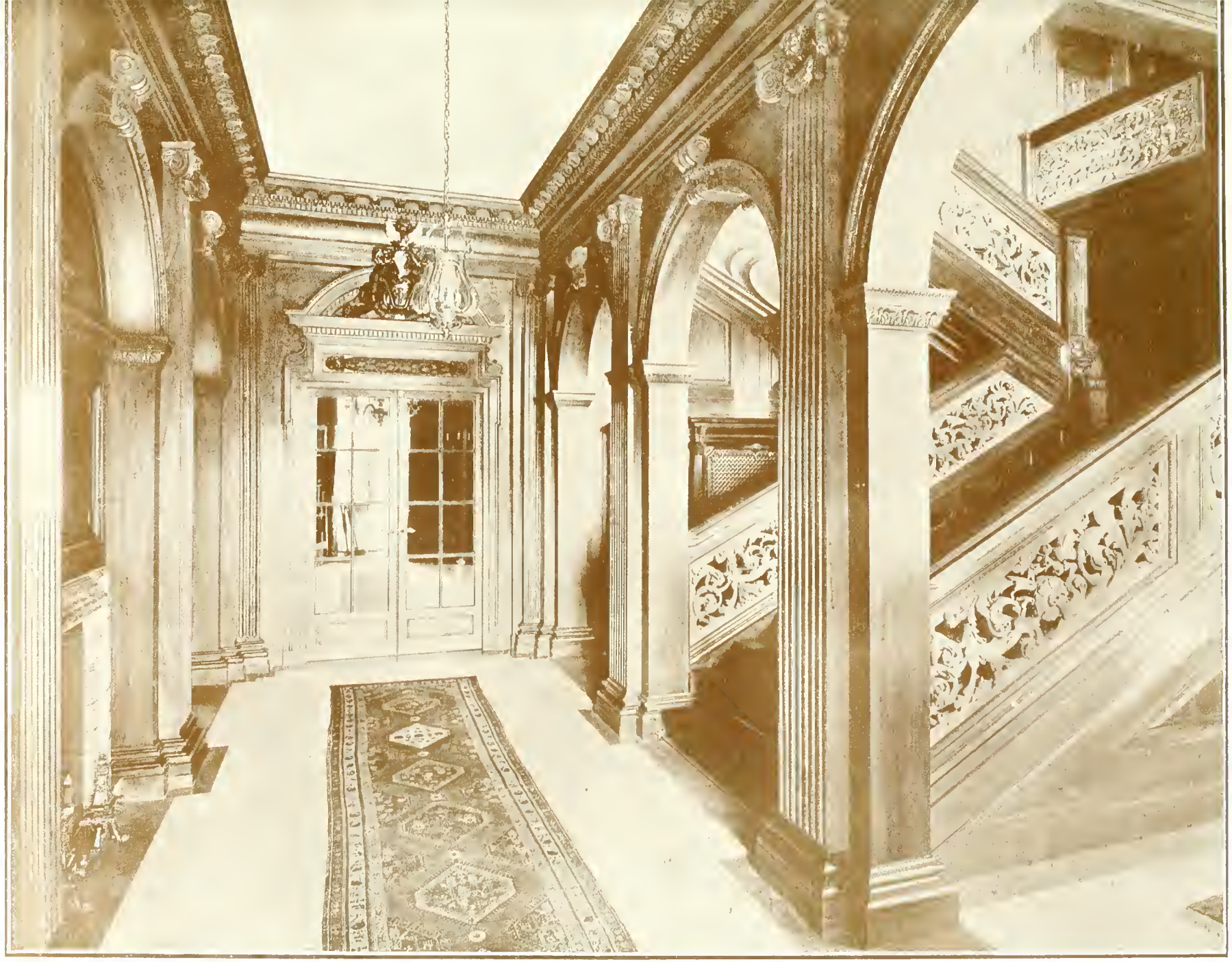


Photo Lithographed & Printed by James Akerman 6 Queen Square



STAIRCASE, ARDENRUN PLACE, BLINDLEY HEATH, SURREY.

ERNEST NEWTON, V.P.R.I.B.A., Architect

PRINCIPAL ENTRANCE HALL AT THE ROYAL INFIRMARY NEWCASTLE.
H. Percy Adams, F.R.I.B.A., and W. L. Newcombe, F.R.I.B.A., Joint Architects.

BRISTOL PUBLIC LIBRARY: PRINCIPAL ENTRANCE.
H. Percy Adams, F.R.I.B.A., Architect.

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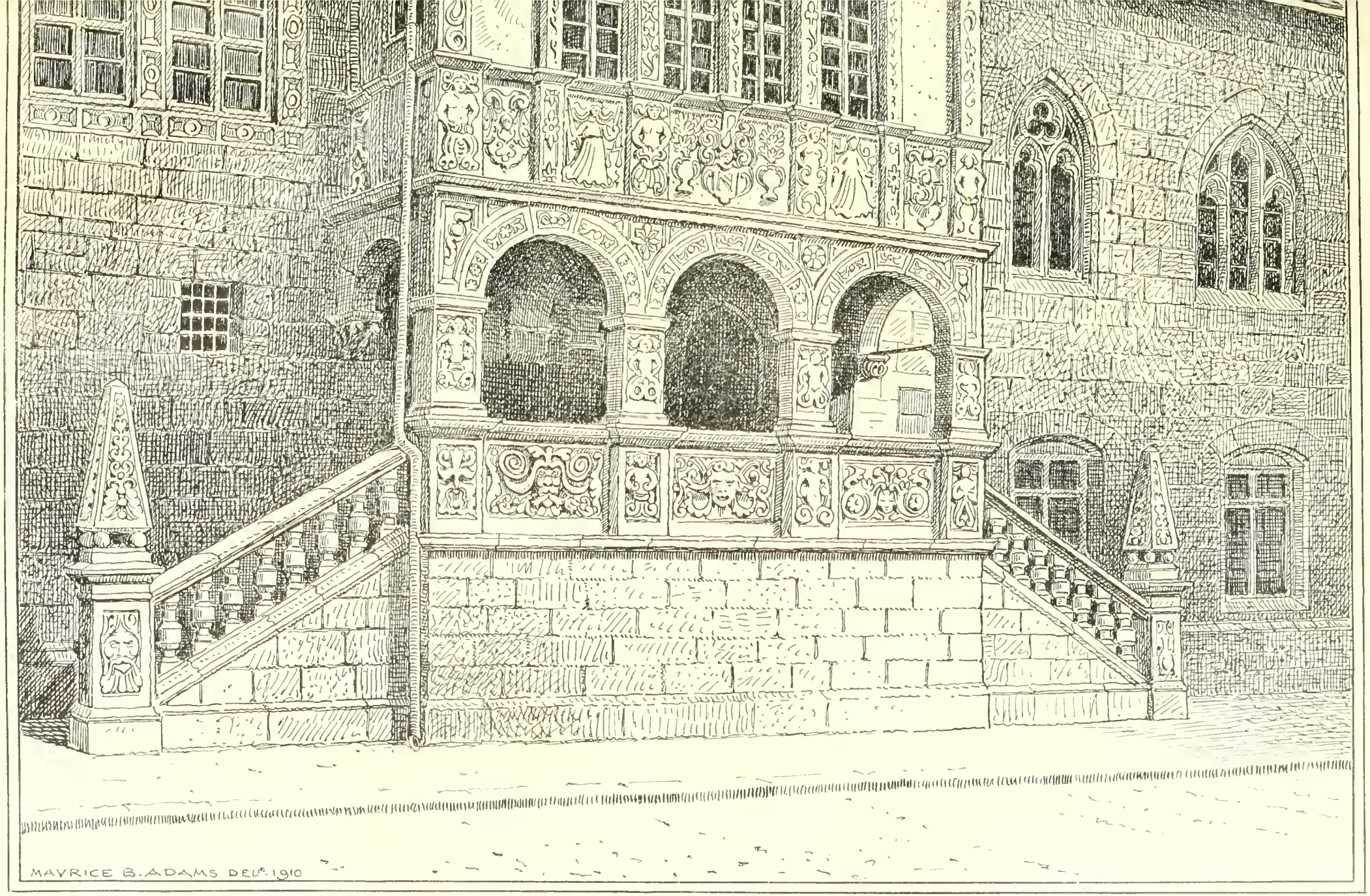
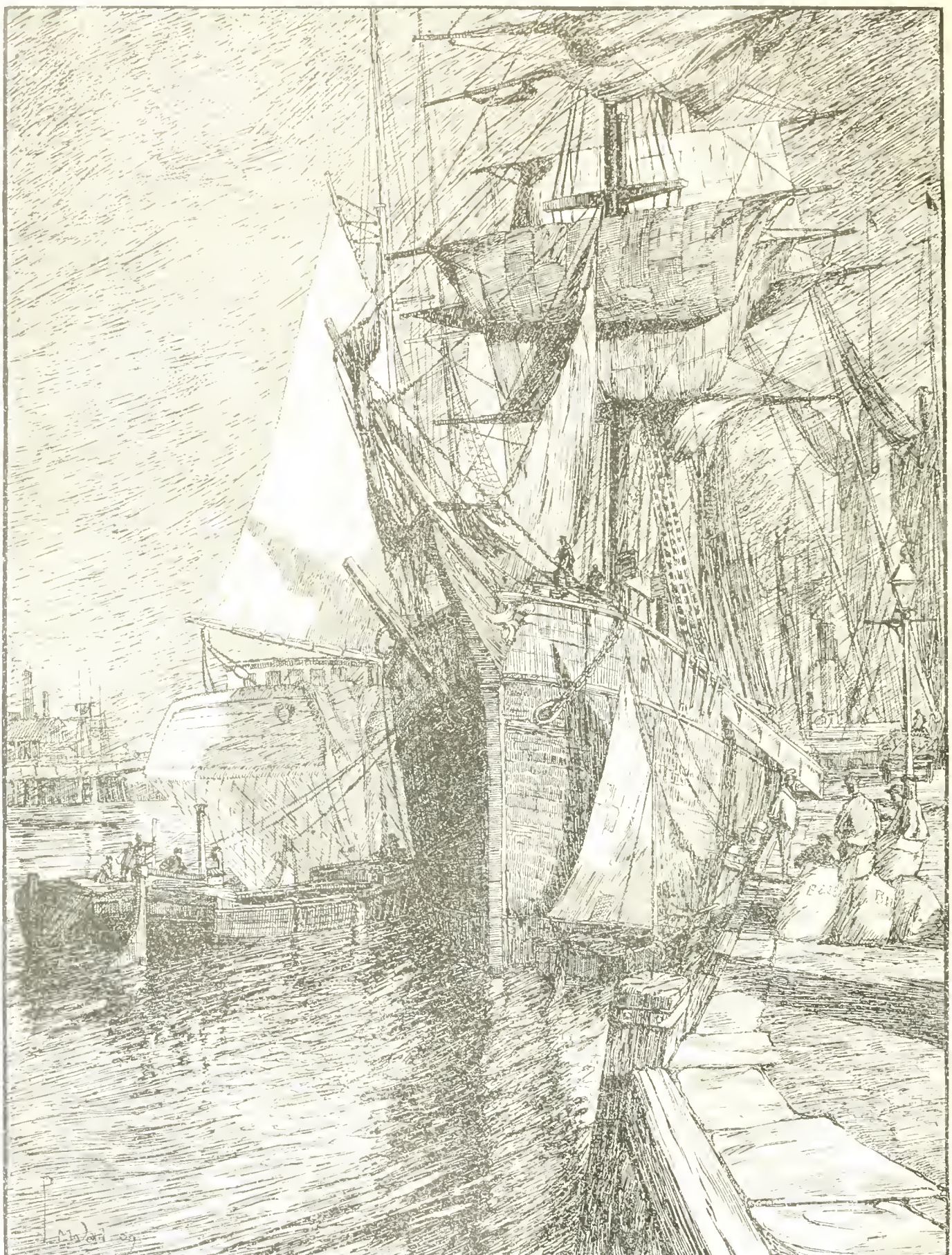


RATHHAUSE . HALBERSTADT : 1663

DRAWN BY MAURICE B. ADAMS FRIBA

SANT ANTONIO, PADUA.

Drawn by A. Wallace Rimington, A.R.E.



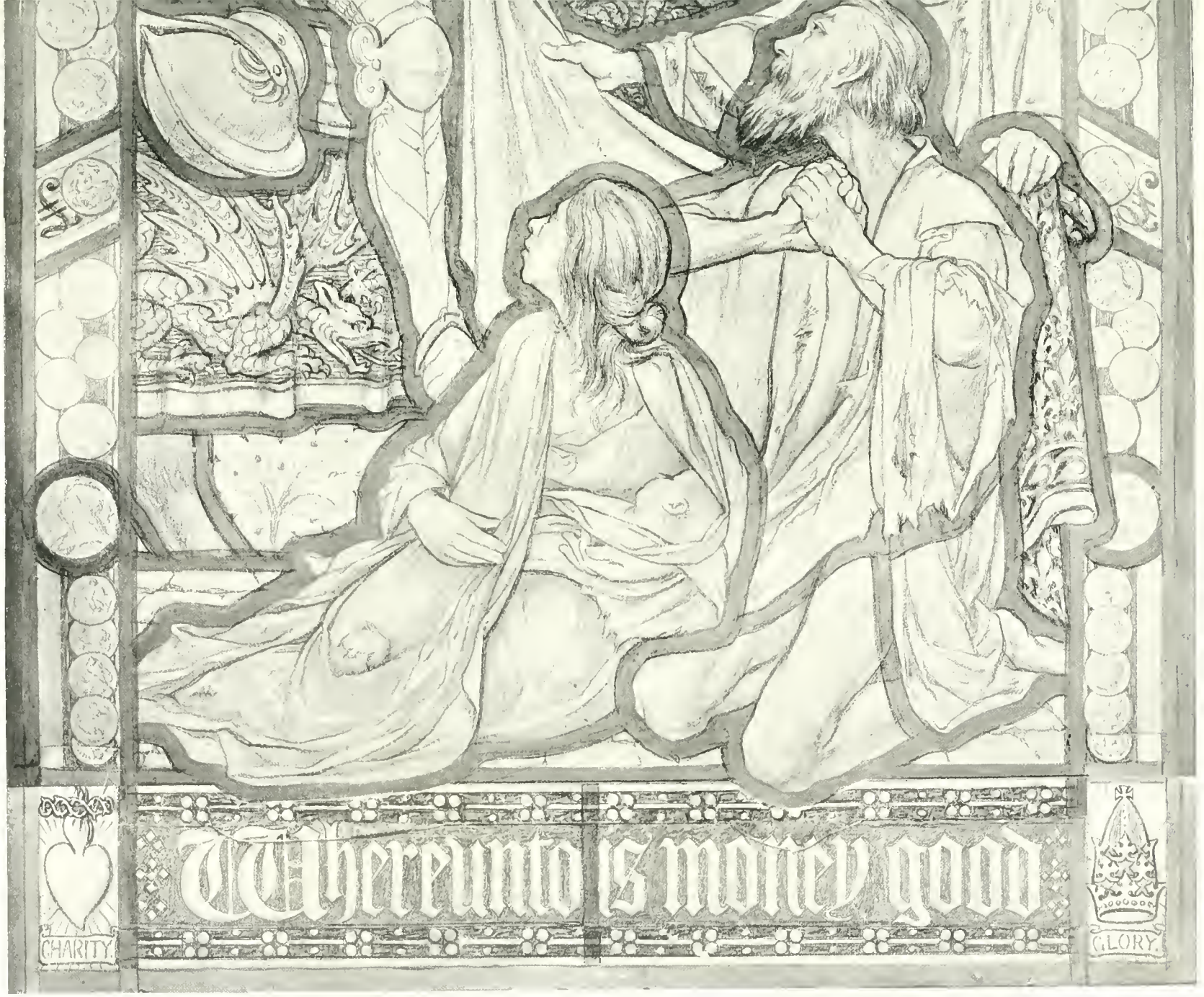
THE · QUAY · SIDE ·

ELBENS·FLOUR·MILL: POOLE.

Photo Lithographed & Printed by [illegible] Abraham & Queen Square W.C.

SKETCHES POOLE HARBOUR BY LESLIE M·WARD.
LUSTRATIONS

WHO GIVETH TO THE POOR
LENDETH TO THE LORD
CONCORD



NATIONAL GOLD MEDAL DESIGN FOR STAINED GLASS:
ST. GEORGE AND THE DRAGON. By Edward Ridley.

BY MARGARET L. WILLIAMS

"PHOTO-TINT" [illegible]

ROYAL ACADEMY PRIZE CARTOON OF A DRAPED FIGURE. AWARDED SILVER MEDAL & £20.

"Photo-Tint" by James Akerman & Sons

Royal Academy Prize Cartoon of a Draped Figure. Awarded Silver Medal & £25.

NATIONAL SILVER MEDAL MONOCHROME PAINTING OF ORNAMENT.—By Miss May Simpson.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to readers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that queriists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. K. H. Read, Technical Schools, Gloucester.

QUESTIONS.

[12984.]—TIMBER DOME.—Please show method of constructing timber dome (semicircular, 20ft. diam.) the external surface of which is parallel and covered with lead. The interior is to be prepared for a plaster panelled soffit following the curve of the extrados. I have seen domes covered externally with strips of lead, similar in appearance to moulded tiles, and laid in the same manner. Are these lead tiles cast in a mould? How are crockets to finish covered with lead?—Anxious.

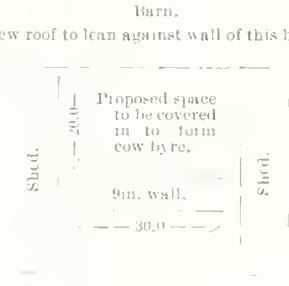
[12985.]—CASEMENT WINDOWS AND CAVITY WALLS.—I wish to erect some houses with casement windows in 11in. cavity walls. The opening is 6ft. 6in. wide and 5ft. high. Brick on end sills, and heads 2½in. projection for sills. The windows to be in 3 lights with side windows to open outwards. Transom, etc. The position is an exposed one, and I am anxious to have a watertight job. Details of the construction will oblige. —Constant Reader.

[12986.]—IRON TIES IN WALLS.—How long is it generally presumed that iron ties in hollow walls will retain their efficiency? I see some authorities allow only stoneware bonding bricks to be used. Have any experiments ever been made to test their durability? I should like to know how long iron ties are likely to last in walls near the sea coast.—Doubtful.

[12987.]—GARAGE.—I want information in regard to garage for private mansion, viz., size, pit size, and height, drainage water supply, petrol store, sketch plan, etc. Also approximate cost.—Sydenham.

[12988.]—SMALL HOLDINGS.—I need some help in reference to small holdings, such as accommodation, size of rooms and offices, approximate cost, &c. Any information will oblige.—Ravenswood.

[12989.]—ROOF.—I should be greatly obliged if some kind reader would give me an idea for a light, cheap, lean-to roof to cover over an open space 30ft. long by 20ft. wide, the roof to be covered with slates. See accompanying plan.—.



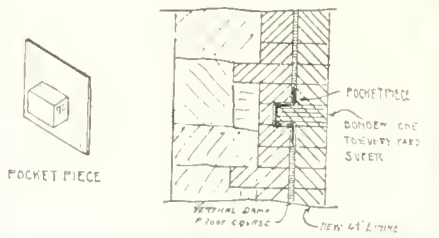
A lean-to roof is required to avoid difficulties and expense of gutter at back along barn wall.—Puzzled.

[12990.]—CONCRETE WORK.—Can any reader give me the necessary working particulars in connection with the following concrete work? It is proposed to use stout galvanised hoop iron for the short lintels, and T-irons for the longer ones up to 9.0 in length, to carry 9in. beach-cement 9in. concrete walls, solid. (1) Fine shingle-cement lintels, covered with roughcast outside, 9in. high, 4½in. on bed. (2) Coke breeze on clinker-cement lintels, to take plaster and nails, 9in. high, 4½in. bed, one of either to each opening. (3) Tar-beach concrete to use in lieu of ordinary footings and damp-proof course. Top about 11in. to be on level with floor concrete and floor-boards) and bottom 18in. wide, and 9in. to 12in. deep. Ground level 6in. below floor. Is this concrete suitable? The site is beach, and has little or no dampness. (4) Weight of beach cement concrete per foot cube.—Enquirer.

[12991.]—SOUND THROUGH WALLS.—Could any reader inform me how to prevent the constant noise of piano playing penetrating through into an adjoining house? For instance, there is a school adjoining a house, in which they are playing four pianos the whole day; consequently the house lies vacant, as I cannot get a tenant to stop. The house is four stories high, and the noise is as bad at the top as at the bottom.—Piano Player.

REPLIES.

[12984.]—POROUS STONE.—The walls are evidently too thin for an exposed position such as a tower room, 18in. being considered the minimum, whilst the half-brick lining further reduces the actual thickness of the stone, porous at the best of times. With regard to the preservatives, there are numerous processes on the market, and the actual results are satisfactory for a year or so, but not longer, especially in an exposed position. Amongst those containing organic substances may be mentioned paint, oil, paraffin, soft soap, and alum, and paraffin dissolved in naphtha. Those not containing organic substances, soluble silica (this is apt to effloresce and so injure the face of the walls), alkaline silicates



(a solution of silicates of potash or soda), and combinations of some bituminous substances. With the foregoing, all the above are applied with a brush after the stonework has been well cleaned down, but only arrests the action for a time. If the tower room is a useful room, and it is not considered too expensive, the best method would be to line the walls with another 4½in. brick lining, having a vertical damp-proof course of bitumen or Hygeian Rock composition. The band to be obtained by cutting out a header in the existing walls, and using a pocket piece in the same manner as you would line the walls to an existing basement or cellar. —K. H. Read, Lecturer on Building Construction, Gloucester Technical Schools.

[12983.—POROUS STONE.—Walls faced with soft stone and much exposed to the weather are almost sure to be repeatedly damp, owing to the absorptive properties and porosity of such stone due to the state of aggregation of the individual grains, and the nature of the cementing material that binds them together, including the chemical relation of the silica to the other ingredients. The Forest of Dean stone used, however, must have been that obtained from the upper bed, which is of a very soft texture, and quite unsuitable for work much exposed; the second and third beds weather well, especially the latter beds, which variety has been extensively used for works much exposed, yet little affected. There are several transparent solutions on the market for dressing soft and porous stones, some of which have permanently checked the penetration of moisture. It may also be pointed out that there are several stone-preserving solutions, although some are identical to and answer the purpose of both stone preserving and petrifying, yet care should be taken to obtain the latter. One of the best and most effective solutions is a composition prepared as follows:—Dissolve 6lb. of pale or colourless resin in one gallon of shale naphtha, and then add 2oz. of raw guttapercha dissolved in one pint of bisulphide of carbon, strained, and well mixed with two gallons of raw linseed oil, when a durable, petrifying solution will be obtained. The carbon bisulphide (CS_2) is a colourless volatile heavy liquid, giving off an extremely offensive and inflammable vapour; but it is an excellent solvent, dissolving guttapercha, forming a vulcanisable solution. Two coats will be sufficient, applied with a heavy varnish brush; but if the stone is very porous the composition must be rendered more fluid by the addition of shale naphtha for the first coat for complete penetration into the stone by absorption. Remove any impurities that may rise to the surface before applying the second coat. The writer has used this solution in several instances (especially for soft varieties of sandstones consisting chiefly of clayey constituents) for damp stone walls with excellent results, not only rendering the walls so treated damp-proof, but adding considerably to the resistance of the stone to atmospheric influences, which keeps it always fresh and clean. It may be noted that the stone is slightly darkened by this treatment, but eventually tones down, or the difference in colour is scarcely observable. The moisture in the walls must be allowed to dry on as much as possible, and the surface freed from all foreign matter before any treatment is applied, whether the above or any other solution. The internal plastering should be well brushed down, so as to remove the efflorescence, and the defective parts made good in Keene's cement. There are several other water-proof preparations useful for the purpose, whose damp-resisting influences depend on the presence of soluble silica, which combines with substances contained in or added to the stone under treatment. By this means insoluble silicates are formed thus impervious surfaces are the result.—Chas. A. Longley, 52, Ivanhoe-road, Denmark Park, London.

[12983.]—POROUS STONE.—If the walls of the tower room had been built with a cavity between the stone facing and brick backing, the trouble now experienced with driving rain would have been obviated. If "Enquirer" is certain there is a proper damp-proof course inserted a few inches above ground level, and also that the pointing is in good condition, then the remedy he suggests—viz., washing the surface over with a solution to seal the pores—may be tried. The following are two recipes for damp walls.—(1) Take ¾lb. mottled soap to 1 gallon of water, to be applied boiling over the surface with a brush (not to be frothed), leave it for twenty four hours to dry; then apply ¾lb. of alum to four gallons of water, leaving it for twelve hours to dissolve, and to be laid on as before. Hot weather is best for the application. (2) Ingredients: 2½lb. of soft soap, 1lb. of rock alum, 1 gallon linseed oil. Method: The soap and oil to be boiled over a good fire a considerable time till perfectly amalgamated. The alum to be finely powdered and mixed with the oil in small quantities at a time, and the mixture to be constantly stirred until the alum is incorporated with the oil and soap. When this is done the mixture is to be strained off into cans for use. The mixture requires particular attention, both in preparing and applying it, to insure success. It is very important the walls should be perfectly dry when applied, and it must be applied slowly and carefully on the surface to be covered.—J. W. Thorpe, 5, Woodville-terrace, Lytham.

WATER SUPPLY AND SANITARY MATTERS.

WATER PURIFICATION BY CHLORINE.—Mr. L. Walker, the manager of the Reading Waterworks, has reported to the town council of that borough that Dr. J. C. Thresh and Dr. J. F. Beale, both of the London Hospital Medical College, recently visited the works, and having thoroughly examined the new system of filtration, expressed themselves entirely satisfied with the working and with the results obtained. Dr. Thresh wrote that, being the first in this country to realise the possibilities of chlorine as a water-purification agent and to demonstrate the destructive effect of very minute quantities on the bacilli of typhoid fever and cholera, he was greatly interested in the results obtained by Mr. Walker with the Declor process. Mr. Walker had not only solved the water-purification problem for Reading, but had set an example which, sooner or later, would be followed throughout the civilised world. Why should any water authority continue to supply water liable to the least suspicion when by so simple a process absolute safety could be insured?

Extensions of plant at Halifax electricity works are proposed, at a cost of £7,954.

Mr. Thomas Brown, of Penicuik, has been appointed burgh surveyor to the Tranent Town Council.

The death is announced of Mr. Charles Sharman, surveyor to the Sleaford Rural District Council.

Mr. Joseph Lees, of Smith-street, Oldham, Lancs, builder, who died on April 26, leaves estate valued at £7,754 gross.

A new post-office is about to be built for Bo'ness at the corner of Kinneil and East Pier streets. The architect is Mr. James Thomson, of Bo'ness.

At last Thursday's meeting of the corporation of Falmouth Mr. John Sewell Walton, A.M.I.C.E., M.R.S.I., was appointed borough engineer and surveyor, as successor to the late Mr. Tresidder.

Council schools, to accommodate 250 infants, erected by the Rowley Regis Education Committee on a site under the Rowley Hills at Tividale, were opened on Monday. The cost has been £3,440.

Mr. Alfred J. Coffey has been appointed city architect of San Francisco, Cal. Mr. Coffey is a native of San Francisco, and at the time of his appointment was a member of the architectural firm of Martens and Coffey.

The winter gardens and skating-rink which have been built as an annexe to the Pavilion Theatre at Weymouth, from the designs of the Pavilion architects, Messrs. Mangnall and Littlewoods, of Manchester, were opened last week.

Negotiations have been completed for the acquisition of 50 acres of land on Swansea Burrows, near the new King's Docks, for the erection of new works for Messrs. Chance and Hunt, chemical manufacturers, of Oldbury, Birmingham.

Dundee Water Committee has agreed to purchase from the Earl of Airlie 260 acres of land at Lintrathen for the purpose of raising the level of the loch from which the main supply of water for Dundee is drawn. The purchase price is £6,868.

On behalf of the Local Government Board, Major C. E. Norton, R.E., and Mr. Thomas Adams held an inquiry at the Council House, Birmingham, on Wednesday, as to the town-planning scheme which the corporation has prepared for approval for Harborne and Quinton.

A nurses' home, to contain seventy-five separate bedrooms is about to be begun on a site opposite to the London Homœopathic Hospital, in Queen-square, Bloomsbury. The tender for the new home is £13,596, and the cost of the site about £6,000. The board have £6,000 in hand.

Our Office Table.

In our article last week, illustrating the ferro-concrete work at the New Wesleyan Hall, Westminster, we should have mentioned the structural steelwork is being made and erected by Messrs. Archibald D. Dawnay and Sons, Ltd., of Battersea. We shall publish a further article shortly, illustrating this, including some interesting particulars of the steel-framed upper dome.

Among the recipients of knighthoods on New Year's Day are Mr. Sidney Colvin, who since 1884 has been the Keeper of Prints and Drawings at the British Museum, and who was from 1873 to 1885 the Slade Professor of Fine Art at Cambridge; Mr. Charles Fortescue Brickdale, the Registrar of the Office of Land Registry, and joint author with Mr. W. R. Sheldon of textbooks on the Land Transfer Acts of 1875 and 1897; Mr. James Charles Inglis, the general manager of the Great Western Railway, who was last year the President of the Institution of Civil Engineers; and Mr. George Laurence Gomme, F.S.A., the scholarly clerk to the London County Council. Sir George Gomme, as we shall henceforth know him, was on the staff of the Metropolitan Board of Works before that body gave place to the County Council, and was the Council's statistical officer previously to his appointment as clerk in 1900. He has been editor of the "Antiquary" and the "Archæological Review." He founded the Folk-Lore Society, and the interesting notes on Old London which accompany the record of every public improvement carried out by the County Council, and many papers on local government topics are from his pen.

Mr. Frederick Litchfield, secretary of the Co-partnership Council, states in his report that the housing of the people in garden suburbs on the co-partnership principle has increased by 50 per cent. on last year's results. When the work in hand has been completed, it is estimated that the total cost will have amounted to £2,105,990. The societies affiliated are at Ealing, Garden City (Letchworth), Sevenoaks, Leicester, Manchester, Hampstead (three), Harborne, Fellings Park, Stoke-on-Trent, Derwent Water, Liverpool, and Seal, and provide houses at ten or twelve to the acre, which are let to investors desirous of becoming tenants. On the society's shares 5 per cent. interest is paid and 4 per cent. on loan stock, the profits after payment of this rate of interest being credited to the tenants by way of dividend. The movement was started at Ealing in 1903, and in that year £10,237 was expended. The amount was increased by 70 per cent. in the following year, and the increase afterwards was at the rate of 100 per cent. in 1905, 200 per cent. in 1906, 100 per cent. in 1907, 75 per cent. in 1908, and 50 per cent. in 1909, and this year the expenditure has been £272,700, which is an increase of more than 50 per cent. of the amount to the end of 1909. During the coming year it is proposed to raise at least £100,000 more capital in order that the existing estates may be more rapidly developed, and new estates brought within the purview of the society.

The solicitors to the trustees under the will of the late Mr. R. W. Sutton, of London, have written to the town clerk of Manchester pointing out that they are about to apply to the Court for liberty to acquire sites for the erection of model dwellings for the poor under the trusts of the testator's will in eight provincial cities and in two districts in London. A sum of about £500,000 will be spent. In support of the application they ask for a letter from the town clerk stating whether, in the opinion of his corporation, further housing accommodation for the poor is wanted, and in what particular district of the city, and whether block buildings or cottages on the principle of a garden suburb are the more desirable to meet the requirements of the locality. If and when the Court approves of the proposed scheme, they propose to obtain liberty to negotiate for a site in each city, when further detailed evidence will be necessary with regard to each particular site. Manchester is one of the cities selected by the trustees for submission to the Court as one in which a site should be acquired. The town clerk, acting under the instructions of the sanitary committee, has replied stating that there is need for housing accommodation for the poor in the city, and respectfully suggesting to the trustees the desirability of providing block buildings in a poor and densely populated centre of the city.

Mr. Banister Fletcher, F.R.I.B.A., commenced a course of twelve University Extension lectures on "Roman, Early Christian, and Byzantine Architecture" at the British Museum (by permission of the Trustees) on Tuesday last at 4.30 p.m. Also a course of twelve lectures on "English, Spanish, German, and Dutch Gothic Architecture" at the Victoria and Albert Museum (by permission of the Board of Education), on the previous day, Monday, at 5 p.m. These courses are being illustrated by lantern-slides, photographs, diagrams, and models, and will appeal not only to architects, but to the general public, to whom a knowledge of architecture is now recognised as a necessity. Full particulars can be obtained from Miss Gaudet, 120, Cheyne-walk, Chelsea, S.W.

During his excavations at Ostria last autumn Professor Dante Vaglieri was able to open out the city walls, which date from the late period of the Republic; indeed, the earliest of his discoveries do not go back beyond the third century B.C. The original chief gate of the city has been discovered—an edifice at first of tufa and then of travertine, with marble decorations. One of these latter Professor Vaglieri supposes to have been the large Winged Minerva, found in a square between two adjacent streets only a little below the surface, and which dates from the second century B.C. Parts of the cornice of the gate have also been exhumed from beneath the principal street. Immediately within the gate stood a portico, which preserved its original form in Imperial times, and contains remains of some original blocks of tufa. At the end of this portico a piece of stone bears the name of "Cammus, the urban praetor," whose name likewise appears on two other similar blocks, and who declares this land to be "the property of the city." His date is unknown; but the lettering cannot be later than the time of Sulla. Near the entrance of the theatre another building of the Republican age has been discovered, together with a tomb, containing terracotta jars, lamps, and red varnished vases of the last period before the Empire. What Professor Vaglieri considers the first street made at Ostia has been unearthed, together with pieces of the later water-pipes bearing in one place the name of Caligula, and elsewhere an ascription to the colony of Ostia. It is conjectured that Caligula constructed the conduit, which subsequently became the property of the municipality. In the castle at Ostia some frescoes have been discovered, among them an escutcheon of Pope Paul III., and an unidentified medallion in chiaroscuro.

The *Daily Graphic*, which on Wednesday celebrated its twenty-first birthday, has received many messages of congratulation from leaders of thought in religion, politics, science, literature, and art. The following message has been received from the King, dated Sandringham, Tuesday.—"The King is interested to learn that to-morrow completes twenty-one years of the *Daily Graphic*. His Majesty congratulates you upon the successful way in which the paper has been managed, and trusts it may continue to enjoy many years of prosperity.—(Signed) Arthur Bigge." Our contemporary has good reason to felicitate itself on the King's discerning message; and the rest of us that in these days of journalism of a very different sort, the "way in which the paper has been managed" by those responsible for the *Daily Graphic* has not escaped royal recognition.

The total length of roads other than main roads maintained by rural district councils in England and Wales last year was 95,144 miles, of which 92,273 miles were kept metalled and paved, says the Local Government Board. The expenditure, not defrayed out of borrowed moneys, of rural district councils in respect of roads other than main roads included £2,160,492 spent on the maintenance and repair of such roads, and £52,067 on their improvement. The expenditure in respect of roads of this class defrayed out of borrowed moneys during the year amounted to £16,085. The average expenditure during the year in respect of the cost of ordinary maintenance and repair of these roads, excluding improvement, was £22 14s. per mile. Rural district councils maintained 6,462 miles of main roads, and received from county councils in respect of these roads contributions amounting to £508,163. The expenditure of the rural district councils on these main roads during the year included £466,068 for maintenance and repair, and £12,591 for improvements. The expenditure on maintenance and repair (excluding improvements) represented an average charge of £72 2s. per mile of the roads in question. The county councils maintained 17,637 miles of main roads, on which they expended £1,423,036.

According to Messrs. Denny, Mott, and Dickson's circular, the year just closed has been a fairly satisfactory one to timber traders, who have found the higher cost of timber generally justified by the supplies having broadly proved to be very evenly balanced with the demand, with the result of smooth trading and a living profit to merchants and dealers, although such margin of profit has been none too ample when the risk of bad debts is borne in mind. Failures in the timber trade during the past year have been unpleasantly heavy, and there has been a lack of general expansion in the volume of business.

H.M. Consul-General at Hamburg (Sir W. Ward, K.C.M.G., C.V.O.) has furnished the following particulars relative to the cement industry of Germany:—In the autumn of 1909 the German cement factories came to an agreement to raise the minimum prices of cement for export, but this agreement lasted for only a very short period, and export prices sank to their former level as soon as it became evident that the negotiations of the German groups in regard to the home trade would not lead to a satisfactory conclusion. In November, 1909, several of the German groups were dissolved, and this is said to have been the cause of much excited competition in Berlin, and large contracts were then made at prices equal to the cost of production. The Berlin group and the central German Union of Cement Factories were unable to agree owing to the exorbitant demands of the newly founded factories. These circumstances, combined with the competiton of Belgian cement in Westphalia and in the Rhine Province, led to a general reduction of prices. Then came the general strike in the building industry in the summer of 1909, and the results revealed by the reports of those works which closed their balances in June were far from satisfactory. On the other hand, the export business has been brisk, especially during the last few months; but this activity has not been sufficient to relieve the factories of the large stocks which had accumulated, more especially in Central Germany. In spite of this unfavourable state of the industry, the number of new factories has still further increased, a circumstance which for a long time deferred the realisation of an agreement among the German groups. After protracted negotiations an agreement was reached in November; but a considerable number of the factories have not accepted it. The prospects for the year 1911 are not considered as encouraging, and the only favourable feature in the situation is thought to be that little money is available for the establishment of further new undertakings. The demand for cement, however, remains large, and is probably increasing, and as the cement trade abroad is also improving, it is hoped in Germany that an improvement may be anticipated towards the end of 1911.

Messrs. H. O. and J. Hutchinson, 3, Lancelot's Hey, Liverpool, send us a copy of a publication entitled "Railway Rebates from Private Sidings Traffic," by Harold Osborne. The price is 3s. 6d. net. It will be found useful by builders and builders'

merchants [illegible] with many other trades, are prejudiced in their dealings with railway companies, [illegible] of their greatness of their position.

The Urban District Council [illegible] Regional Plans and Highways [illegible] stating that they had [illegible] plans submitted on behalf [illegible] Gold Land Society [illegible] Park Estate, recently [illegible] The estate abuts [illegible] west, Wood street [illegible] Parkland on the east, and [illegible] Park [illegible] comprise [illegible] about 16 acres [illegible] that the development [illegible] an opportunity of making [illegible] to have it carried out [illegible] Town Planning Act, 1909, and also [illegible] on favourable terms, a piece of land as an addition to the Caldecott Park. It [illegible] that the park might abut on the proposed extension of Manor road. With this object the committee approached the owners of the estate, who agreed to sell for £2,500, three acres, two acres of land to be added to the park. It was necessary for an additional by-law with respect to new streets to be made, the Council and the chairman of the committee had had an interview with the chief officials of the Local Government Board on the subject. The Board had had prepared a draft by-law to meet the case, which the committee had considered and amended. The proposed by-law as amended was submitted for approval, and the committee recommended that, subject to the by-law being approved and adopted, the plan of the estate prepared by Messrs. Franklin and Newman, of Rugby, be approved, and that a provisional contract be entered into with the Rugby Freehold Land Society for the purchase of the piece of land adjoining the Caldecott Park, and lying between the park and the proposed extension of Manor road. After some discussion the recommendations were adopted.

Which are the ten most beautiful buildings in the United States? A great voting contest of American architects and architectural students gave this list. The Capitol and the Congressional Library in Washington; the Public Library and Trinity Church in Boston; Columbia Library, Trinity Church, St. Patrick's Cathedral, the City Hall and Madison Square Garden in New York, and the Vanderbilt residence, Biltmore, in North Carolina. All of these buildings are in the Eastern States. Three of them are libraries and three are churches. One capitol, one city hall, one place of amusement, and one residence complete the list. Not a single state capitol, or theatre or gallery of art, or monumental museum, has a place.

A noteworthy feature of the new library designed for the University of California by J. C. Howard, architect, is the main reading room, 210ft. long by 54ft. wide, with a maximum height of 15ft. The profile of the ceiling, approximately elliptical, was struck from five centres. The roof principals are of somewhat unusual form, owing to the position and slope of the roof and the position of the curved ceiling. Although ample depth was secured at the middle of the principals, the distance between the ceiling and the outer surface was so small that the web was formed of steel plates so as to impart the requisite strength to the construction. Moreover, to secure the maximum possible depth for the principals, the upper and lower flanges were spaced so that the purlins when riveted in place should have their upper surface flush with the top of the principals, and that the beams carrying the ceiling supports should be flush with the bottom of the principals. Further lateral bracing was provided by lattice girders, 3ft. 1½in. deep, riveted between the principals at the distance of 8ft. 11in. from the centre line. The principals measure 57ft. 1in. from centre to centre of the supporting columns, and they are spaced apart at distances ranging from 15ft. to 30ft.

Brick is made from ore slag in moulds at Brisbane, Queensland. The bricks have been found equally useful in the erection of offices and [illegible] of water tanks, retaining walls, piers for ore bins, and bases for chimney stacks. The moulds used in making the bricks consist of two L-shaped cast-iron plates. The three features which have proved important are: First, the thickness of the metal, sufficient to chill the slag without becoming overheated; secondly, the reinforcing of the angles to minimise warping; and, thirdly, the adaptation of these reinforcements to form distance pieces by which means space for the circulation is maintained between adjoining moulds. These plates, having been set upon edge on the levelled surface of the slag dump, and arranged to form rows of twenty moulds or thereabouts, are bunked up with one and a half inches of dry sand or ashes. The slag is poured into the moulds from the ordinary hand-drawn slag pots, which are filled from the double bowl horse-pots now in use on this mine. As soon as the bricks have solidified, the moulds are removed and set up afresh elsewhere. After from ten to fourteen hours the bricks are cool enough for handling. Their average weight is 80lb., and, when tested with the rough appliances available, they have successfully withstood a crushing stress of thirteen tons per square foot without showing any sign of strain or collapse.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY TO-DAY.—Institution of Civil Engineers. "The Measurement of Boiler Deformations," by G. F. Davidson, B.E. 8 p.m.
Birmingham Architectural Association. "Modern Churches," by Charles Spooner.

MONDAY. Victoria and Albert Museum. "The Evolution of English Mediæval Plans, Vaults, and Buttresses" (Lantern Illustrations), by Banister F. Fletcher, F.R.I.B.A. 5 p.m.
Architectural Association. "Architecture Considered as Planned Section," by H. H. Statham, F.R.I.B.A. 7.30 p.m.
Surveyors' Institution. "Notes on Highway Law," by E. H. Blake, F.S.I. 8 p.m.

TUESDAY. British Museum. "The Roman Fora and Rectangular Temples" (Lantern Illustrations), by Banister F. Fletcher, F.R.I.B.A. 4.30 p.m.)
Institute of Sanitary Engineers. "Quantities and Measurements of Sanitary Works," by G. W. Chilvers. 7 p.m.
Guild of Architects' Assistants. "Art and Registration," by H. Guichardo Todd, F.S.A.Scot., M.S.A. 7.30 p.m.
Institution of Civil Engineers. "The Strengthening of the Roof of New street Station, Birmingham," and "The Reconstruction and Widening of Arley Bridge, Warrington," by W. Dawson. 8 p.m.

WEDNESDAY.—Institution of Civil Engineers. Students' Visit to the Underground Electric Railways Generating Station in Lot's-road, Chelsea.
Manchester Society of Architects. "Sculpture," by H. Hodge, 16, St. Mary's Parsonage. 6.30 p.m.
Northern Architectural Association. "Town Planning in Germany," by J. Walton Taylor, F.R.I.B.A. 7.30 p.m.
Edinburgh Architectural Association. 8 p.m.

THURSDAY.—The Society of Architects. 8 p.m.
Leeds and Yorkshire Architectural Society. Annual Dinner, Queen's Hotel, Leeds.
Sheffield Society of Architects and Surveyors. "The Decline of Artistic Handicraft," by S. Perkins Pick, F.R.I.B.A.

The trustees of the National Gallery have accepted the original models of the busts of "Lord Brougham" and "Cardinal Manning," by the late John Adams Acton, the sculptor.

The death occurred on Wednesday of Mr. James Wallace, for some forty years head master of the Berwick School of Art and an artist of considerable repute.

It is estimated that the rebuilding of St. James's Church, Milton, which is to be undertaken as Portsmouth's memorial to the late Canon Bernard Wilson, late vicar of Portsea, will cost about £10,000. It is hoped that the foundation stone may be laid this year.

The new Territorial Headquarters at Willesden, towards the erection of which the War Office has consented to contribute £6,900, is intended for the accommodation of the 9th Battalion of the Middlesex Regiment, which is to be transferred from its present headquarters in St. John's Wood to the new buildings.

TRADE NOTES.

The [illegible] of Mr. Charles R. Price-Gate, S.J. Scott, [illegible] builder and contractor, have been removed from 139, Bishopsgate-street Without to 87, Bishopsgate, E.C.

The extensions to the Henry Smith School, Hartlepool, are being ventilated by means of Shotland's patent exhaust roof ventilators, etc., supplied by Messrs. E. H. Shotland and Brother, Ltd., of Failsworth, Manchester.

Under the direction of Mr. R. L. Roberts, architect, of Abercarn, the Boyle system of natural ventilation, embracing the latest patent "Air pump" ventilators and air-inlets, has been applied to the new schools, Abertillery.

Through the action of the authorities in amalgamating Bishopsgate-street Within with Bishopsgate-street Without (to be known as Bishopsgate), Mr. Howard Chatfield Clarke's address has been altered as from January 1 to No. 102, Bishopsgate, E.C.

Messrs. F. Boreham and Son, architects, of 73 and 75, Finsbury Pavement, have taken into partnership Mr. Alfred Gladding, A.R.I.B.A., of Birmingham, and the firm will in future practise at the same address under the title of F. Boreham, Son and Gladding.

The Wouldham Cement Company, Ltd., 35, Great St. Helens, London, E.C., send us one of their large wall calendars, which is most useful both in itself and as a reminder of the unrivalled reputation and increasing business of this well-known and always reliable company.

Mr. Tom W. Smith, of the late firm of Jonas Smith and Co., moulding and joinery manufacturers, of Belvedere-road, S.E., notifies us that he has entirely severed his connection with Messrs. Tom W. Smith and Co., of Woking. Inquiries and orders intended for him will receive prompt attention if addressed to him at "Wykeham," Woking.

Bell's United Asbestos Co., Ltd., have in hand various contracts for roofing with their "Poilite" Asbestos Cement Tiles, viz., Generating Station at Scunthorpe, Doncaster, for Messrs. John Lysaght, Ltd., of Newport, Mon., and Doncaster generating works for Siemens Dynamo Works Co., Ltd., Stafford, the West Gorton Chemical Works, Manchester, various sheds for the Great Western Railway Co. at Swindon, the whole works of the Dulais Tinplate Co., Ltd., Pontardulais, South Wales, sheds for Messrs. Richard Thomas and Co., Ltd., Llanelly. The use of "Poilite" marks a new era in engineering circles where corrugated iron has hitherto been used for the roofing of engineering factories.

It is anticipated that the work of restoration at Winchester Cathedral, which is now almost confined to the nave, will occupy at least another twelve months, but no contract has yet been entered into with regard to the south aisle of the nave, and it is estimated this will cost at least £4,000.

An appeal is being made for funds to widen and lengthen the chancel of Lindale Church, Cartmel, Lancashire, build a new vestry, enlarge the organ chamber, remove an unsightly gallery, build an aisle on the north side of the nave, and re-seat the church. The building of an aisle will form a memorial to the late Sir John T. Hibbert.

The two-light south window in the sanctuary of Merton Parish Church, where Lord Nelson worshipped, has just been filled with figures of the Saviour giving the blessing and holding the paten and St. John with cup and book. The windows have been given in memory of the Rev. John Callard Erck, vicar of Merton from 1863 to 1887.

The restoration of the old parish church at Esher is rapidly approaching completion. It has brought out the beauty of the dark oak roof, which dates from the time of Henry VIII., and the proportions of the interior are much improved by the removal of the pews. When the block floor has been laid the building will be available for occasional church services and lectures.

At a Local Government Board inquiry held in Birmingham on Wednesday by Major C. E. Norton and Mr. F. Adams, the City Council applied for authority to proceed with a town-planning scheme. The area included in the scheme is of 2,320 acres, in the parishes of Quinton, Harborne, Edgbaston, and Northfield, and the land is chiefly agricultural. Forty land owners are concerned, their estates being very much intermixed. The City Council thought it necessary that a definite and comprehensive scheme of town planning should be prepared before the land had been built upon.

LATEST PRICES.

IRON.

	Per ton.				Per ton.		
Rolled-Iron Joists, Belgian	£5	7	8	to	£5	12	6
Rolled-Steel Joists, English	7	5	0	,,	7	15	0
Wrought-Iron Girder Plates	7	0	0	,,	7	5	0
Bar Iron, good Staffs	6	5	0	,,	6	10	0
Do., Lowmoor, Flat, Round, or Sqnare	20	0	0	,,	20	0	0
Do., Welsh	5	15	0	,,	5	17	0
Boiler Plates, Iron— South Staffs	8	0	0	,,	8	15	0
Best Snedshill	9	0	0	,,	9	10	0

Angles 10s., Tees 20s. per ton extra.

Builders' Hoop Iron, for bonding, &c., £8 15s. to £9.

Builders' Hoop Iron, galvanised, £14 to £15 10s. per ton

Galvanised Corrugated Sheet Iron—

	No. 18 to 20. Per ton.				No. 22 to 24. Per ton.		
8ft. to 8ft. long, inclusive gauge	£13	0	0	...	£13	10	0
Best ditto	13	0	0	...	14	0	0

Wire Nails (Points de Paris)—

3 to 7	8	9	10	11	12	13	14	15	B.W.G.
8/3	8/9	9/3	9/9	10/3	11/-	11 9	12 6	13 6	per cwt.

	Per ton.				Per ton.		
Cast-Iron Columns	£6	10	0	to	£8	10	0
Cast-Iron Stanchions	8	10	0	,,	8	10	0
Rolled-Iron Fencing Wire	8	5	0	,,	8	10	0
Rolled-Steel Fencing Wire	8	5	0	,,	8	10	0
,, ,, Galvanised	7	15	0	,,	8	5	0
Cast-Iron Sash Weights	4	17	0	,,	4	17	0
Cut Floor Brads	10	5	0	,,	—		
Corrugated Iron, 24 gauge	16	0	0	,,	—		
Galvanised Wire Strand, 7 ply, 14 B.W.G.	14	5	0	,,	—		

B.B. Drawn Telegraph Wire, Galvanised—

0 to 8	9	10	11	12	B.W.G.
£10 5 0	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.

Cast-Iron Socket Pipes—

3in. diameter	£3	2	8	to	£6	7	0
4in. to 6in.	6	0	0	,,	8	5	0
7in. to 24in. (all sizes)	5	7	8	,,	8	0	0

[Coated with composition, 5s. 0d. per ton extra; turned and bored joints, 5s. 0d. per ton extra.]

Pig Iron—	Per ton.				
Cold Blast, Lilleshall	110s. 0d.	to	117s. 6d.		
Hot Blast, ditto	70s. 0d.	,,	75s. 0d.		

Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.):—

Gas-Tubes	75 p.c.
Water-Tubes	72½ ,,
Steam-Tubes	67½ ,,
Galvanised Gas-Tubes	65 ,,
Galvanised Water-Tubes	62½ ,,
Galvanised Steam-Tubes	57½ ,,

OTHER METALS.

	Per ton.				Per ton.		
Spelter, Silesian	£23	17	6	to	£24	2	6
Lead Water Pipe, Town	17	0	0	,,	—		
,, ,, ,, Country	17	15	0	,,	—		
Lead Barrel Pipe, Town	18	0	0	,,	—		
,, ,, ,, Country	18	15	0	,,	—		
Lead Pipe, Tinned inside, Town	19	0	0	,,	—		
,, ,, ,, ,, Country	19	15	0	,,	—		
Lead Pipe, Tinned inside and outside, Town	21	10	0	,,	—		
,, ,, ,, ,, Country	22	5	0	,,	—		
Composition Gas-Pipe, Town	20	0	0	,,	—		
,, ,, Country.	20	15	0	,,	—		
Lead Soil-pipe (up to 4½in.) Town	20	0	0	,,	—		
,, ,, ,, Country	20	15	0	,,	—		
[Over 4½in. £1 per ton extra.]							
Lead Shot, in 28lb. bags	24	15	0	,,	—		
Copper Sheets, sheathing & rods	72	0	0	,,	72	10	0
Copper, British Cake and Ingot	59	10	0	,,	60	0	0
Tin, Straits	175	5	0	,,	175	15	0
Do., English Ingots	176	0	0	,,	176	10	0
Do., Australian	176	10	0	,,	177	0	0
Do., Bars	177	10	0	,,	178	0	0
Pig Lead, in 1cwt. pigs	14	7	6	,,	—		
Sheet Lead, Town	16	10	0	,,	—		
,, ,, Country	17	5	0	,,	—		
Genuine White Lead	21	0	0	,,	—		
Refined Red Lead	19	0	0	,,	—		
Sheet Zinc	32	5	0	,,	—		
Old Lead, against account	12	5	0	,,	—		
Tin, per cwt.	9	15	0	,,	—		
Cut Nails (per cwt. basis, ordinary brand)	0	10	6	,,	—		

TIMBER.

CONSTRUCTIONAL.

Per St. Petersburg Standard (100—12ft. by 11in. by 1in.)

Yellow Pine Deals, Quebec, 1st quality	£31	0	0	to	£42	0	0
,, ,, ,, 2nd ,,	21	0	0	,,	26	0	0
,, ,, ,, 3rd ,,	15	0	0	,,	18	0	0
Spruce Deals: St. Johns	8	0	0	,,	11	0	0
,, ,, Miramichi	7	5	0	,,	8	10	0
,, Boards: Swag.	7	0	0	,,	8	0	0
Red Deals: Archangel 1st quality	20	10	0	,,	21	10	0
,, ,, ,, 2nd ,,	15	0	0	,,	17	0	0
,, ,, ,, 3rd ,,	11	0	0	,,	12	0	0
,, ,, St. Petersburg—							
,, 1st quality	16	0	0	,,	17	0	0
,, 2nd ,,	13	0	0	,,	14	10	0
,, ,, Wyburg & Uleaborg	10	0	0	,,	12	0	0
,, ,, Gefle, Gotheuburg, and Stockholm	10	0	0	,,	17	0	0
White Deals: Crown	10	0	0	,,	12	0	0
,, ,, Seconds	9	10	0	,,	10	0	0
Flooring: White and Planed— 1st and 2nd quality mixed	9	0	0	,,	9	5	0
1st, 2nd, and 3rd quality mixed	8	5	0	,,	8	10	0
Red Planed, 1st quality	11	5	0	,,	11	10	0
Pitch Pine: Prime Deals and Boards	17	0	0	,,	20	0	0
Lignum Vitæ	5	10	0	,,	12	0	0

Per foot super, as 1in.							
Yellow Pine Logs (waney board)	0	2	9	,,	0	4	3
Pitch Pine Logs	0	1	6	,,	0	1	10
Canary Whitewood: Prime	0	3	6	,,	0	3	9
Birch: Quebec Logs	0	2	0	,,	0	2	6
Oak: Austrian Wainscot	0	7	0	,,	0	8	0
Mahogany: Gaboon	0	0	1½	,,	0	0	2½

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (50c.ft.)	£20	0	0	to	£21	10	0
,, Java ,, ,,	15	0	0	,,	18	0	0
Canary Whitewood: Prime bds. 14in. average	Per cubic foot. 0	3	0	,,	0	3	3
Canary Whitewood: Medium bds. 11in. average	0	2	2	,,	0	2	6
Oak Planks: U.S.A., imported	0	1	9	,,	0	2	6
,, Boards ,, ,, Prm.	0	2	4	,,	0	2	9
,, ,, ,, Mdm.	0	1	10	,,	0	2	2
Sequoia (Californian Redwood)	0	3	0	,,	0	3	8
Birch: Quebec logs	0	1	8	,,	0	2	2
,, ,, sawn planks	0	1	0	,,	0	1	2
Oak: Austrian Wainscot	0	6	0	,,	0	7	0
Walnut: Prime boards & planks Mdm. ,, ,,	0	5	0	,,	0	8	0
	0	3	4	,,	0	3	6
Greenheart: Hewn logs	0	3	6	,,	0	4	6
Cedar: Cigar box	0	3	8	,,	0	4	8
Satin Walnut: Imp. sawn boarde, prime	0	2	3	,,	0	2	6
Orham: Imp. sawn boards, prime	0	1	10	,,	0	2	2
Mahogany: St. Domingo, Cuba, and Honduras	Per foot of 1in. 0	0	5½	to	0	0	8
,, African, Assinee, &c.	0	0	4½	,,	0	0	9
,, Lagos and Benin	0	0	3½	,,	0	0	4½
,, Sekondi and Cape Lopez	0	0	2½	,,	0	0	3½
,, Gaboon	0	0	1½	,,	0	0	0
Satinwood: West Indian	0	0	10	,,	0	2	2
Rosewood ..... Per ton	7	0	0	,,	12	0	0
Lignum Vitæ ,,	4	0	0	,,	11	10	8

STONE.*

Red Mansfield, in blocks ..... per foot cube	£0	2	4	
Darley Dale, ditto	,,	...	0	2	3
Red Corsehill, ditto	,,	...	0	2	2
Closeburn Red Freestone, ditto	,,	...	0	2	0
Ancaster, ditto	,,	...	0	1	10
Greenshill, ditto	,,	...	0	1	10
Chilmark, ditto (in truck at Nine Elms)	,,	...	0	1	9
Beer, ditto	,,	...	0	1	8
Hard York, ditto	,,	...	0	2	10
Ditto ditto 6in. sawn both sides, landings, random sizes ..... per foot sup.	0	2	8		
Ditto ditto 3in. slab sawn two sides, random sizes	,,	...	0	1	3

* All F.O.R. London.

Bath Stone, delivered on rail at quarry stations ..... per foot cube	0	1	0	
Delivered on road waggons, Paddington Depot	,,	...	0	1	8½
Ditto ditto, Nine Elms Depot	,,	...	0	1	8½
Beer Stone, delivered on rail at Seaton Station	,,	...	0	1	0
Ditto, delivered at Nine Elms Station	,,	...	0	1	6

Portland Stone, in random blocks of 20ft. average:—

	Brown Whit Bed.				White Base Bed.		
Delivered to railway depot at the quarry ..... per foot cube	£0	1	5½	...	£0	1	7½
Delivered on road waggons at Paddington Depot ...	,,	...	0	2	1	...	0	2	2½
Ditto, Nine Elms Depot ...									
Ditto, Pimlico Wharf									

BRICKS.

(All prices net.)

Hard Stocks	£1	6	6	per 1,000 alongside, in river	
Rough Stocks and Grizzles	1	6	0	,, ,,	
Picked Stocks for Facings	2	10	0	,, delivered at railway station.	
Flettons	1	6	0	,, ,, ,,	
Pressed Wire Cuts	1	18	0	,, ,, ,,	
Red Wire Cuts	1	14	0	,, ,, ,,	
Best Fareham Red	3	12	0	,, ,, ,,	
Best Red Pressed Ruabon Facing	5	0	0	,, ,, ,,	
Best Blue Pressed Staffordshire	3	15	0	,, ,, ,,	
Ditto Bullnose	4	0	0	,, ,, ,,	
Best Stourbridge Fire Bricks	3	14	0	,, ,, ,,	
2½in. Best Red Accrington Plastic Facing Bricks	4	13	0	,, Net, delivered in full truck loads in London.	

GLAZED BRICKS.*

HARD GLAZES. (PER 1,000.)

White, Ivory, and Salt Glazed. Best.	Seconds.	Buff and Cream. Best.	Other Colours.	Second Colours.
Stretchers—				
£10 17 6	£9 7 6	£12 7 6	£16 7 6	£10 17 6
Headers—				
10 7 6	8 17 6	11 17 6	15 17 6	10 7 6
Quoins, Bullnose, and 4½in. Flats—				
13 17 6	12 17 6	16 7 6	19 17 6	14 7 6
Double Stretchers—				
16 7 6	14 17 6	19 7 6	22 17 6	16 7 6
Double Headers—				
13 7 6	11 17 6	16 7 6	19 17 6	13 7 6
One side and two ends, square—				
17 7 6	15 17 6	20 7 6	24 17 6	17 7 6
Two sides and one end, square—				
18 7 6	16 17 6	21 7 6	25 7 6	18 7 6
Splays and Squints—				
15 17 6	14 7 6	20 7 6	23 7 6	15 17 6

Plinth and Hollow Bricks. Stretchers and Headers—
5d. each 4d. each 6d. each 6d. each 5d. each

Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres—
5d. each 4d. each 6d. each 8d. each 5d. each

Rounded Internal Angles—
4d. each 3d. each 5d. each 5d. each 4d. each

MOULDED BRICKS.

Stretchers and Headers—
6d. each 8d. each 6d. each 8d. each 6d. each

Internal and External Angles—
1/2 each 1/2 each 1/2 each 1/2 each 1/2 each

Cill Bullnose, Stretchers and Headers—
5d. each 4d. each 6d. each 6d. each 5d. each

	Per 1,000						
Majolica or Soft Glazed Stretchers and Headers	£21	17	6				
,, ,, ,, Quoins and Bullnose	26	17	9				
Compass bricks, circular and arch bricks of single radius £6 per 1,000 over above list for their respective kinds and colours	Not exceeding 9in. × 4½in. × 2½in.						
Camber arch brick, any kind or colour, 1s. 2d. each							

Stretchers cut for Closers and Nicked Double Headers, £1 per 1,000 extra.

* These prices are carriage paid in full truck loads to London stations.

	a.	d.	
Thames and Pit Sand	7	0	per yard, delivered.
Thames Ballast	5	6	,, ,,
Best Portland Cement	28	0	per ton, ,,
Best Ground Blue Lias Lime	19	0	,, ,,

Exclusive of charge for sacks.

Grey Stone Lime	11s. 6d. per yard, delivered
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. stn.	

SLATES.

	In.	In.	£	s.	d.	
Blue Portmadoc	20 × 10	..12	12	6	per 1000 of 1200 at r.str.	
,, ,,	... 16 × 8	.. 6	12	6	,, ,,	,,
Blue Bangor	20 × 10	..13	2	8	,, ,,	,,
,, ,,	... 20 × 12	..13	17	6	,, ,,	,,
First quality	20 × 10	..13	0	0	,, ,,	,,
,, ,,	... 20 × 12	..13	15	0	,, ,,	,,
,, ,,	... 16 × 8	.. 7	5	0	,, ,,	,,

Eureka unfading	£	s.	d.	
green 20 × 10 ..15	17	6	,,	
,, ,, ... 20 × 12 .18	7	6	,,	,,
,, ,, ... 18 × 10 ..13	5	0	,,	,,
,, ,, ... 16 × 8 .10	5	0	,,	,,
Permanent green 20 × 10 ..11	12	6	,,	,,
,, ,, ... 18 × 10... 9	12	6	,,	,,
,, ,, ... 16 × 8 .. 8	12	6	,,	,,

TILES.

	s.	d.	Delivered
Plain red roofing tiles	42	0	per 1000 at rly. stn.
Hip and Valley tiles	3	7	per doz. ,, ,,
Broseley tiles	50	0	per 1000 ,, ,,
Ornamental tiles	52	6	,, ,, ,,
Hip and Valley tiles	4	0	per doz. ,, ,,
Ruabon red, brown, or brindled do. (Edwards)	57	6	per 1000 ,, ,,
Ornamental do.	60	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	0	,, ,, ,,
Selected "Perfecta" roofing tiles —Plain tiles (Peake's)	46	0	per 1000 ,, ,,
Ornamental do.	48	6	,, ,, ,,
Hip tiles	3	10½	per doz. ,, ,,
Valley tiles	3	4½	,, ,, ,,
"Rosemary" brand plain tiles	48	0	per 1000 ,, ,,
Ornamental tiles	50	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	8	,, ,, ,,
Staffordshire (Hanley) Reds or Brindled tiles	42	8	per 1000 ,, ,,
Hand-made sand-faced	45	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	6	,, ,, ,,
"Hartshill" brand plain tiles, sand-faced	50	0	per 1000 ,, ,,
Pressed	47	6	,, ,, ,,
Ornamental do.	50	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	6	,, ,, ,,

OILS.

Rapeseed, English pale, per tun	£28	15	0	to	£29	5	0
Do., brown	,, ...	26	15	0	,,	27	5	0
Cottonseed, refined	,, ...	29	0	0	,,	30	0	0
Olive, Spanish	,, ...	39	10	0	,,	40	0	0
Seal, pale	,, ...	21	0	0	,,	21	10	0
Cocoanut, Cochin	,, ...	48	0	0	,,	46	10	0
Do., Ceylon	,, ...	42	10	0	,,	43	0	0
Do., Mauritius	,, ...	42	10	0	,,	43	0	0
Palm, Lagos	,, ...	32	5	0	,,	33	5	0
Do., Nut Kernel	,, ...	35	0	0	,,	35	10	0
Oleine	,, ...	17	5	0	,,	19	5	0
Sperm	,, ...	30	0	0	,,	31	0	0
Lubricating U.S.	per gal.	0	7	0	,,	0	8	0
Petroleum, refined	,,	0	0	6¾	,,	0	0	6¾
Tar, Stockholm	per barrel	1	8	0	,,	1	10	6
Do., Archangel	,,	0	19	6	,,	1	0	0
Linseed Oil	per gal.	0	3	9¼	,,	—		
Baltic Oil	,,	0	4	0	,,	—		
Turpentine	,,	0	4	7½	,,	—		
Putty (Genuine Linseed Oil)	per cwt.	0	11	0	,,	—		
,, Pure Linseed Oil, "Stority" Brand	,,	0	10	0	,,	—		

VARNISHES, &c.

	Per gallon.
Fine Pale Oak Varnish	£0 8 0
Pale Copal Oak	0 10 0
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 6
Extra Pale Paper	0 12 6
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

GLASS.

	15oz.	21oz.	26oz.	32oz. Net.	
English Sheet Glass: Fourths	1½d.	2½d.	3d.	4½d.	,,
Thirds	2½d.	3d.	4d.	4½d.	,,
Fluted Sheet	3½d.	4½d.	—	—	,,

Hartley's English Rolled Plate: ⅛in. 3/16in. ¼in.
2½d. ... 2½d. ... 2½d.

Figured, Oxford Rolled, & Oceanic Glass: White. Tinted.
3½d. ... 5½d.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, Ellingham House, 1, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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Telegraphic Address:—"Timeserver, London."
Telephone, Gerrard 1291.

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*** The special rate to Canada is £1 1s. 8d.—5dols. 27c. for 12 months, and 10s. 10d.—2dols. 64c. six months.

NOTICE.

Bound copies of Vol. XCVIII. are now ready, and should be ordered early (price 12s. each, by post 12s. 9d.), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XLI., XLVI., XLIX., LIII., LXI., LXII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXIX., LXXX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., LXXXVI., LXXXVII., LXXXVIII., LXXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., and XCVII. may still be obtained at the same price; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

Handsome Cloth Cases for binding the BUILDING NEWS price 2s., post free 2s. 4d., can be obtained from any Newsagent, or from the Publisher, Ellingham House, 1, Arundel-street, Strand, W.C.

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The charge for **Competition** and **Contract** Advertisements, **Public Companies**, and all official advertisements is 1s. per line of Eight Words, the first line counting as two, the minimum charge being 5s. for four lines.

The charge for **Auctions, Land Sales,** and **Miscellaneous** and **Trade** Advertisements (except Situation Advertisements) is 6d. per line of Eight Words (the first line counting as two), the minimum charge being 4s. 6d. for 40 words. Special terms for series of more than six insertions can be ascertained on application to the Publisher.

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Rates for **Trade** Advertisements on front page, and special and other positions, can be obtained on application to the Publisher.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

RECEIVED.—W. A. F.—S. A.—G. J.—W. F. S. and Co., Ltd.—H. A. C.—I. C. S., Ltd.—Apex. J. and F.—W. F. and Co.—Dounis.—L. R. J.—K. and Co.—M.—D. F. and Son.—J. F. W.—L. R. A.—J. and Son—Milano.—H. Bros.—E. M. F.

S. C. R.—Yes.

LOLO.—Thanks, no.

D. F. F.—Not very lately, we think.

WRANGLER.—Even on your own showing, the other man is willing to climb down half-way. Meet him, and do not throw your money away on lawyers.

G. A. S.—The cheapest way to keep yourself constantly in the minds of architects is to spend a pound a year and have an entry in our "Directory" pages.

H. T. F.—Thanks; the obligation would be greater if authors of papers, &c., would communicate with us a month or so beforehand, so that we could include illustrations of papers when desirable.

STUCK.—We do not know whether the firm you mention are still in business. Better give the work to one of the firms whose names and addresses you will find in our "Directory" pages under "Structural Iron and Steel Work."

"BUILDING NEWS" DESIGNING CLUB.

FOURTH LIST OF TOPICS.

D.—A Village Reading-room and Greenkeeper's Lodge, with Arched Gateway Between. The site stands on the verge of a village recreation common, already enclosed for public use with a 4ft. oak fence, by the County Council and by the local landowner's liberality. These buildings are to be erected close to the parish church, so that a picturesque and simple treatment architecturally is intended. The style suggested is plain "Queen Anne" or Early "Georgian." The ground is level, and the front faces S.E. On the west or left-hand of the central archway, the reading-room, 36ft. long by 18ft. wide, is to be put, with an outside porch facing N.E. at the rear end, and a small room for the custodian and storage of books, say, 9ft. square or of that area, is to be located projecting on the N.E. side contiguous to the archway, which is to set back 10ft. from the frontage line. The public path in front of that line is 10ft. wide. The lodge is to occupy a similar position to the right-hand of the archway, and it must balance the composition in a general sense, though, of course, the arrangement of the house may qualify its external design in contrast with the reading-room so far as need be. Each building should, however, be treated as a counterpart to the other. The lodge, which must be in a small yard, enclosed by a screen wall at its rear, is to provide a good roomy porch entered from the high road, and to correspond in the lay out of the plan with the room on the other hand of the archway as to size. A living-room fitted with a kitchen range, scullery, and offices, and two bedrooms all on one floor, perhaps; but this point is left optional as to one floor or two. The archway to be 10ft. wide *in the clear*, and to have a gable or pediment over, with flanking piers or buttresses to give a solid look, and to have a good pair of wrought-iron gates not over-florid in design. Materials brick and tile, wooden window frame, and iron casements. A view required. Scale 8ft. to inch. Drawings due Feb. 4, 1911.

DRAWINGS RECEIVED.—"Corder," "Kay," "Dix Sept," "V.," "Oxonian."

PILKINGTON & CO.

(ESTABLISHED 1838.)

DEPTFORD WHARF,
190 & 192, CREEK ROAD, DEPTFORD, S.E.

Registered Trade Mark.

POLONCEAU ASPHALTE

Patent Asphalte and Felt Roofing

ACID-RESISTING ASPHALTE.
WHITE SILICA PAVING.

Seyssel Asphalte direct from the Mines.

TELEPHONE Nos.: New Cross 1102 2 Lines.

TELEPHONE DALSTON 1388

OGILVIE & CO.

Mainly as regards connected with the late firm of W. H. LASCELLES & CO., Ltd. of Bunhill Row

Amhurst Works, DALSTON LANE, N.E.

EXPERTS in HIGH-CLASS JOINERY.

ALTERATIONS & DECORATIONS. ESTIMATES FREE

FOR
Olivers'
Seasoned
Hardwoods,

APPLY TO
WM. OLIVER & SONS, Ltd.,
120, Bunhill Row, London, E.C.

TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender; it adds to the value of the informal tion.

ASHFORD.—For fitting up chemical and physical laboratories, etc., at the Ashford County School, for the Middlesex County Council. Mr. H. G. Crothall, architect to the education committee:—

Bennett Furnishing Co.	£448 0 0
Wake and Dean, Ltd.	385 12 0
Fairhead, A., and Son	375 0 0
Hammer, G. M. and Co., Ltd. ...	367 15 0
Baird and Tatlock, Ltd.*	343 0 0

* Recommended for acceptance.

BAGNALL.—For erecting bridge at Blackwood-lane, for the Leek Rural District Council. Mr. F. A. Bailey, Union Offices, Leek, architect —

Taylor, J., Basford, Stoke-on-Trent (accepted)	£55 0 0

BIRKENHEAD.—For the removal of peat from the site of the Alwen reservoir and constructing the reservoir, masonry dam, and embankments, for the corporation —

M'Alpine, R., and Sons, Victoria-street, Westminster	£186,153 15 3

(Recommended for acceptance. Lowest tender received of five.)

BOWES PARK.—For alterations to the Bowes-road Council School, for the Middlesex County Council. Mr. H. G. Crothall, architect to the education committee:—

Patman, L. and W. H.	£249 0 0
Monk, A.	197 0 0
Futch and Cox	179 0 0
Wilton, E. K.	172 10 0
Mattock Bros.*	157 0 0

* Recommended for acceptance.

BRENTFORD.—For extension of playground of the Brentford Rothschild Schools, for the Middlesex County Council. Mr. H. G. Crothall, architect to the education committee —

Heath, D. D.	£375 0 0
Larchet and Tower	364 15 0
Dorey and Co., Ltd.	348 0 0
Lacey, W.	342 0 0
Morgan, G.	313 8 0
Jamieson, J. B.	304 10 0
Hubden, T. D.*	285 0 0

* Recommended for acceptance.

CAERPHILLY.—For the erection of a new higher elementary school, for the Glamorgan Education Committee. Mr. D. Pugh-Jones, F.S.I., Cardiff, county architect —

Bond, F., Beda-road, Cardiff (Accepted.)	£9,417 2 4

CHOPWELL.—For erecting picture hall. Mr. D. M. Spence, Shotley Bridge, architect —

Bowers, H., Rowland Gill, Newcastle-on-Tyne (accepted)	£1,149 0 0

EAST GREENWICH, S.E.—For erection of condenser house and store at Britannic Works, Tunnel-avenue, for the L. Martin Company. Mr. A. C. Russell, 13, Basinghall-street, E.C., architect —

Martin, H. N.	£766 0 0
Holloway, H. C.	758 0 0
Mills, W. and Son	727 0 0
Groves, H. (accepted)	715 0 0

All of Greenwich.

FELTHAM.—For extension of the Feltham Council School, for the Middlesex County Council. Mr. H. G. Crothall, architect to the education committee —

Lole, S.	£1,779 0 0
Fairhead, A., and Son	1,749 0 0
Jordan, A.	1,718 0 0
Renshaw, W. J.	1,647 0 0
Lacy, W.* ...	£1,549 0 0

* Recommended for acceptance.

FRIERN BARNET.—For interior painting of the St. John's School, for the Middlesex County Council. Mr. H. G. Crothall, architect to the education committee —

Pellow and Wright	£43 5 0
Wilton, E. K.	42 0 0
Taylor, W.	38 0 0
Jones, S.*	26 10 0

Recommended for acceptance.

GREENWICH, S.E.—For alterations and additions to Burney House, for Mr. Robert Salter. Mr. A. C. Russell, 13, Basinghall-street, E.C., architect:—

Shorter, J., and Co.	£700 0 0
Western, F.	670 0 0
Groves, H.	669 0 0
Smith, J. (provisionally accepted)	617 0 0

All of Greenwich.

HAMPTON WICK.—For alterations to the Hampton Wick Council School, for the Middlesex County Council. Mr. H. G. Crothall, architect to the education committee —

Heath, D. D. ..	£1,205 0 0
Lacey, W.	1,195 0 0
Collinson and Co.	1,122 0 0
Jordan, A.	1,096 0 0
Rice and Son	1,040 0 0
Dickens, W. J.	1,020 0 0
Thomas, T. W.	963 0 0
Casse, J.*	947 0 0

* Recommended for acceptance.

HANWORTH.—For extension of playground of the Hanworth Council School, for the Middlesex County Council. Mr. H. G. Crothall, architect to the education committee —

Lodge, S.	£218 0 0
Taylor, J. E.	218 0 0
Watson, T. C.	195 10 0
Jordan, A.	195 0 0
Wilkes, H.	185 3 7
Evans, G.*	183 10 0

Recommended for acceptance.

(*Continued on p. xv.*)

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THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House, Strand, W.C.

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A ROYAL RECOGNITION.

To the many friends who have responded to our few words last week with reference to the commencement of our Hundredth Volume we offer our hearty and grateful thanks. To them, as to ourselves, it will, we are persuaded, prove a legitimate source of pride and satisfaction that their able and sustained co-operation, which alone has enabled us to place and keep the BUILDING NEWS in the position it fills to-day, has elicited that which every Englishman regards as his most precious reward—the approval and encouragement of his Sovereign, as embodied in the following communication with which we have been honoured this week from Sir Arthur Bigge, and which we print with the sincerest and most loyal acknowledgements:—

York Cottage, Sandringham,
January 10, 1911.

DEAR SIR,—I have laid before the King the first number of the hundredth volume of the BUILDING NEWS, which you were good enough to send on the 6th instant, and I am commanded by his Majesty to thank you for the same.
Yours very faithfully, ARTHUR BIGGE.

E. J. Kibblewhite, Esq.,
Editor of the BUILDING NEWS.

As some of our older readers will remember, twenty-seven years ago we were honoured by the receipt from the late Sir Henry Ponsonby of a similar mark of Royal favour from Queen Victoria, which we published in our issue of January 26, 1884, and which we now reproduce:—

Osborne, Jan. 23, 1884.

Sir Henry Ponsonby begs to thank Mr. Kibblewhite for his kindness in sending the BUILDING NEWS containing the illustration of the Fortress of Coburg. He has laid it before the Queen, who was much pleased with the engraving.

We humbly trust that the Royal appreciation of the aims and ends we have ever had in view may spur us on to renewed endeavour, and deserve the help which, in ever so small a measure, has enabled us to compass them. Pre-eminently is it to-day the duty of every subject of the King to make his reign famous hereafter in English history as the epoch which witnessed the great national recognition of the claims of beauty and fitness on every citizen in relation to the homes of the people and the sanitation and artistic development of our towns and villages.

It was said of Augustus Cæsar that he found Rome built of brick and left it built of marble. It shall be blazoned amidst the shining records of his reign that, under his fostering encouragement and discerning direction, the realm rose nobly to its responsibilities, as the heart and centre of his great Empire, to the paramount claims of Art and Science to transfigure the England of King George the Fifth into no unworthy embodiment of the glory of the great city of the Apocalyptic vision. No mean aspiration is it, surely, that amid the names of those who loyally and strenuously co-operated, bringing to full fruition the aims and desires of their forebears of the past half-century who worked unceasingly and waited patiently for these things, shall be found some of those we, however unworthily, knit together with the bonds of mutual encouragement and joint endeavour.

ARCHITECTS AND ENGINEERS.

We do not quite understand the fretfulness which has manifested itself in some of the engineering papers with regard to town-planning schemes. Doubtless when town planning came into prominence, and throughout the period during which the Commission sat, the engineers thought that they were to devise and control traffic schemes, just as they did the railways some eighty years ago. Even the passing of the Town Planning Act, combined as it was with the Housing Act, does not appear to have greatly disturbed that idea; but undoubtedly the Town Planning Conference has done so, and it is becoming more and more evident, even to engineers, that the public are tired of having cities and country alike spoiled by the pure utilitarianism of the engineer.

Problems of city and town development on any large scale have hitherto been approached by the engineering and architectural professions from entirely different standpoints. The engineer has gone for utility and convenience, and—sometimes—economy before all else; the architect has contended for beauty and dignity. Often in the past no doubt each has neglected to consider sufficiently the point of view of the other. Engineers' works have been hideous, and have tended to the degradation of the cities into which they have been introduced. Architects' schemes have often been delightful to the senses, but they have often been costly, occasionally inconvenient, and sometimes impracticable. Thus two distinct and opposing tendencies of thought and action have developed side by side. Fortunately the public are beginning to understand that architects nowadays do not despise the utilities; that they are alive to the exigencies of traffic requirements and the need for economy, but equally so to the opportunities for architectural treatment which the engineers ignore.

It is, of course, to be deplored that architecture and engineering were ever severed, and that the architect, whose whole training has been directly towards the beautification of his buildings, should have turned aside to copy styles and revel in mere prettiness, while the engineer evolved nightmares, and shut out the beauties of London and other cities by obstructions of the Ludgate Hill railway bridge type. When, however, we come to deal with town planning and development it is obvious that the skill of the engineer and the genius of the architect may well co-operate. Where these are combined in the same individual, let him have a free hand. Not, of course, if he is pledged to the belief that an axial view of the dome of St. Paul's from the proposed new bridge over the Thames is of infinitely greater importance than the provision of a way for the traffic to pass round the Cathedral; or if, as a "practical" engineer he scorns the dislike of "mere sentimentalists" to tramway tunnels bored close to the walls of Wren's greatest building, utterly regardless of the risk to the structure. Architects are not all mere pedants, and there are engineers who may be trusted not to destroy more than they can help. But, on the whole, we modestly insist that the architect is more likely to preserve the view, and study genuine beauty while securing convenience of traffic, than the engineer. Town development is not entirely a matter of straight roads and low initial cost.

Even the shopkeepers are beginning to recognise that the architect must design their premises if they are to be attractive, and that from a purely commercial point of view hideousness repels. The educated citizen has developed a similar conviction. In a generation or two it will have permeated all classes. The engineer himself may come to rejoice that then it shall be no longer necessary to sacrifice every consideration of beauty and fitness to the Baal of competitive commercialism. Meanwhile, he need not grudge us the rough work as pioneers in the campaign against the greed and folly that have defiled and desecrated the country side and the busy town alike. Let us see to it that we rise to the occasion.

LIMESTONES.

In London and the South of England limestones are much more largely used than sandstones for building work, except where they are liable to be subjected to wear. They do not seem to be capable of withstanding the sulphurous fumes which are present in the great manufacturing towns of the North, where Nature has

provided an adequate supply of sound stone to meet the demand. But in the South where even in the driest cities the atmosphere is appreciably moist stones which have stood the test of centuries without serious decay in the North become rapidly disintegrated. Hence the cheaper and more easily worked Bath stone and the more easily weathered Portland stone, so that the Portland [illegible] Houses and Westminster Abbey, where the rainfall is constantly washing the stone, are now showing that the [illegible] the rain has [illegible] much deterioration as [illegible] a couple of centuries to accomplish and does not seriously affect the [illegible] while the courtyards of the Houses of Parliament, which have the architects of the present generation been satisfied with the stone that they have continued to use Portland stone in their most important work. Bath stone has had a [illegible] in buildings of secondary importance. Its lasting qualities have not been subjected to the test of any really great length of exposure in a town or city where, in fact, for many years they were held in considerable disfavour, to a great extent to the use of stone from wrong quarries for external work in the earlier years of its introduction. More recently, and as the result of experience derived from the earlier mistakes, this seems to have been overcome and even when no preservative fluid is applied well selected Bath stone appears to stand the London atmosphere almost as well as does Portland so far as can be judged from the test of a comparatively short number of years.

Both Portland and Bath stone belong to the great oolite formation, the former coming from the south and the latter from the north coast of our south-western peninsula, the oolite belt stretching across its neck from the Severn to the English Channel. Contrary to what is usually the case, the harder Portland stone geologically overlies the softer Bath stone but only slightly, while the difference in hardness is not excessive. It is due, as visual examination immediately discloses, to the fact that the egg-shaped grains, as they are called in the textbooks or as they ought more properly to be called onion-shaped grains, composed of several concentric spheres of carbonate of lime, are more closely compacted in the Portland than the Bath and are joined together with a harder and less friable lime cement. This is so soft in the case of some Bath stones that it comes off as a chalk-like powder in the hand when it is rubbed. As a rule the Bath stones (of which there are a considerable number known by different names, and obtained from neighbouring quarries which occur over a considerable area) are free from fossils; but others contain them somewhat freely. Portland stone is more uniform, being of much the same quality and bedding from whatever quarry it is obtained within the comparatively small area in which it is found. Only the stone from two conjoined beds are ordinarily placed upon the market, that from the deep Whitbed being free from fossils, while an easily recognised fossil occurs freely in the Roach which is attached to its under side. There are other beds of an inferior quality; but they are more difficult to quarry as they lie lower down and as, at the same time, they fetch a lower price, owing to the inferiority of the stone which is obtained from them it does not pay to work them.

Another oolite stone which is use to a great extent, though rather in the East of England than in the South, is the Ancaster from Nottingham. Its principal bed is similar to the Portland, though hardly so brown in colour when first quarried. There is however another bed known as the Brown weather bed which is as far as is known, is one of the best weathering stone limestones in the country. It is [illegible] almost entirely of fossils and will take a considerable degree of polish. The supply of it is not particularly large and the cost is somewhat high as is reasonable.

Some [illegible] coarse-grained oolites are found in many other parts of the country, notably in Rutland and Gloucestershire. They weather remarkably well in their own districts, but, for some reason or other, have never had any great sale except locally. There seems to be a prejudice against their employment in London; or perhaps it may be that the quarries are small, and that each one is independently owned, so that it has been impossible for any one quarry-master to push the merits of his goods in the way which is necessary to make them known over a large area. If this is the case, a lesson may well be learnt from the great combinations of quarry-owners who have control of other classes of stone. Many of these stones are exceedingly beautiful, both in colour and texture.

Another Rutland limestone is the strange Collyweston "slate," which is not slate at all, but an excellent roofing material all the same, the splitting from the rock not being done by hand, but by the alternate action of frost and thaw during the winter months, when the blocks are exposed to the atmosphere on edge and watered every night whenever a frost is expected to occur before morning.

Most of the shelly limestones of this country, such as the Barton and the Hopton Wood, are used for decorative purposes only, so far as they are employed in building works. They are highly compacted, and take a high polish, some of them having this characteristic so prominently marked that they are known as marbles, the most important being the Purbeck, well known to all visitors to Westminster Abbey. These stones were particularly sought after during the 13th century, and were transported to great distances, in order to embellish the buildings of that period, being used principally as small shafts in nooks and around piers of other material. Transport, of course, was difficult in those days, except by way of the sea, and so it comes about that while Purbeck stone is rarely found far inland it is to be met with in 13th-century work at Mont St. Michel on the coast of Brittany, just as the French Caen stone is found in our south coast buildings of the same date.

The beautiful English marbles of Devonshire are only suitable for external use, for they possess little advantage over other limestones unless they be polished, and the surface thus obtained soon disintegrates if it is exposed. Foreign marbles, too, are many of them less costly, the supply being greater; but for real beauty of marking there are not many which compare with what are to be obtained at home. Of course these are limestones only they have been subjected to heat sufficient to calcine them, or make them glow red, but in such a position that the contained carbon dioxide has been unable to escape so that when cooling has taken place there has been crystallisation as calcium carbonate again, instead of the formation of quicklime.

Lias limestones, containing clay, are not greatly used for building purposes, except as "shoddies" for rough walling locally and occasionally for steps and sills.

Another class of impure limestone, which is largely used, is that of the dolomites, containing as much carbonate of magnesia as carbonate of lime. These were originally deposited in salt lakes by chemical precipitation, and accordingly have the extremely fine grain of a precipitate, making them most valuable for intricate carving. They are also, as a rule, good weathering stones; but the supply of any particular one is generally speaking, strictly limited. How well the best of them withstand a London atmosphere, and how harmoniously uniform is the colour, is well exemplified by the Houses of Parliament a building which is also, on the other hand, an object lesson in the necessity for watchfulness in order to insure that only sound stone from the chosen bed shall be inserted in work which is to be exposed to the weather.

THE ARCHITECTURAL ASSOCIATION

The fortnightly meeting of the Architectural Association was held at 18, Tufton street, Westminster, on Monday evening, the President (Mr. Arthur Keen, F.R.I.B.A.) occupying the chair. Three nominations having been read, the President proposed the election as members of Mr. Raymond Unwin, F.R.I.B.A., and Mr. A. O. Hector, and the reinstatement in membership of Mr. A. S. Dowell. These were agreed to. A vote of thanks was, on the motion of the President, passed to Mr. J. Macvicar Anderson, past President R.I.B.A., for donations to the library, and it was announced that the first spring visit would take place on Saturday, January 21, at 1.30 p.m., to the Law Courts extension, by permission of Sir Henry Tanner.

ARCHITECTURE CONSIDERED AS PLAN AND SECTION

Mr. H. Heathcote Statham, F.R.I.B.A., read a paper on this subject. He proposed he explained, to treat upon architecture from the primary view-point of laying out a plan in an effective manner, and in covering in that plan in a manner at once effective and structurally sound. An architect had when he was laying out a plan, present in his mind at the same time the manner in which he meant to roof it in, and the mere aspect of a plan on paper set the mind thinking as to what the section of the building would be. But, even apart from that consideration, a plan, merely as plan, had its own expression and its own suggestiveness. Let them take three typical classes of temple plan—the Egyptian, that of mystery; the Greek, that of rationalism; the Gothic, that of aspiration—and they would see that each mode of planning told its own tale as to roofing. The Egyptian and Greek plans were manifestly intended for flat roofing. The Gothic plan, on the other hand, proclaimed the preparation for the arched roof. We saw the change in the walling, from Romanesque to Gothic, as the vault was adopted. As an example of the crude fashioning of a plan without any order or any dominant idea, and also of the effect of roofing upon plan, they might take the palace of Khorsabad. What a difference was seen when we turned to the plan of Spalato, with its wide spacing and symmetrical arrangement! In this latter point it was surpassed by the plan of the Escurial, in which the great church—the prominent feature—was more centrally placed than the temples at Spalato, giving a greater effect of climax. Though the architecture of the Escurial was cold, the plan was a magnificent one, almost inspiring in its very appearance, and it might be built over again as one of the finest things in the world. Another example of a great plan was Inigo Jones's Whitehall Palace. Had the design been carried out, London would have possessed the greatest Renaissance building in the world. In Versailles one saw how an architect who was not a great genius could spoil an even finer opportunity. Versailles, in fact, showed an immense plan with no leading or dominant idea except that of mere size. The typical plan of a mosque

was an example of the equal distribution of points of support, with no leading feature. This was for practical reasons. The mosque originally was not a place of worship, but merely a shelter, and was designed as such, and consequently presented no basis for a great and complete architectural conception. In the Christian church there was from the first a leading idea in the special importance and sanctity of the end at which the altar was placed. But the plan and section of the Early Basilica church suggested no special architectural motive beyond that of the perspective effect of a colonnade or arcade leading up to the apse. With the development of the choir and transepts, the crossing became architecturally the dominant point of the design. As Fergusson quite truly remarked, the weak feature in the Mediæval plan was that this central space was so small. The introduction of the octagon crossing plan at Ely was a manifest improvement in this portion of the plan. In England we have always retained the practice of treating the crossing as the point to be accentuated in the exterior design—an advantage which the French for the most part lost through their passion for internal height. Though the finest of the French cathedral plans were superior to the long, narrow English plan, in their effect of climax—produced by the widening of the plan towards the east end—there was, perhaps, a greater variety of interest and suggestiveness in the English cathedral plans. And here we again saw that the plan of a cathedral was in itself significant of the character, of the greater or less architectural interest, of the building. Domed churches, in connection with plan, fell into two classes—those in which the dome was the main covering of the whole or the greater part of the centre of the area, and those in which it was the accentuation of a special open space which formed only a portion of the plan. In considering the dome as the roofing of a special portion of the plan, one had to distinguish between the case of a single dome and those in which more than one dome was used. A single dome must, of course, be the covering and the accentuation of the most important portion of the plan. Where more than one dome was introduced, a dome was essentially a form to be employed in a square or transeptal form of plan and not in a plan in long perspective. The vault was the suitable form of roof for the long church, the dome for that which was developed from a square plan. The importance of the element of plan was nowhere better exemplified than in the Houses of Parliament. Here the detail was the weakest part of the building. Its greatness consisted in the grand simplicity of the plan, the centre octagon with the main corridors leading right and left to the two chambers, and in the great exterior composition of the two contrasted towers and the central lantern marking the position of the octagon. That plan had been copied in buildings of a similar class all over the world, as in the Budapest Parliament, and in Ernest Flagg's competition design for the State House of Minnesota. St. George's Hall at Liverpool was a fine example of a comprehensive plan, the architect's intention in which was not altogether realised in execution. Among plans for public buildings, Bernini's plan for the great court of the Louvre was of some interest, from the effective manner in which he proposed to treat the re-entering angles of the quadrangle by bringing them out and accentuating them. The inner angles of a great quadrangle were apt to be weak points in the plan, and Bernini's way of treating them was worth attention. An admirable modern example of a public building was the Birmingham Law Courts, by Sir Aston Webb and Mr. Ingress Bell. It looked perfectly simple and straightforward and symmetrical; but that kind of simplicity was not attained without much thought and trouble. Some of the old Renaissance mansions showed the peculiarity of a close approach to symmetrical planning, but just missing it: Longleat was an example. As a modern example of a plan which was in itself a new architectural idea, the lecturer cited "Petit Palais" at Paris, by M. Girault. This was entirely an original conception in plan; the front block formed a great straight gallery, with a dome over the centre; the remaining portion of the plan constituted two ranges of galleries, one within another, the inner line of the building forming a semi-circular loggia round an interior garden court. Even a block plan could in itself be regarded as an expression of architectural design. Finally, as to the moral. Most architects were still troubled with searchings of heart as to which style is the right one for permanent adoption. He would recommend the adoption of a view of architecture in which detail, in a sense, did not matter. He did not intend to suggest that good detail was of no consequence, but that, provided it was good of its kind, it really did not matter what kind was adopted, so long as the main conception of the building was a fine and effective one, and that the effect of most of the great existing buildings of the world depended on their general conception, and was to a great extent independent of the style of detail. In short, the delivery from the imaginary bondage of styles lay, he held, in the recognition of the fact that the essential element in architecture was the embodiment of an idea expressed in plan and section.

Mr. Maurice B. Adams proposed a vote of thanks to the lecturer.

This was seconded by Mr. Gerald C. Horsley, supported by Mr. W. J. H. Leverton, and, after a few remarks by the President, was carried by acclamation.

THE CATHEDRALS OF NORTHERN FRANCE.*

To describe all the actual and reputed cathedral churches of the North of France in a single octavo volume without reducing the story to a dry-as-dust catalogue would demand a gift of condensation taxing the powers of a practised précis writer. On opening the latest work in Werner Laurie's "Cathedral Series," by Mr. T. Francis Bumpus, we see that he has adopted a judicious eclecticism in confining himself to those churches which are actually the seats of bishops at the present day, although by so doing many noble edifices, including Auxerre, Laon, Lisieux, Noyon, Senlis, and St. Omer are necessarily omitted. "Northern France" is defined by two lines drawn across the map of the country, forming at their points an obtuse angle, from the mouth of the Loire to the Allier, and thence to the Ardennes, while Brittany is omitted from the purview. Thus only seven-and-twenty great churches are left for examination, and these are grouped in their respective archiepiscopal provinces.

The book is uniform in character and treatment with those on the cathedrals of England and Wales, of Northern Germany and the Rhine, of Northern Italy, and of Belgium, all of which have already been reviewed in our pages. It is illustrated by about fifty small blocks, some reproduced from Wild's "Architectural Grandeur" and Pugin's "Architecture of Normandy," and others from drawings by Nesfield; but in most cases from recent photographs. There are also eight ground-plans of the larger edifices described, and a key map of the provinces is included.

In a preliminary chapter Mr. Bumpus deals with the varied ingenuity displayed by Mediæval French architects in the treatment of the apse and its chevets. As he says, "The actual difficulty in planning an apse is to get the sides nearly equal, the bays of the aisle regular, and the chapels beyond equal also, and to do all this without waste of space or unnecessary amounts of walling. . . . No two French chevets are alike, so many were the efforts to produce a perfect result." The author shows some lack of proportion in his eulogies, for having asserted that "in Beauvais, Bourges, Notre Dame at Paris, Rouen, and Le Mans we find the most perfect arrangements," he later on discounts his praise for these churches by claiming that "of all French apses that of Amiens is the most perfect." He shows that with a few notable exceptions the French cathedrals follow one main type—the Latin cross and an apsidal sanctuary, with an aisle round it and chapels radiating therefrom, while another remarkable feature of the majority of these great churches is the continuous series of lateral chapels built, at a subsequent period, between the buttresses not only of the nave, but of the choir also. Another feature of considerable importance and much effect is the adoption of a lantern at the crossing—octagonal at Coutances, Evreux, Le Puy, and Avignon, square at Rouen, Caen, Lisieux, and Dijon, and circular at Blois. The central tower does not occur in churches of the first class except in Normandy. The prominent features presented by the outline at a distance are the pair of western towers and, perhaps, a leaden flèche at the intersection. Some churches of the first rank have but a single tower to the western façade: such are the south-western ones of Sens and Soissons, and the north-western ones of Meaux and Troyes. "But many of the architects were not satisfied with the meagre substitute of a flèche for a central tower: they designed an equivalent which, though inferior to the western towers in height, might exceed them in aggregate mass, numbers, and extent. At Chartres, Rheims, and Clermont-Ferrand, we see something of the intention, though it is not fully carried out. Take the outline at a distance, and we have only the western steeples and a line of roof unbroken by anything above it. But within the outline are masses which if raised a little higher would give amazing richness and variety to the edifice, and, even as it is, they are very striking in the nearer views." Some of the most beautiful spires extant are to be found in various parts of Brittany. The author points out the similarity in the disposition of the west front in all the great French churches of the 13th century. The cathedrals of Amiens, Paris, and Rheims are distinguished from our English buildings by nearly the same particulars, though they differ much from each other. They assume at the west end more of a pyramidal form; the space between the western towers is proportionately smaller than with us. The doorways are much larger; a rose window is placed over the central opening, and above this is one or more ranges of niches with statues nearly hiding the triangular gable-end of the nave.

While some former French cathedrals are now without bishops, there are several cathedrals which until comparatively recent times were only abbatial or parochial churches. There are several cathedrals in the Revived Classical style of the seventeenth and eighteenth centuries, including that at Arras, illustrated herewith. The 19th century witnessed the completion of several cathedrals that had been left unfinished in the Middle Ages. Thus, transepts and an apsidal choir have been added to the Late Gothic cathedral at Nantes; at Clermont-Ferrand and Limoges the nave has been extended westwards; Moulins Cathedral, originally only a Flamboyant choir, has had an Early Pointed nave, with western towers and spires, added to it; and the towers of Quimper have received their spires.

Notre Dame de Rheims, the coronation cathedral of France, rightfully claims the premier position in any notice of the great churches of the land, and our first illustrations from the volume before us are, therefore, the magnificent west front and the full interior looking eastwards (Figs. 1 and 2). But Mr. Bumpus has made a slip in saying that Rheims was described by an eminent French antiquary as "Le Parthenon de Notre Architecture Nationale." It was Viollet-le-Duc who used the expression, and applied it, not to Rheims, but to the more picturesque, and more broadly proportioned, and later in style and date cathedral of Amiens. The latter edifice was given the foremost place, it will be remembered, by Ruskin, William Morris, Walter Pater, L'Abbé Roze, Arthur Symons, and Charles H. Moore. For our part, the sumptuousness, the symmetry, and the stateliness of Rheims, the grandeur of its coequal and harmonious western towers, and

* The Cathedrals of Northern France. By T. Francis Bumpus. 8vo. cloth, gilt tops, 396pp., 26 full-page plates. 6s. net. London: T. Werner Laurie, Clifford's Inn.

their relation to the lofty niches which act as a screen or mask to the main gable, and the elaborate triple portals below, the long, uniform line of roof from east to west, the lavish sculpture and carving constitute a poem in stone which is excelled by few buildings in the world.

The interior of the nave, which James Fergusson "regarded as the most perfect in design, has suffered much." The author points out that when the vaulting of the nave had reached the eighth bay from the east, the base of the tower, according to original plans were evident, and that the grandeur of the original design was modified, this is evidenced by the change in the fabric, but is they harmonise with the other bays, yet show distinct differences in style and in the method of construction. . . . It is very probable that he was the author of the side portions and upper parts of the west front, of which he may have modified the design; also of the towers."

The Cathedral of Sens (Fig. 3) will always have a peculiar interest to Englishmen on account of the story recorded by Gervase, the monk, that William of Sens was brought from over the seas to rebuild Canterbury Cathedral after the disastrous fire of 1170. Mr. Bumpus refers to the documentary evidence* extant showing that Guillaume de Sens was a working mason, and proceeds to from the aisles, the great arcade and vault being continuous from east to west. The vault is in sexpartite compartments, resting alternately on compound pillars and columns coupled transversely. In Easter week, 1267, the south-western tower—a work of the Transitional epoch—fell, crushing part of the nave, and necessitating considerable alterations in the reconstruction of that portion of the church and of the west front. Towards the end of the 13th century the clerestory windows throughout nave and choir were altered to larger ones of two containing arches, and about the same time chapels were added to the aisles of nave and choir. The transepts do not appear to have attained

Fig. 1.—RHEIMS CATHEDRAL: WEST FRONT.

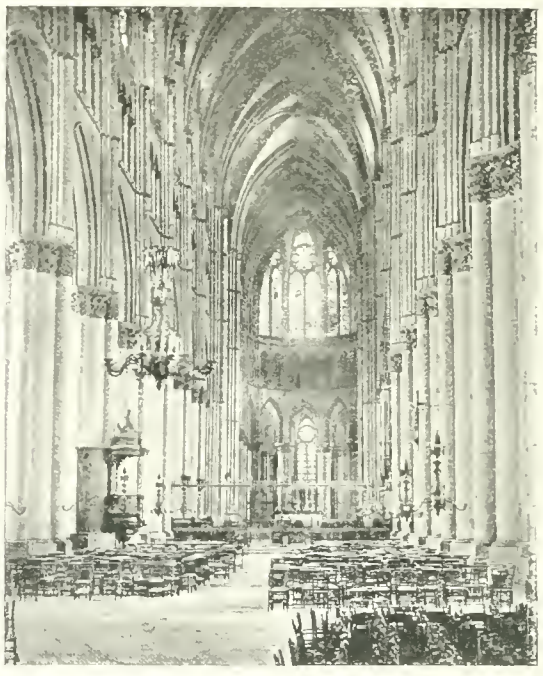


Fig. 2.—RHEIMS CATHEDRAL: NAVE, LOOKING EAST.

the necessary weight and dimensions of the external buttresses, which do not correspond to the slight superstructure which receive the flying buttresses. Although the height of the upper stories of triforium and clerestory was reduced, the breadth—44ft. in the clear across the nave—is by no means disproportionate even to the present height, 124ft. Mr. Bumpus remarks, as Professor Lethaby, Mr. Francis Bond, and others have done on the great resemblance, especially in their chevets, between Rheims Cathedral and Westminster Abbey, and gives a full description of the almost unapproachably fine stained glass with which the windows of the queen of French cathedrals are so richly dight.

In a foreword, Mr. Bumpus cites M. Demaison, the municipal architect of Rheims, who has sought to pierce the veil of mystery hanging over the name of the original architect of the cathedral. M. Demaison states that the edifice was begun on May 6, 1211. "Jean d'Orbais furnished the plans for the whole building, carrying out the choir and probably the greater part of the transept. His successor was Jean le Loup, who directed the work for sixteen years. He undertook part of the nave and also the great western front, which was continued by Gaucher de Reims from 1250 to about 1260. Following him was Bernard de Soissons, who constructed the nave from the fifth bay to the ninth bay, inclusive, and the great circular west window. It is known that Bernard continued to carry on the work until 1287, and that it was, no doubt, very soon after this date that Robert de Coucy became Master of Notre Dame. Robert de Coucy died in 1311, and, therefore, he could not, as had at one time been believed, have been the original architect of the cathedral or of its porches. The following parts are attributed to him: The four first western bays of the nave, which, although examine the assumed work at Canterbury to ascertain how far it harmonises with the buildings designed by William of Sens elsewhere. He says: "We are struck at once with the close resemblance between the choirs of Sens and Canterbury, both in plan and elevation. Each terminates in an apse of five sides, whose arches rise from transversely coupled columns; the compartments of the two choirs are separated by coupled round pillars, having bold capitals with square abaci carrying simple but effective moulded arches; above are the openings of the triforium; each bay comprises two arches and pillars in a secondary order; above is a lofty, complex clerestory window, filling up the bay of the vaulting. Single vaulting shafts spring from the capitals of the lower arcade and rise to the top of the triforium, where the stone vault commences. Nor does the general resemblance end here; the very details are the same, and the section of the base of the column is identical with the bases employed at Sens. Looking at the two cathedrals, if historical records were wholly wanting, we might without hesitation declare that the two buildings were designed by the same architect, owing to the mannerisms so remarkably evident in both structures." The main building at Sens was in progress from 1160 onwards (Barre Ferree and other authorities would ante-date the beginning of the rebuilding of the 10th century cathedral to 1140), and at its completion at the end of the 12th century, with its lateral chapels, but without the transepts, the cathedral must have presented one of the most perfect and beautiful illustrations of the style of architecture prevalent at the Transitional period. As Viollet-le-Duc showed, the cathedral was originally built without a crossing, having only two chapels opening their present dimensions till the close of the 15th century. In the middle of the 18th century the baldacchino, carried on Corinthian marble columns, was erected over the high altar from the design of Servandoni, the Mediæval rood-loft being replaced by a high, close screen and pair of gates, and between 1864 and 1872 the edifice was drastically restored by Viollet-le-Duc, who substituted for the debased Greek choir-screen and fittings the present dwarf wall and grilles, and removed the Middle Pointed chapels from the nave aisles. The church is rich in stained glass, some of it work executed by Jean Cousin between 1520 and 1550.

In the same province of Champagne is the fine cathedral of Saint Pierre of Troyes (Fig. 4), with its fine, but unfinished, west front—the work of Martin Cambiche—contemporary with Henry VII.'s chapel at Westminster, and the latest addition to the fabric. The choir is of the period of the sanctuary and transepts of Westminster Abbey, 1240-50, and the nave was built in the first half of the 14th century. Here at Troyes, as the author says, the story of transitions is carried down well to the Renaissance, and the architectural catena is so unbroken that it seems clear that the men who put Roman façades to Gothic churches were no foreign intruders but true and native sons of the fathers who had attached Gothic façades to Romanesque naves. In this façade Gothic and Renaissance work were going on concurrently, and it is impossible to divide the Schools and epoch by any horizontal line or clear vertical section.

The fragmentary Flamboyant chapel of the ancient chateau of the Ducs de Bourbon at Moulins-sur-Allier (Fig. 5) was one of the churches raised to cathedral rank for the first time in 1822, under the Concordat of Louis XVIII. To this Late Gothic building a nave with western towers was added be-

* Professor Lethaby draws attention to the fact that the building accounts of Sens, as yet unpublished, are preserved in the public library at Auxerre.

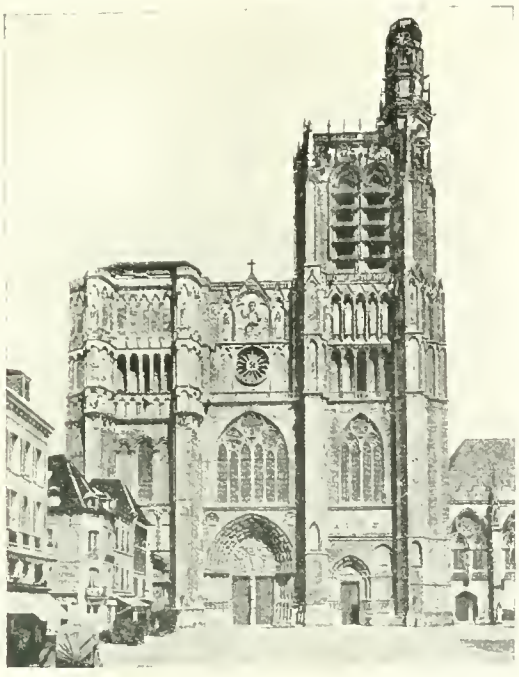


FIG. 3.—SENS CATHEDRAL: WEST FRONT.

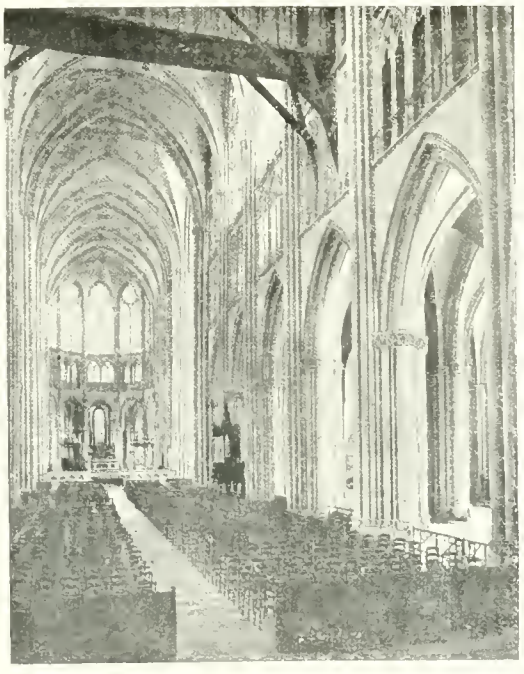


FIG. 4.—TROYES CATHEDRAL: NAVE, EAST.

FIG. 5.—MOULINS CATHEDRAL: NAVE, EAST.

FIG. 6.—ARRAS CATHEDRAL: NAVE, EAST.

tween 1852 and 1888 from the designs of MM. Viollet-le-Duc and Millet, the period selected by those architects being the early years of the 13th century, and the material white stone, relieved with bands of puce-coloured stone. The Late 15th-Century choir has five bays, and terminates in a chevet of three wide sides, with a square end to its processional path. The windows have good Flamboyant tracery. There are no transepts. The nave has good arcades of pointed arches on circular pillars, with boldly sculptured capitals. The high altar stands at the summit of a few steps just beneath the arch separating the nave from the choir. Over it is a Gothic baldacchino of gilded wood.

Our last illustration (Fig. 6) is the modern cathedral at Arras, replacing the famous Mediæval one so wantonly demolished at the beginning of the last century, the site being now occupied by a pseudo-Classical church built in 1842. The present cathedral was, until the Revolution, the church of the abbey of St. Vaast (or St. Vedast). In the middle of the 18th century it became ruinous, and between 1755 and 1789 it was partially rebuilt. The works were resumed in 1810 and completed in 1833. It is, as might be expected from the period of its reconstruction, a heavy Classical building, with a nave of six bays, transept of three, and a choir also of three bays. The aisles are continued round the semicircular apse, out of which seven chapels open.

We have quoted enough to show the character of Mr. Bumpus's work, which, like all the volumes compiled by him, evidences observation, industry, and research, rather than analytical powers of an original character. It is excellently brought out, is provided with a reliable index, and also contains a useful chronological list of the best specimens of Northern French architecture and stained glass, from the 11th to the 16th century. We look in vain, however, both in this amplified catalogue, and in the introductory chapter for any allusion to the sudden check in church-work for the fivescore and ten years between 1330 and 1440, when the French were engaged in disastrous internecine contests and in wars with the English; nor does the author allude to the noteworthy change that had occurred in the spirit of Gothic architecture from Early Pointed to Flamboyant, when the work of building was resumed—an alteration in style which coincided in many cases with the addition of transeptal projections from the uniform line of nave and choir.

ARCHITECTURAL SCHOLARSHIP FOR SOUTH AFRICAN STUDENTS.

Mr. Herbert Baker, F.R.I.B.A., of Johannesburg and Cape Town, who will be remembered as the Ashpitel Prizeman of 1889, announces his intention to institute every alternate year a scholarship of £250 to be held by young South African architects for the study of architecture in Rome and Athens, with the object of fostering in the warmer climate of the South African Colonies those styles of architecture suitable to such climate, and to check the importation of a less appropriate style based upon

for at once by [illegible] North [illegible] In [illegible] the Scholarship Mr Baker is [illegible] [illegible] Rhodes [illegible] [illegible] School [illegible] [illegible] £250 [illegible] [illegible] [illegible]

this point under the London Building Acts, but in most cases the Court appears to have held that the question was one of fact for the magistrates to determine. An important case is that of "Smith v. Chorley Urban District Council," in which the Court of Appeal held that where a local authority have, in good faith, refused to pass building plans on the ground that the erection of the houses would amount to laying out a new street of insufficient width, according to the by-laws, no action will lie for a mandamus to compel them to pass the plans. Some local authorities have their own special Acts, but in general their powers in the provinces are obtained from the Public Health Act, 1875, which enables urban authorities to make by-laws as to width, level, and construction of new streets, including the giving of notices, deposit of plans, inspection of work, and power of the authority to remove, alter, or pull down work done in contravention of such by-laws. A rural district council can get the same powers by an order of the Local Government Board. The Public Health Act, 1907, an adoptive Act, provides that the deposit of plans shall be of no effect unless the work is begun within three years. Further, that the authority may say which part of any thoroughfare is a new street. It gives them power to vary the direction and position of roads, in order to make them of maximum utility to the neighbourhood, unless it would mean the purchase of additional lands by the applicant, and in any case he is, by the Act, entitled to compensation if he can show injury. The Housing, Town Planning, etc., Act, 1909, gives further drastic powers to the local authorities on this matter of laying out streets; but I do not propose to deal with this Act, as an admirable paper on it was read at this Institution a short time ago. (Vol. XLII., Part 4, by Mr. John Willmott.) In the Metropolis the provisions of the London Building Act, 1894, give a definite code of procedure for persons desiring to lay out new streets or widen old ones. Written application must be made to the London County Council, with plans, sections, and other particulars. The application must be communicated by the London County Council to the borough council, and the former may refuse sanction on certain specified grounds. If refusal or sanction is not given within two months sanction is legally to be presumed. Persons laying out new streets must take all precautions for the public safety as may be directed by the local authority, who may, in default, do what is necessary and recover the cost.

THE MAKING-UP OF PRIVATE STREETS.

In the Metropolis powers as to paving are vested in the borough councils, as the successors of the vestries. The Metropolis Management Act, 1855 (Section 105), provides that if the owners of the majority of houses in a new street not paved to the satisfaction of the council be desirous of having such street paved, or if the council deem it necessary or expedient that it should be paved, the council shall pave the same, either partially or entirely, and keep it in repair, the expenses of paving to be paid by the owners of the houses. Owing to its length the full text of the section is given in an Appendix at the end of this paper. (See Appendix I.) It will be seen that this section exempts owners of land which is not built upon. The Metropolis Management Act of 1862, however, makes owners of abutting or bounding land liable as well as owners of houses, but provides that the council may charge owners of land on a lower scale than the owners of houses, apportioning the expenses, and recovering them before commencement, during progress, or after completion of the work. Such expenses may be allowed to be paid in instalments extending over not more than twenty years, and are recoverable from the present or any future owner. The term "street," under the 1855 Act (Section 105), means a street composed wholly or partially of houses on one side or the other, and this meaning was not extended by the Act of 1862 to include a road with no buildings along it. "Vestry of Battersea v. Palmer.") But by the decision in "Simmonds and Others v. Vestry of Fulham," a road may be a new street under Section 105, although all the land along one side of it is building land on which no building has been erected. Numerous cases have been decided to the effect that an added strip may be, in itself, a new street, both in London and the provinces, and the frontages on its side only are liable for the cost of making it up, since there are no owners abutting on the opposite side of the strip. ("Property Exchange, Ltd., v. Wandsworth Board of Works.") After the owners have paved a Metropolitan street the local authority is bound to keep it in repair, whether it has become a highway or not." ("Camberwell Vestry v. Hunt.") In case an old footway, laid out before 1855, shall have been repaired by the public, but not properly flagged or paved, and the local authority deems it necessary or expedient that it should be so paved, the authority can do the work and recover the cost from the abutting owners. By the 1862 Act the expense fell on the vestry, but this was altered by the amendment Act of 1890. The duty of lighting the streets is imposed on the local authority. It will be noticed that there is no exemption from the liability for expenses of making up streets in London. The owner, from whom the expenses are to be recovered, is defined, as regards the Metropolis, by the 1855 Act, and as regards the provinces by the Public Health Act, 1875, as the person for the time being in receipt of the rack-rent, whether on his own account, or as agent or trustee for any other person, or who would so receive the same if such lands or premises were let at a rack-rent. In London the paving expenses are recoverable by action from the present or future owners, or from any person who then or thereafter occupies the premises. No greater sum can be demanded from the occupier than the amount due from him to the landlord, and he can deduct from his next payment of rent. If paying a rack-rent he may deduct the whole, and if paying less than rack-rent can deduct a proportionate amount. This provision, however, is not to affect any covenant between landlord and tenant. The expenses are not a charge upon the premises, and an unsatisfied judgment is no bar to a subsequent action against a successor. The Statute of Limitations would hardly apply, since the prescribed time would not begin to run until the money was demanded from the owner for the time being. In the provinces the procedure for making up private streets is, in some cases, regulated by special local Acts, but, generally speaking, it is done under either the Public Health Act, 1875, or the Private Street Works Act, 1892. Under the former, Section 150, where a private street is not sewered, needs making up, or is not properly lighted, the local authority may serve notices on the owners or occupiers to do the work within a stated time. The engineer to the authority prepares plans and estimates of the work required, and these particulars must be open to inspection at all reasonable hours. Should the notice not be complied with, the authority may do the work and recover the expenses in a summary manner, the surveyor apportioning them according to the frontage of each property.

(To be continued.)

THE USE OF THE AXE IN ANCIENT AND MODERN MASONRY.

A correspondent, in "Intercommunication," in the issue of the 25th ultimo, takes some exception to a remark by an evidently unpractical person, made recently in a lecture, when the latter asserted the chisel was a tool unknown amongst our Norman forefathers. The statement appears to have been accompanied by the assertion that the handicraftsmen of those days depended entirely upon the axe for the fashioning of stonework. The querist in question—and correctly so—assumed that the chisel, as a mason's tool, had been known for centuries prior to the Saxon or Norman period. As a matter of fact, bronze chisels, tempered by a process now lost to us, were used by the ancient Egyptians something like three thousand years before the birth of Christ. Examples of some of those I have seen, if I recollect rightly, in the British Museum, or it may have been in one or other of the several great national collections upon the Continent.

In your issue for the 2nd inst., Mr. Harold E. Henderson makes some very sensible remarks, and all must agree with him that ornamentation, as carved in Norman days, did not depend upon the adze or axe for its admittedly always more or less crude manipulation. The assertion that it did is a theory that cannot be entertained for a moment. The carving was largely done by the chisel. Still, it is interesting to notice that the axe—certainly in portions of the South of England, and upon the opposite shore in France — has always, both in ancient and modern times, been a favourite tool amongst a certain class of stoneworkers, especially with those who toil largely in quarries, and hence have a wide experience in the squaring-up of blocks. Quarrymen, in turn, largely use it.

Amongst the oldest subterranean quarries in Great Britain, one that has been continuously worked from the Roman occupation (if not before) until the present day is that situated near Beer, a romantic little fishing village upon the south-east Devonshire coast. In an article from my pen describing a visit to it which appeared in the BUILDING NEWS for September 19, 1879 (thirty-one years ago), I refer to the axes in common use as follows:—"The quarrymen depend also solely upon a pick (a 'peckice' they term it), hammers and wooden wedges. The pick is a single-barbed one, the old original implement, indeed, which the toilers' forefathers for generations previously have used. The pick hews into the stone very readily, but, at best, it is hard, or, in Devonshire pharaseology, 'spare' work, chopping all day long in a dark tunnel, by the grim light of a few candles stuck in lumps of clay against the quarry's side. The men, when a block is to be raised, 'pick' a 6in. 'curve' out of the side and back. Wedges, seven to every 5ft., are then driven in, and the stone thus loosened is 'tipped' by a bar. The blocks have to be moved afterwards by jacks and rollers. It is extremely interesting to traverse the older workings, and see the pick marks of our forefathers, fresh as they are, as if chiselled only yesterday. The roofs, for instance, are distinctly different to those hewn out in modern times. In the ancient Norman workings, these roofs are worked very level and flat. The old men, in those days, seem to have used precisely the same picks; but indications go to show in that period the blocks quarried were never so large as they are now. Going back to earlier times than the Normans, in still more remote workings, it is seen the roofs are left not flat- but round-headed."

South-east from Beer, situated, perhaps, 150 miles as the seagull flies, and a dozen miles or so inland from the north coast of France, is the ancient and ever-interesting city of Caen. The celebrated quarries, whose stone takes its name from the place, are situated in the midst of a broad plain less than a couple of miles away. I gave some illustrated notes, entitled "Caen and Its Quarries," in the BUILDING NEWS for October 28, November 25, December 9, and December 30, 1904, and a final one in this journal's issue for January 20, 1905. Therein, in that for December 9, the modus operandi of actual quarrying in the deep underground workings is thus described:—"A narrow channel, 3in. wide, is cut all around the edges of the required block, and by 'jumping' with long bars of pointed iron, known as 'aiguilles,' sinkings are obtained. These channels are cleared out, from time to time, as required, by a 'tire terre'—a sort of narrow rake—and when once the grooves reach the depth of the bed, the stone is ready to be prized up by iron bars. Then, after being roughly squared-up, the block is ready to be lifted to the surface. Various picks and axes are used in shaping-up these blocks. A handy pick, measuring 14in. from point to point, is known as 'la pioche.' It is the first tool applied to the released stone. Then comes the 'lave,' a heavy, double-edged axe. Another useful one has five teeth on each edge. This is the 'diable' (devil'). A still

finer one has eight teeth, and is known as the 'grain d'orge' (the barley grain), the marks its claws leave upon the face of the stone suggesting its name. The handles of all these rough and ready but exceptionally useful tools are, as a rule about 2ft. 2in. long.

"All who are accustomed to the handling and working of Caen stone blocks in this country are aware that they possess slow tooth marks. These appear most on the sweep, and their appearance suggests that of the action of a huge circular saw. But, in reality, the curve given comes from the natural swing of the mason's arm when using the 'grain d'orge.' As already noted, these particular marks occur upon the edges only. The top and bottom beds are axed over by the 'laye,' which possesses no teeth. Hence, the bed of a block of Caen stone is instantly recognisable by these two distinctly different treatments of its faces."

Ham Hill stone has been raised in Somersetshire for centuries. In that county the finest of its old ecclesiastical and domestic buildings were reared in that material. Amongst examples of the latter may be mentioned Montacute House, built early in the 16th century, one of the noblest residences in the West. The men who quarry this warm coloured material are known locally as "Badgers." They use an axe, a handy tool possessed of a double blade, each face being about 4in. over. The wooden handle is generally 14in. long. Several decades ago, when I used a good deal of Ham stone, I possessed one of these mason's axes, and it was in use regularly. The way, wielded by a strong arm, it "shifted the stuff" was marvellous!

I am the fortunate owner of a now very rare and valuable book, entitled "A Narrative of the Building of the Eddystone Lighthouse," written and splendidly illustrated by John Smeaton, F.S.A. It was published by H. Hughes in 1791. Prior to the actual erection of this famous lighthouse, Smeaton visited several quarries in the South of England. Amongst these were those situated upon the Isle of Portland, not far from Weymouth. In his book the author describes them at some length, and enters minutely into the manner of working the stone. He seems to have been particularly impressed by the axes in use. Referring thereto, he states:—"The beds being cut into distinct lumps, the quarrymen, with a tool called a 'kevel,' which is at one end a hammer and at the other an axe, whose edge is so short or narrow that it approaches towards the shape of a pick, by a repetition of sturdy blows, soon reduces a piece of stone, by his eye, to the largest square figure which it will admit. These blocks are thus formed in size, weighing from half a ton to six or eight tons, and even upwards. The 'kevel' is curiously formed for the purposes required. The face of the hammer-end is not flat, but hollowed according to the portion of the surface of a cylinder. This gives a keen edge to two of its opposite sides, that are parallel to the handle, and by this means, biting keenly upon the stone, it brings off a sprawl, or large shiver. The edge of the pick-end is about half an inch in breadth. Attentively considering the operations, I was struck by observing how soon these quarrymen would cut off half a ton of sprawls from these uniformed blocks, and what large pieces flew off at every stroke; how speedily their blows followed one another, and how incessantly they pursued their labour, using a tool of from 18lb. to 20lb. in weight. The greater number of them were of a very robust, hardy form, in whose hands the tool I have mentioned was a mere plaything, and I expressed my surprise at seeing these stout fellows handle the kevel, which seemed to them to be a mere nothing, for I observed that in the space of fifteen minutes they would knock off as much waste matter from a block of stone, as any of that occupation I have ever seen before would do in an hour."

HARRY HEMS.

The new technical college for Dundee, built at a cost of £75,000, was formally opened on Monday.

MODERN CHURCH BUILDING

Mr. Charles S. Spooner, F.R.I.B.A., lectured on "Modern Churches" on Friday night at the Exchange Buildings, Birmingham, before the members of the Birmingham Architectural Association. The design of the old Mediæval church was suitable to the Catholic form of worship, because it remained practically the same in essentials as it was at the birth of the Church. Mediæval builders thought that the church should be the best and most beautiful building in the place, beautifully furnished, and decorated with the best they could use. But, generally speaking, those who had to build churches had to do the best they could with the limited means at their disposal, and the difficulty of producing a beautiful building, worthy of its high purpose, was greatly increased thereby. It behoved them all to see to it that their standards were true. First of all they must keep in mind that the church was a monumental building—one that stood for a great, perhaps the greatest, idea—whether it were large or small. They must build solidly and substantially of thoroughly good, but not necessarily expensive, materials. It did not always follow that local materials would be so. But local materials were nearly always best to use, all other things being equal. The work should be economically, but not meanly done, and in such a way as to insure a minimum of repair. They must look out for local tradition in building, whether it was still followed or not, and, if possible, follow it. At the same time they must be careful to avoid affectation or any phase of fashion. Largeness and simplicity, together with good building, told much more than ornament. Cheap ornament was to be avoided as much as an evil smell, for it had a similar effect.

The designs submitted by Messrs. George Baines and Son, 5, Clement's-inn, Strand, London, W.C., have been adopted for the Reddish Congregational Schools and Institute, the estimated cost being £2,600.

The Essex County Council have approved application being made to the Road Board for a grant of £15,000 for the purpose of widening Ripple-road, Barking, and building a bridge over the London, Tilbury, and Southend Railway.

There has just been placed in the east end of the south aisle of the parish church at St. Andrew's, N.B., a three-light stained-glass window, the subject of which is "The Miracles and the Miraculous Power of Our Lord." The window was designed by Mr. Douglas Strachan, Edinburgh.

The town council of Maidstone agreed at their last meeting to pay an honorarium of £125 to the Borough surveyor, Mr. T. F. Bunting, on account of services rendered to the education committee in connection with the Tonbridge-road and Union-street schools during the last two years.

The Cardiff Corporation some time since placed a contract with Mr. L. P. Nott, of Bristol and Westminster, for the construction, at a cost of £201,000, of a new reservoir at Llwyncelyn, Cwm Taff, near Merthyr, with a storage capacity of 1,200 million gallons. Huts have been erected, a quarry opened, and a railway laid, and it is hoped very soon to begin the excavation for the dam.

At Monday's meeting of the Insurance and Actuarial Society of Glasgow, Mr. A. M. Clydesdale, president, in the chair, Mr. T. A. Macdonald, C.E., read a paper on fireproof construction in relation to the rules of the fire offices' committee. While generally approving of these rules, Mr. Macdonald pointed to some which he regarded as open to improvement. He emphasised the desirableness of the adoption of fire-resisting construction wherever at all possible, not only for private, but for public benefit.

At Monday's meeting of the town council of Plymouth, the free library and museum and art gallery (joint buildings) sub-committee reported the receipt of a letter from Messrs. Pethick Bros., Ltd., transmitting their claim against the corporation in respect of the balance alleged to be due in connection with the erection of the free library and museum and art gallery, amounting to £11,880. They had instructed the town clerk to take such steps as he might deem necessary to protect the interests of the corporation, and report from time to time to a sub-committee.

OBITUARY.

Sir John Aird, Bart., died, after a lingering illness, on Friday evening, at his residence, Wilton Park, Beaconsfield, at the age of seventy-seven. Deceased was head of the eminent contracting firm of John Aird and Company, of Westminster. Sir John Aird, though of Ross-shire descent, was born in London on December 3, 1833. His father, Mr. John Aird, of Fortrose, Ross-shire, was originally a stonemason, who went to London and worked for some years at Bromley-by-Bow for a bare livelihood. He possessed education and energy, and in the course of time became a contractor on a large scale, among the works carried out by him being the Crystal Palace. As assistant to his father, Mr. Aird took part in the construction of the first waterworks at Amsterdam, Copenhagen, and Berlin; the gasworks at Copenhagen and Moscow, and various towns in France, Italy, and Brazil. Afterwards, he was associated with Messrs. Brassey, Wythes, in the construction of the waterworks at Calcutta, and with Messrs. Peto and Betts upon public work in Sardinia. Still later, his firm joined with that of Messrs. Lucas Brothers in carrying out engineering works in this country, including the Metropolitan and St. John's Wood Railway, the Hammersmith and other extensions of the District line, the Royal Albert Docks, the docks at Tilbury, the East and West India Dock extensions, the Hull and Barnsley Railway and Dock, the Nottingham and Melton Mowbray, Kettering, and Manton lines—for the Midland Company—and the West Highland Railway. They were also contractors for extensive undertakings at Southampton and Millom, and in the construction of reservoirs at Hampton and Staines for the London water companies. They also undertook for the Government the building of the Suakim to Berber Railway, in the Soudan. But by far the most important undertaking which Sir John Aird carried out was the building of the great dam at Assuan for holding up the waters of the Nile. In 1898 the firm of John Aird and Co. contracted to erect the Assuan dam and the Assiut barrage, and to complete the work in five years. At one time about 20,000 men were engaged upon it, and the scheme was completed in 1902, a year before the expiration of the period stipulated in the contract, and three and a half years after the laying of the first stone. The Assuan dam is now being increased in height by the firm, who were also the main contractors for the construction of the Esneh barrage, a work opened early in 1909. More recently, Messrs. Aird carried out the contract for the Royal Edward Dock at Avonmouth, Bristol, at an outlay of about £3,000,000. Sir John was a Unionist in politics, and represented North Paddington in the House of Commons from 1887 to 1906, when he retired.

The Architectural Association Journal records the death of Mr. Arthur W. Earle, who served on the council of the Association for some years, from 1895 onwards. He was a prominent worker in the old A.A. Lyric Club, and rendered active assistance in arranging the conversazione as a member of the entertainments committee. He was instrumental in forming the A.A. Rifle Club, of which he became captain. He served in the South African War, being one of the C.I.V.'s (London Scottish contingent).

Mr. John Kyle, M.I.C.E., resident engineer of the harbour works at Colombo, Ceylon, died there of heart failure on Monday, in his fiftieth year. Mr. Kyle served his apprenticeship with Messrs. R. B. Bell and D. Miller, of Glasgow. He was subsequently employed by the firm in the preparation of plans, specifications, and estimates for a variety of works, such as the widening of Glasgow Bridge, the building of the Albert Exhibition Palace, and the improvement of the River Cart at Paisley. In March, 1884, he was appointed assistant-engineer of the Colombo harbour works, became engineer-in-chief in April, 1885, and on the completion of the works was appointed resident engineer. He had superintended the recent extension of the

harbour by the construction of two new breakwaters at a cost exceeding £500,000.

A memorial service for Mr. John Howard Colls, who died on December 29 at Buenos Aires, took place on Thursday in last week at All Saints, Margaret-street, W. It was conducted by the Rev. E. D. Arundel, assisted by the vicar, the Rev. H. F. B. Mackay. Among those present were Sir John Bell, Mr. Henry Smith, Mr. T. G. Vickery (from the City Solicitor's Office), Mr. Malcolm Scott (chairman of the Evelina Hospital for Children), Mr. H. C. Staniland Smith (secretary of the hospital), Mr. William Smith, Mr. John Belcher, R.A., F.R.I.B.A., Lady Samuelson, Mr. T. F. Ryder, Mr. and Mrs. Alfred Wallis, Mr. Leonard Horner (president of the London Master Builders' Association), Mr. Dixon Gibbes, Mr. David Murray, R.A., Commander and Mrs. Royds, Mrs. Howard Trollope, Miss Trollope, Mr. Robertson Lawson, Sir William White, Captain Alexander, Mr. P. Rose-Innes, Count de la Taille des Essarts, Mr. Boyton, M.P., Mr J. R. Pedler (vice-president of the John Carpenter Club), Colonel St. John Roche, Mr. Charles Welch, formerly librarian at the Guildhall, and Mr. F. Debenham. Nearly one hundred employes of Messrs. Colls and Sons had places reserved for them in the church.

Mr. Joseph Duffy, of The Villa, The Green, Wallsend, Northumberland, builder, who died on July 29, left a fortune of £123,642.

A Local Government Board inquiry was held at Harrogate on Tuesday, relative to the application to borrow £20,000 in connection with the Masham water undertaking.

A reservoir is being built at Ystradfellte for the Neath Valley Rural District Council by Messrs. Morrison and Mason, of Glasgow, to plans prepared by Messrs. G. H. Hill and Sons.

At Preston, on Tuesday, Judge Hamilton granted the immediate discharge from bankruptcy of Samuel Wilson, builder, St. Annes-on-Sea, whose insolvency was attributed to extraordinary depreciation in the value of property.

A faculty was granted in the York Consistory Court, on Tuesday, for the erection, at the cost of the Rev. the Marquis of Normanby, at the east end of the south aisle of Lythe Church (near Whitby) of a chapel to be called the Normanby chapel.

It has been arranged that Mr. Hogkinson, surveyor, and Mr. Jump, sanitary inspector, to the Birkdale Urban District Council, shall receive £1,500 and £900 respectively, as compensation for dispensing with their services on the amalgamation of Birkdale with Southport.

The Coventry Corporation Omnibus Bill was discussed at a town's meeting on Monday. The part of the Bill providing for the construction of a new street from Broadgate to Swanswell, and for widening Leicester-street at a total estimated cost of £100,000 was rejected, and the free library and other provisions were approved.

At the Central Criminal Court on Tuesday, Edward Marshall, 68, builder, who was found guilty at the last Sessions of obtaining credit to the extent of £20 and upwards from John Osborn Ayton without informing him that he was an undischarged bankrupt, was brought up for judgment. The Recorder sentenced the prisoner to three months' imprisonment in the second division, to date from the first day of the last Sessions (December 6).

Steps are being taken for the carrying out of a new housing scheme in the Long Sutton district of Lincolnshire. It is proposed to form a company, to be known as the Long Sutton Tenants, Ltd., and to erect fifteen houses at a cost of £3,000 on land which has been already secured for the purpose. The land is four acres in extent, and a fair amount of the capital has already been subscribed, and on this it is anticipated a return of about 4 per cent. will be obtained.

At Monday's meeting of Linlithgow District Committee, it was stated that the storage capacity of the water supply for the district was now found to be inadequate for the needs of the district, and that Messrs. Leslie and Reid, C.E., had been instructed to submit a report as to providing additional storage accommodation. The meeting remitted to the Dalmeny and Kirkliston Water Committee to prepare a scheme with the object of combining the various special water districts within the district.

PROFESSIONAL AND TRADE SOCIETIES.

BRISTOL SOCIETY OF ARCHITECTS.—A meeting of this society, open to members and their friends, including ladies, was held on the 9th inst., the president, Mr. Foster Wood, in the chair. A lecture was given by a member and former honorary secretary of the society, Mr. F. Bligh Bond, F.R.I.B.A., diocesan surveyor of Bath and Wells. The subject treated was that of Somerset churches, and a very fine collection of about a hundred lantern views was shown. The lecturer was of opinion that the Perpendicular style and its transition from the Geometrical, was developed in these churches at a very early date. So much so that Somerset may be regarded as the home of this phase, and it was probably carried thence by ecclesiastics to the Midlands, East Anglia, and other parts of the country. Another beautiful feature of the Somerset churches is that of the characteristic square towers built as a result of the wonderful perfection in campanology attained during the 15th century. Many interiors were illustrated and described, specially with reference to the Celtic and Saxon styles of planning, as they affect the screening of the chancel and width of its arch. Examples were shown of Jacobean and Carolean screens, which, as at Croscombe, include praiseworthy attempts to replace, in measure, the work destroyed by the decree of Queen Elizabeth, who ordered all roodlofts to be taken down. Even some of the early Hanoverian work may be considered fairly harmless; but anything later than the first George was usually incongruous and debased. On the motion of Mr. G. C. Lawrence, a very hearty vote of thanks was accorded to Mr. Bond for his lecture.

THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.—An ordinary meeting of the council of the above body was held at 31, South Frederick-street, Dublin, on Monday last. The president, Mr. A. E. Murray, R.H.A., F.R.I.B.A., occupied the chair, and there were also present: Messrs. C. H. Ashworth, W. Kaye Parry, James H. Webb, L. O'Callaghan, Frederick Hayes, A. C. C. Millar, F. Batchelor, F. G. Hicks, G. P. Sheridan, and C. A. Owen, hon. secretary. The minutes of the ordinary and special meetings of December 5 and 19 were read and signed, and a considerable amount of correspondence was dealt with. The standing committees were appointed as follows, the president and hon. secretary being ex officio members in each case: Professional Practice Committee: Messrs. W. Kaye Parry, G. C. Ashlin, L. O'Callaghan. Arts Committee: Messrs. Frederick Batchelor, C. J. MacCarthy, G. P. Sheridan. Publication Committee: Messrs. H. Allberry, R. Caulfeild Orpen, J. H. Webb. Examination Committee: Messrs. H. Allberry, R. Caulfeild Orpen, F. C. Hicks. The question of the revision of the letter of invitation was referred to the professional practice committee. It was decided to hold an examination at an early date for entrance into the students' class of the institute.

ULSTER SOCIETY OF ARCHITECTS.—At the annual meeting of the members of this society, held at Belfast, Mr. R. M. Young, J.P., presided. The ballot for officers for the year 1911 was taken, and resulted as follows: President, Mr. R. M. Young, J.P., F.R.I.B.A.; vice-president, Mr. Henry Seaver, B.E.; members of council, Messrs. J. J. McDonnell, N. Fitzsimons, F.R.I.B.A.; W. J. Gilliland, F.R.I.B.A.; and M. A. Robinson (Londonderry Branch); associate members, Messrs. H. Lamont and T. W. Henry; honorary auditors, Messrs. W. B. Blackwood and J. Parrett Robinson; honorary treasurer, Mr. Thomas Houston; honorary secretary, Mr J. St. John Phillips, A.R.I.B.A. The report of the council for the year 1910 was presented and adopted. It contained expressions of regret that no further progress is to be reported in the matter of the alliance of the Ulster Society with the Royal Institute of British Architects. The affiliation of the two Irish societies had been laid down as a "condition precedent" to the Ulster Society securing direct alliance with the Royal Institute of British Architects. "Your council now thank the members of the Ulster Society who assisted them to fulfil this condition by consenting provisionally to join the Irish institute. Your council fulfilled every condition laid down by the R.I.B.A. memorandum, which should have secured alliance with the Royal Institute; but your council, after protracted negotiations, finally received intimation from the Royal Institute that, owing to representations made by the council of the Irish Institute, they had decided that the question of the alliance of the Ulster society must be deferred."

COMPETITIONS.

ATHENS.—H.M. Acting Consul at the Piraeus reports that a competition of plans is invited by the Greek Ministry of the Interior (Public Works) for the erection of a court of justice at Athens. The cost of the building must not exceed 4,000,000 drachmæ (£160,000). Competitors must submit plans and estimated cost of the work in detail, and these documents, together with a sum of 200 drachmæ (£8), which will be paid as an honorarium to the jury, will be received at the "Section d'Architecture du Service Central des Travaux Publics, Ministère de l'Interieur," Athens, up to midday on August 8th/21st next. A first prize of 20,000 drachmæ (£800) and a second prize of 8,000 drachmæ (£320) will be awarded for the best plans selected. The competition is open to foreign architects. The Greek *Official Gazette*, containing further particulars in Greek and in French) may be seen by British architects at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall street, London, E.C.

APPLEBY.—In the competition for the Conservative Club and Post Office at Appleby, Westmorland, the design by R. Morton Rigg, architect, Penrith, Cumberland, has been selected by the committee.

The urban district council of Clacton have decided to extend the proposed sea-wall and promenade on the west beach to a total length of 1,050ft.

A new reservoir is being built at Beaufort, Glam., by Messrs. Hodson and Sons, Nottingham, for the Ebbw Vale Urban District Council, at a cost of £80,000. The engineers are Sir Alexander Binnie, Son, and Deacon.

The contract for the construction and erection of a bridge over Chamber-street, Bury, for corporation electricity sidings, has been let to Mr. Thomas Wrigley, of 26, Corn Exchange Buildings, Fennel-street, Manchester.

The Road Board is giving favourable consideration to the proposed new road from Birmingham to Wolverhampton, and a scheme which they have drafted will be submitted to a meeting of local authorities at the Council House, Birmingham, to-day (Friday).

At St. David's Church, Exeter, a ten-light window has been filled with stained glass and dedicated as a memorial to the son of Dr. Deneville, who died from the after-effects of the South African war. The subject is the Ascension. The work is by Mr. H. J. Salisbury.

In view of the opening of Lancing College Chapel next summer, the idea of placing recumbent figures of the founder (Canon Woodard) and his wife has again come under consideration, and a fund having that object in view has been started. The estimated cost of the figures in bronze is about £1,000.

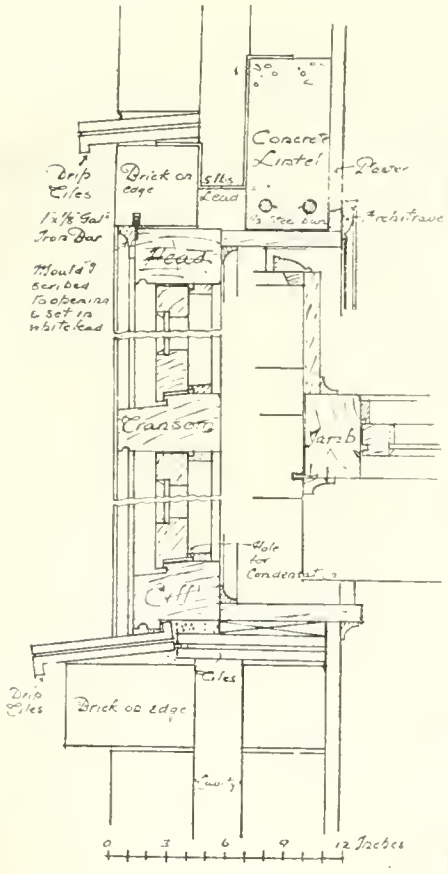
The new Russian naval base on the South Finnish Coast is to be at Hermanso, an island situated to the north-east of Hango Peninsula. It is surrounded by innumerable rocks and dangerous channels, but can be kept open all through the winter. Contracts have already been placed for over 7,000,000 bricks, for delivery during the summer of 1911. At Ekenas, on the mainland at the back of Hermanso, extensive military accommodation is also to be erected, and tenders are out for a similar quantity of bricks. These are all being supplied by Finnish yards, although the contracts have in most cases been made through middlemen. The erection of great barracks is about to be undertaken at the railway junctions of Kuovala, Riihimaki, and Seinajoki, all in Finland. For these, contracts for forty million bricks for delivery in 1911 have been placed.

Building Intelligence.

BURY LANES. A [illegible] relative thereto [illegible] held, was opened [illegible] Earl Derby, of Mo[illegible] [illegible] stated [illegible] [illegible] mmodation [illegible] [illegible] two sets [illegible] [illegible] estrooms [illegible] [illegible] [illegible]

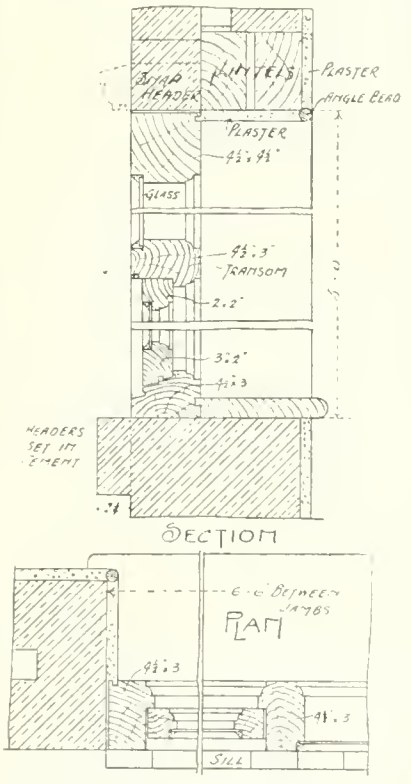
Whilst ventilating the cavity do not get confused, and think that you have ventilated the joisted floors because there are gratings near the floor-line. Such a case came under my notice a short time ago. The windows may be placed either on the outside flush A, or in reveal as in B. The best way to finish the cavity is to nail a couple of thicknesses of roofing slate to the joints of the inner skin or wall, taking care that the joints of the slate are properly broken, whilst at the head a lead or zinc tray to fall to a couple or so of weep-holes as at A, or towards each end as at B, will protect the frames, &c., from any moisture. The trays should be 6in. longer than the timber they have to cover, and built into the joints of the brickwork on either side. A water-bar is necessary between the oak and brick sills, bedded in red and white lead, whilst the frame should be bedded on old paint. The necessity of cutting the groove for the water-bar is against the use of any but the proper moulded brick sills. The frames to be built in and pointed in the ordinary manner. A bearing-bar, about 2½in. by ½in., let into the brickwork, is necessary to carry a flat arch as shown in B, with such a wide span as 6ft. 6in.—K. H. Read, Lecturer on Building Construction, Gloucester Technical Schools.

[12985.]—CASEMENT WINDOWS AND CAVITY WALLS.—The construction of watertight casement windows is clearly shown in the details. Special tiles with a drip to throw off water which may run down face of wall, should be used, and 5lb. milled lead gutters about 6in. longer than the head of window-frame should be built into the cavity immediately over the window-head. The brick-on-edge head should be built in rubbers with fine joints, grooved on underside for 1½in. by ½in. galvanised iron weather-bar, screwed to face of frame, a similar arrangement being provided for jambs also, and the weather-bar bedded to frame and groove in white



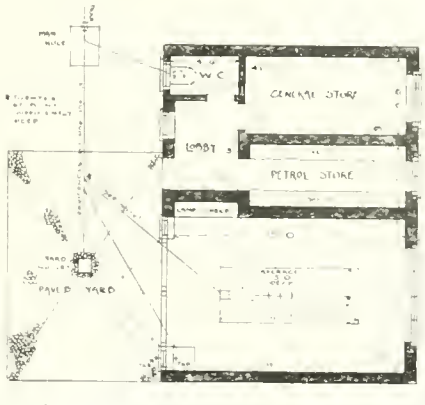
lead. The sashes are set in a reveal, and a drip formed in soffit of head and transom, a rebated bead being fixed to inside of frame to form stop for the sashes. The sill piece of the sash is also rebated and bevelled to throw off water; the sashes fitting tightly against the rebated bead, an air-lock is formed in the voids and acts as an extra check against ingress of water. The sill should be of oak, rebated about ½in. for the nib of drip-tiles reversed, which should be sloped to face and laid to break joint in alternate courses, and bedded in cement mortar. If preferred, the oak sill could be made to project 1½in. from face of wall with drips formed on under side. The brick and tile sill would then be unnecessary, and could be dispensed with.—S. H. Goodwin, 8, Epsom-road, Croydon.

[12985.]—CASEMENT WINDOWS AND CAVITY WALLS.—I enclose sketches showing method of constructing casement windows in 11in. cavity walls. Construct the frame and casements as shown with redwood, first quality, to the following sizes: 4½in. by 3in. stiles, mullions, transom, and sid 4½in. by 4½in., head 2in. by 2in., casement with 3in. by 2in. bottom rail, all to be moulded, rebated, grooved etc. as shown by detail. All joints to be painted two coats before fixing and firmly wedged together while second coat is wet. Each casement to be fixed ⅜in. from outside face of frame and fitted with one pair 3in. brass butts, casement stay, and fastener. The brick-on-edge sill and head to be set in cement, head to be formed with snap headers. I suggest that a 3in. brick label-mould be laid on top of frame in lieu of brick-on-edge (as shown by dotted lines). This would do away with a split course, which would look very unsightly. Fix 6in. by 3in. lintels as shown and run 1in. cement fillet on same in cavity. Glaze lights with 21oz. sheet glass; knot, stop, prime,



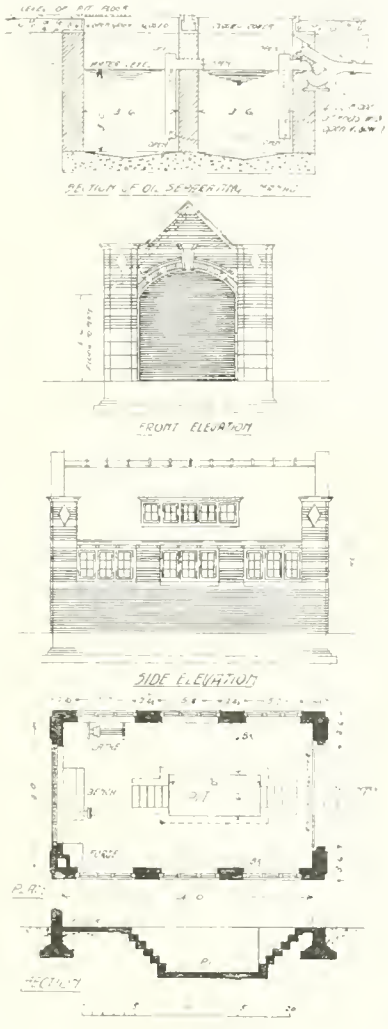
and paint three coats good oil colour all woodwork; care to be taken that the bottom edge of bottom rail is painted. Point round frame with mastic.—J. W. Towers, 43, Church-road, Lytham, Lancashire.

[12967.]—GARAGE.—Accompanying is a sketch plan of garage suitable for the private residence. "Sydenham" did not state whether or not he required chauffeur's living accommodation, so I have presumed that such was not required. Also, I have provided for one car. The garage proper contains a pit, the depth of which should average 5ft., and it should slope to the gulley as shewn, so that any waste oil, water, etc., can be washed away. The floor of the garage should slope to the doors, and have no sill projecting up beneath doors. The garage should be lighted from the rear as shown, and also by two side lights at either side of doors. Petrol store to have slate shelves in preference, one to be lighted as shown. General store to be lighted as shown;



w.c., which is necessary, is kept away from the garage as much as possible, and is entered by a lobby, as is the store. Floors everywhere to be 6in. cement concrete, with evenly floated finishing coat which should be gritty. Yard to be paved with cobbles, set evenly and drained to centre gully as shown. I have provided water-taps, one inside and one outside of garage, and in both cases the waste water will drain off. The building as sketched can be easily roofed, being quite rectangular, and should be suitable for "Sydenham's" purpose, so far as can be gathered from his brief conditions.—Leonard F. Smith, Westhall, Clarendon-road, Redhill, Surrey.

[12987.]—GARAGE.—If your correspondent will look up the BUILDING NEWS for September 10, 1909, he will find a design in reinforced concrete for a garage by Mr. C. A. Longley. Unfortunately, the inquirer does not state either the type or number of cars to be accommodated. This is very essential information; but the sketch herewith may prove useful. The dimensions *a* and *b* correspond to the width and length over the tires. Foundations to be in cement concrete, walls of brick with ashlar dressings, built in Flemish bond red pressed externally, and faced internally with salt-glazed dado and white-glazed seconds above. Roofs covered in with green "Delabole" slating, finished with bright red Berkshire ridge tile. Floors to be of cement concrete, finished with mosaic or granolithic flooring (random pattern preferable, on account of oil-spots). Entrance to be fitted with steel roller shutters. The drainage will depend upon the



position and depth of sewer; but should be so contrived to admit of an oil-separating manhole of a section as shown. Perhaps it is unnecessary to explain that the open elbow pipes allow of the water being drawn off from the lower levels of the tanks without allowing the oily surface escaping into the sewer. Probable cost from £200 to £400, according to the finishings.—Frank Wilson, 225, Nottingham-street, Sheffield.

[12989.]—ROOF.—This space should be covered with a span roof (not a lean-to), the span to be the 30ft. way; the eaves would thus dripon to the shed-roofs. One eaves-gutter would do for both roofs. The ridge of this roof would intersect with ridge of barn, which, although not stated, is sure to be of a much higher level than the sheds. If the 9in. brick wall is carried up to the height of the purlins, only one pair of principal rafters would be required. If not, two would be needed, in which case the outer one would require to be sheeted with weather-boards, or panelled in black and white work if in a conspicuous position. The other end of purlins would be carried by wall of barn.—Numskul.

The foundation-stones were laid on Saturday of ten homes for aged miners, now in course of erection in Denton-road, Scotswood, Newcastle-on-Tyne.

Mr. E. H. Crump, surveyor to the Hinckley Urban District Council, has been appointed engineer for the Barwell and Earl Shilton water scheme.

In the recent competition held for the York-road schools, Battersea, the designs submitted by Messrs. George Baines and Son, 5, Clement's-inn, Strand, London, W.C., have been placed first, and the work is to be proceeded with at once.

The Finance, Property, and Law Committee of George Heriot's Trust, Edinburgh, report to the Governors that they have inspected the stonework of the school building, where there are signs of decay, particularly in the relief carving at the main doorway. As a result, they have instructed the superintendent of works to have plaster casts made of the whole of the ornamental carving at the north doorway at a cost of £50 or £60, the casts to be preserved with a view to the restoration of the work in the future should this be necessary.

Our Illustrations.

NATIONAL GOLD MEDAL DESIGNS FOR STAINED GLASS BY EDWARD RIDLEY.

Last week we devoted our [illegible] page to the group of St. Margaret's Sisters [illegible] with the poor, as shown in the centre panel of the trefoil headed [illegible] from whence the accompanying [illegible] panels are taken. Between the four panels runs the legend from Longfellow:

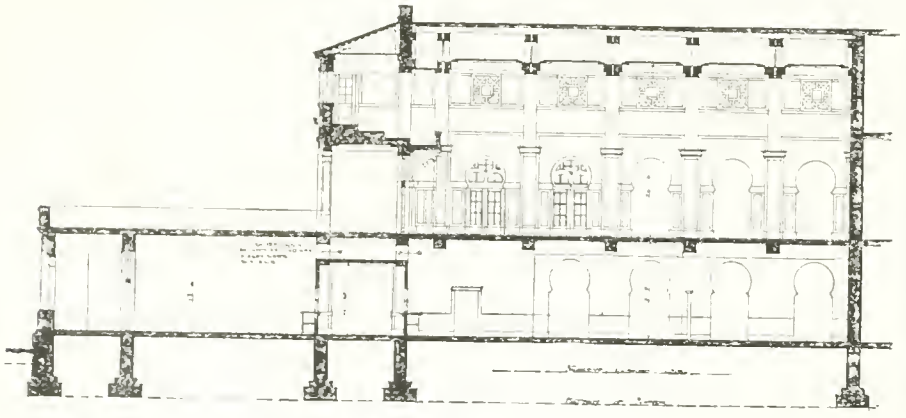
Whereunto is money good?
Who has it not wants hardihood
Who has it has more trouble and care,
Who once has had it has double pain.

Coins are worked in on the decoration of the margins and repeat along the base, below the agonised figure of "Despair." Mr. Edward Ridley, the author of this gold medal design, was a student of the Margaret street School of Art, Birmingham. He exhibited the executed window, as well as his full-size cartoons, from which our plates were prepared.

KARACHI MUNICIPAL BUILDINGS, INDIA.

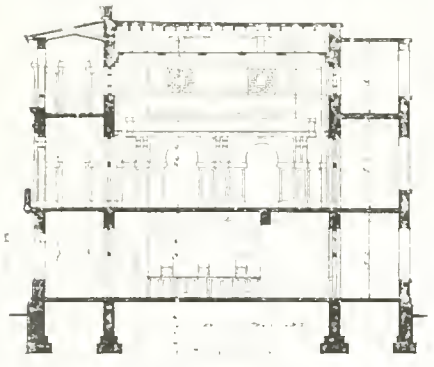
SELECTED DESIGN.

The two accompanying lithographic plates and sectional blocks herewith illustrate the chosen designs for these important new Municipal Buildings to be erected at Karachi by the Municipal Government. Mr. James Cumming Wynnes, of Woodburn terrace, Edinburgh, is the architect. These competition plans have only quite recently been returned from India to enable the working drawings to be prepared. For the purposes of the contract, Mr. S. Wittet, one of the consulting architects to the Government of India, acted as referee in this open international competition, and his selection was accepted by the municipality. The cost of a building of such a size in this country would very greatly exceed the outlay in India. The estimated price under these local conditions, as contemplated, is stated at about £33,333, or Rs.500,000. The façade is 312ft. long, and the domed pavilions at either end of the building are 80ft. high. The central tower is 112ft. high and is particularly effective in adding distinction to the elevation, which is marked by originality, a successful endeavour having been made to incorporate local forms or types in the building without extravagant incongruities or by merely copying Indian features. The execution of the work will be supervised by the municipal engineer from the architect's working details. The plans show the special contrivance of open verandahs, and as the prevailing breezes are from the west the principal apartments are so planned as to insure full advantage of this important factor, which is particularly essential for comfort in a hot climate. The right hand return front is 156ft. long, and the extension of a similar size on the left hand will be carried out in the near future. No back to back rooms were permitted, and 10ft. verandahs on both sides had to be provided. The ground floor includes the public rates offices, medical officers', departmental offices, etc. The council chamber and committee rooms, library, etc., are situate on the first, or principal, floor. The council room runs up into the second floor, as the cross and longitudinal sections given herewith clearly show. The second floor also comprises the engineers' department, an office for the supervisor of schools, and a public gallery overlooking the council chamber. No steelwork, presumably by reason of cost, will be employed. The floors will be constructed of concrete and teak beams, with tile-finished flooring. The façades will be in Porebunder stone (a good local limestone) and the sloping roofs will be covered with Basil Mission Mangalore tiles. The parapet wall behind the tile roofs of the verandahs indicates the plane of the main wall of the building. A strongly-marked balcony calls attention to the importance of the first floor. The site is a level one, and will be surrounded by streets; but a plateau is to be formed on which to erect the structure, so as to elevate the municipal buildings above their immediate surroundings, and the design was made with that advantage in mind.



LONGITUDINAL SECTION THRO' COUNCIL CHAMBER ETC. ON LINE C-D.

KARACHI MUNICIPAL BUILDINGS.



[illegible] CHAMBER ETC.

KARACHI MUNICIPAL BUILDINGS.

NEW CHURCH, ST. MARY THE VIRGIN, PLYMOUTH.

The illustration shows the east end of the new Church of St. Mary the Virgin, at Laira, in the ecclesiastical parish of Eggbuckland, and which is about to be commenced. It is one of the churches included in the Three Towns church extension scheme, Laira being in the municipal area of Plymouth. The clergy and choir vestries are under the eastern end of the chancel, though a small priests' vestry is also provided immediately off the north side of the chancel. This arrangement, which is dictated by the fall of the ground, produces an exterior east end of somewhat fine proportions, and it has been the architect's aim to still further emphasise the height. The work has been tendered for at £10,000, including tower, by Messrs. Pethick Brothers, of Plymouth. The seating accommodation is for 730. The drawing was hung in this year's Royal Academy. Mr. T. Rogers Kitsell, of Plymouth, is the architect.

CHIPS.

Mr. Charles Bridger, who has died at Haslemere at the age of ninety-one, was one of the best known estate agents and auctioneers in Surrey, having carried on business at Haslemere for close upon half a century.

Sunday, January 22, is the last day in London for receiving works for the forthcoming exhibition of the Royal Hibernian Academy, which will open on March 6. Full particulars may be obtained from the Secretary, Lower Abbey-street, Dublin.

The committee of management of the Wimbledon Hospital has decided to rebuild the institution. The first part of the new building to be erected will consist of the administrative block and two wings. To carry out the work, another £2,000 is required.

Sir John Jackson, M.P., who executed for the Admiralty the great contract for the Simon's Bay Docks and Harbour, has received the decoration of Commander of the Royal Victorian Order in connection with the Duke of Connaught's visit to South Africa.

At Letheringsett, Norfolk, a village hall, the gift of the Master of the Rolls, the Right Hon. Sir H. Cozens-Hardy, was opened last week. The architect was Mr. E. T. Boardman, F.R.I.B.A., of Norwich, and the builder Mr. W. H. Tuthill, of Holt, near Cromer.

A carved stone reredos, with coloured panels, has been presented to Ashton Parish Church by the family of the late Mr. Henry Hall, steward of the Stamford estate. The panels are the design of the rector (the Rev. F. R. C. Hutton), and the reredos will take the place of an existing plaster structure.

The body of Mr. John Wales, a Walton-on-Thames architect, has been found in the River Thames at Hampton. Wales, who was forty-two years of age, had been a sufferer from cancer, and disappeared on December 1, leaving a note to the effect that he had gone to the river.

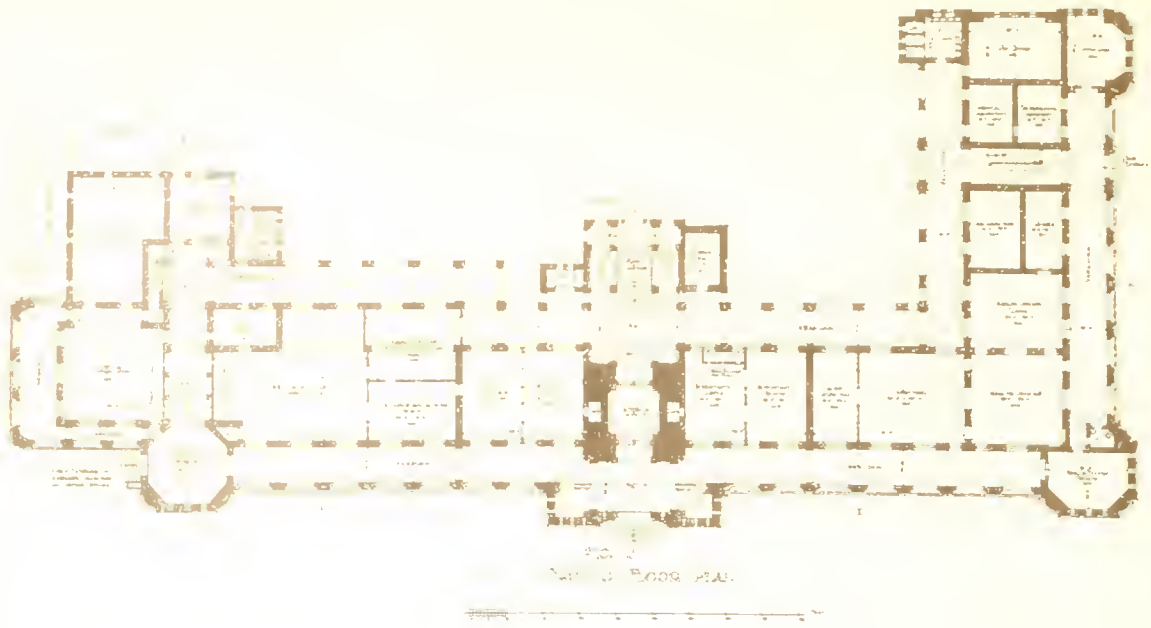
There was unveiled at Pendyffryn Hall Sanatorium, Penmaenmawr, on Saturday, a memorial to the late Dr. G. Merton Wilson. It consists of a sundial in stone and bronze, one of the four bronze panels bearing a medallion portrait of Dr. Wilson. The design and workmanship are by Mr. T. Stirling Lee.

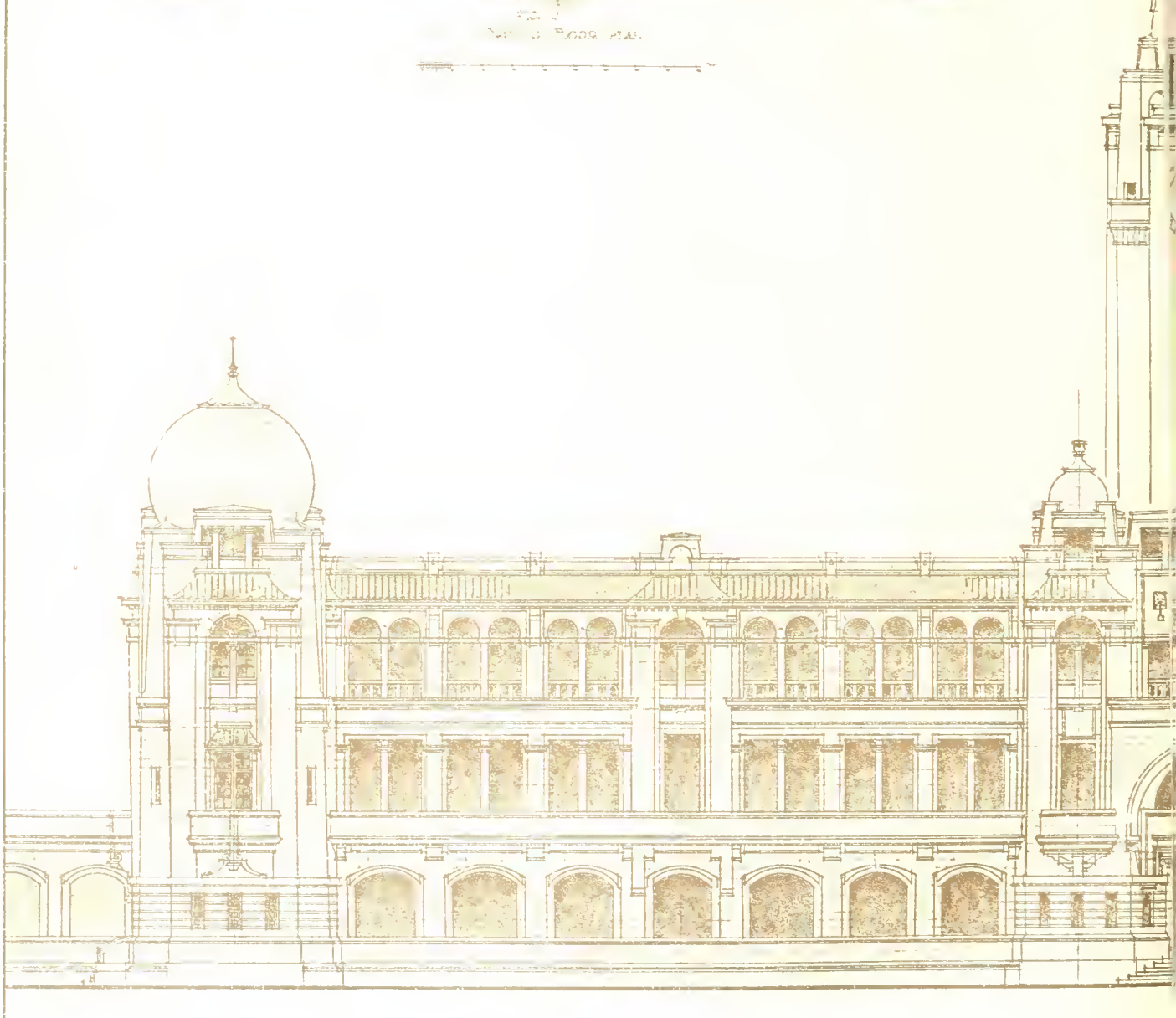
The Hull City Council have adopted a scheme for extending the electricity undertaking at a cost of £99,322. Of this sum the estimate for buildings is £19,808, for machinery £37,267, for main extensions £29,188, for high-tension mains £14,243, and for motors to let on hire £1,996. It is proposed to ask for a seventeen-years' loan for £31,526 of the amount.

H.M. Consul-General at Port-au-Prince (Hayti) reports the publication of a contract between the Government of Hayti and MM. Occide Jeanty and Justin Fils representing a group of capitalists, for the establishment at Port-au-Prince of a theatre with a seating capacity of 1,000. The building is to be of stone and reinforced concrete. All materials required may be imported free of duty.

The sub-committee of the works committee of the Edinburgh and District Water Trust, who have to do with the appointment of a new engineer, had a meeting on Friday, when it was agreed to recommend that the salary should be £600 per annum. A motion was made that the Trust be recommended to advertise the appointment, and against this another was made that the committee recommend the appointment of Mr. Reid, of Messrs. Leslie and Reid. The motion to advertise was, on a division, lost, and the matter was remitted to the full committee.

The new grammar school at Willesey, which will be formally opened to-morrow (Saturday), has been erected at a cost of £16,000. It contains a lofty assembly-room, with accommodation for 600 people. Running off this central hall are 14 classrooms, giving seating capacity for 429 boys, the schoolmaster's and assistant-masters' rooms, and cloakrooms. There are also chemical and physical laboratories, science lecture-room, gymnasium, workshop for manual instruction, school museum, and library. The building will be electrically lighted, and warmth will be provided by hot-water apparatus, fireplaces having also been installed in cases of necessity.





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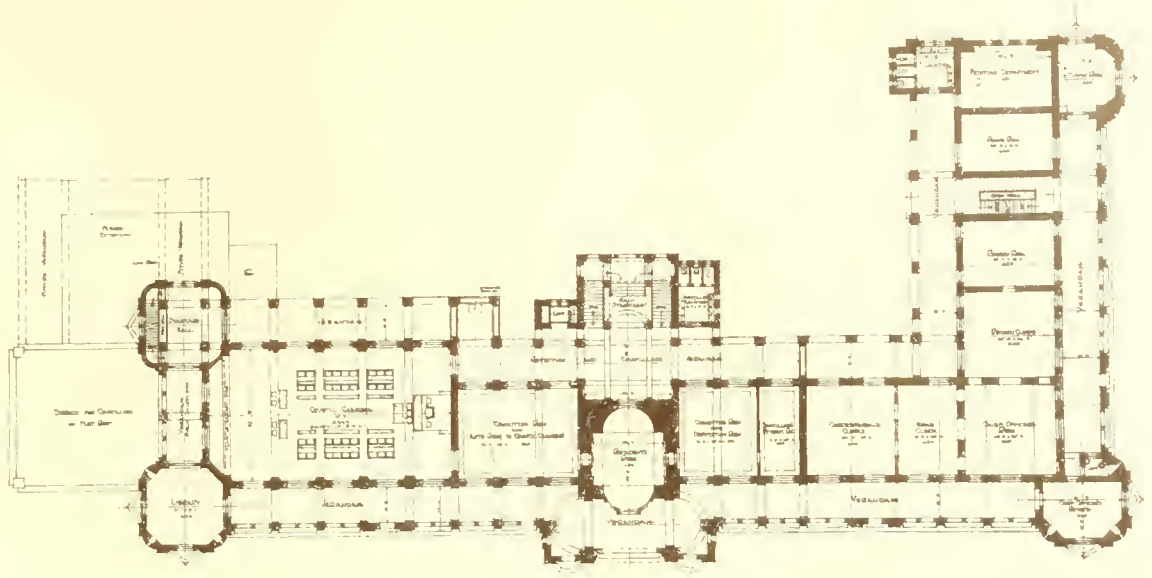
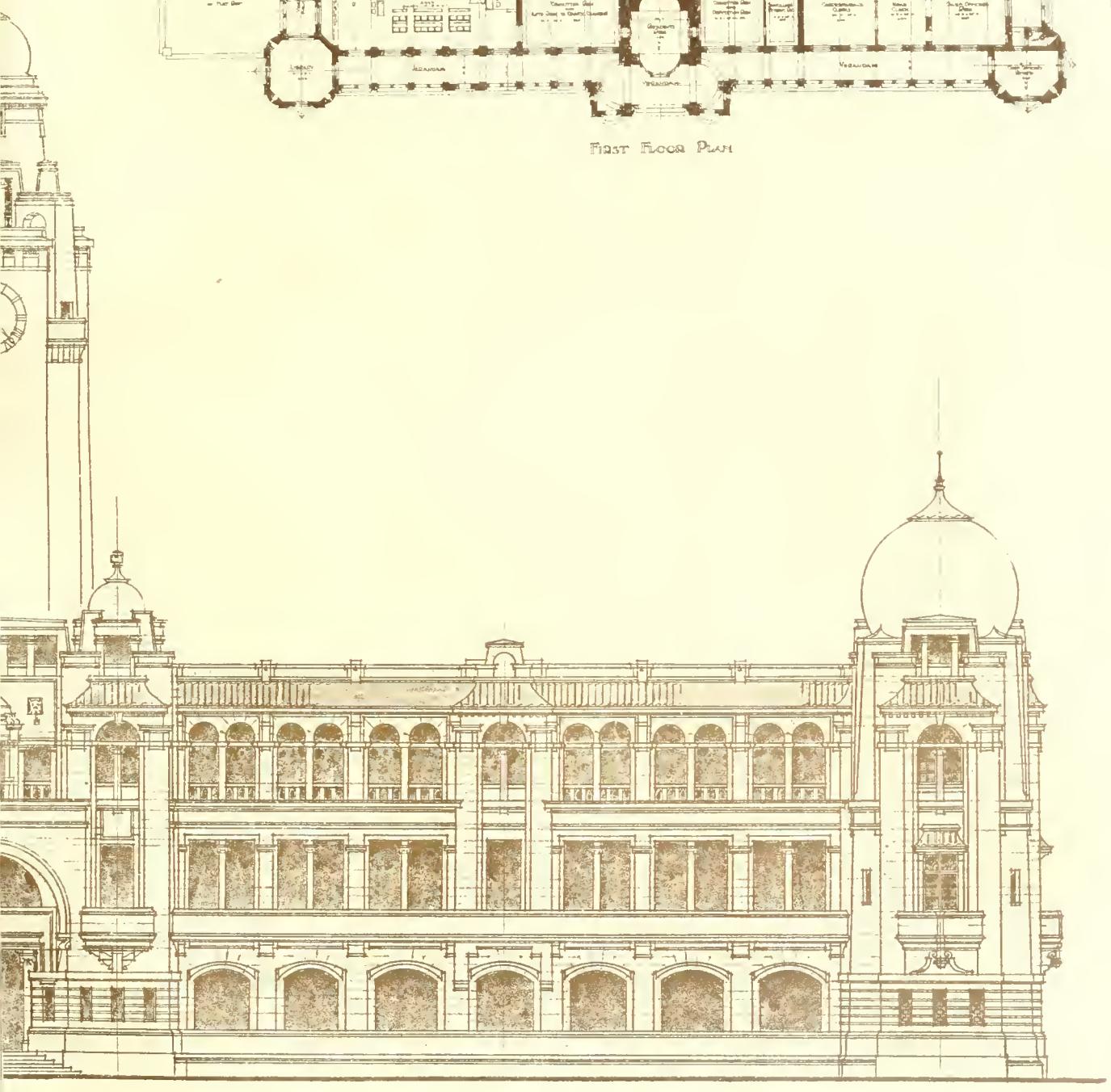


FIRST FLOOR PLAN



EVATION

SELECTED DESIGN

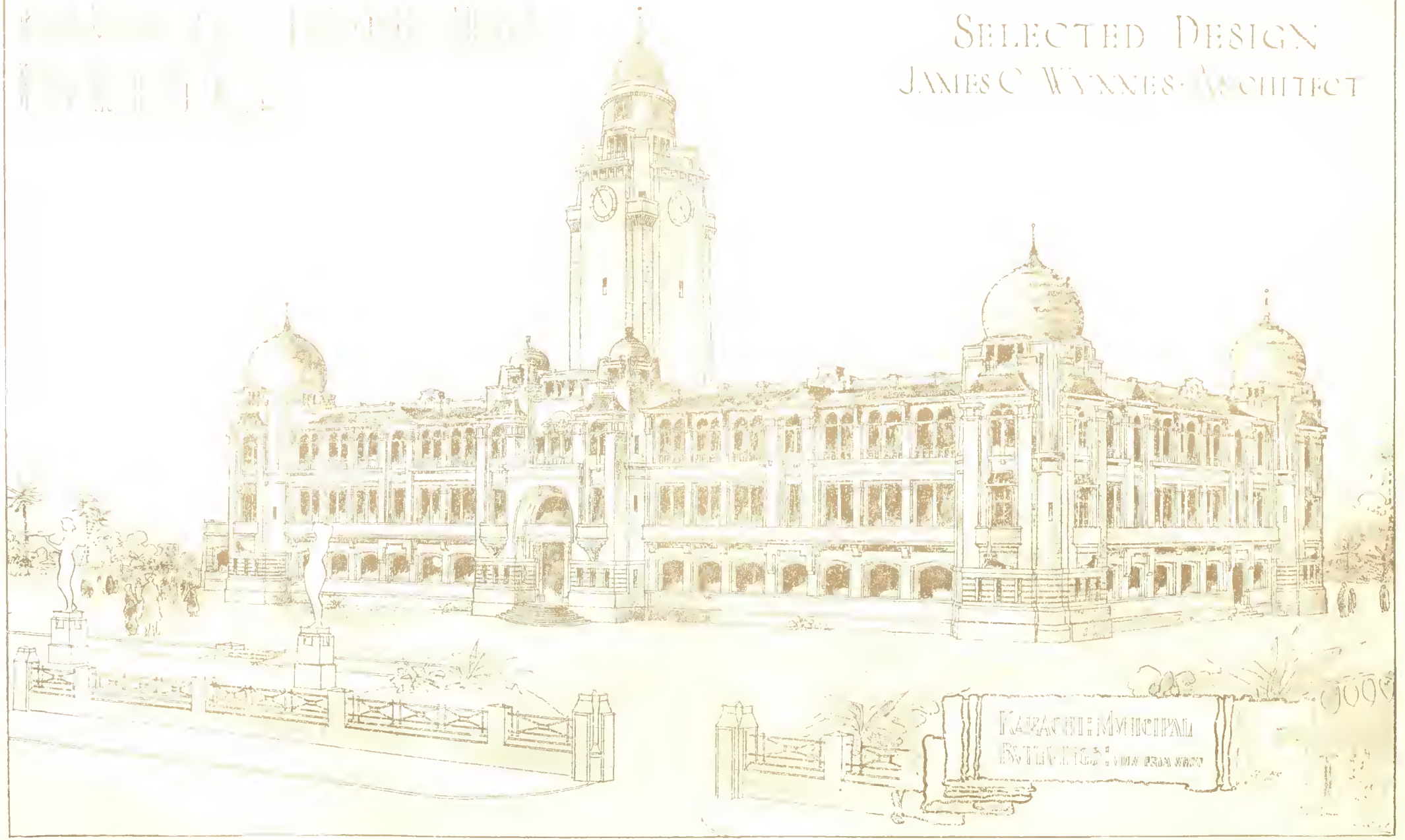
JAMES C. WYNNES. ARCHITECT

40 50 60 70 80 FEET

"PHOTO-TINT" by James Akerman [illegible] Queen Square London W

Selected Design

James C. Wynnes, Architect



Karachi Municipal Buildings, View from West

Photo Tint

CHURCH OF S. MARY THE VIRGIN LAIRA ~ PLYMOUTH.

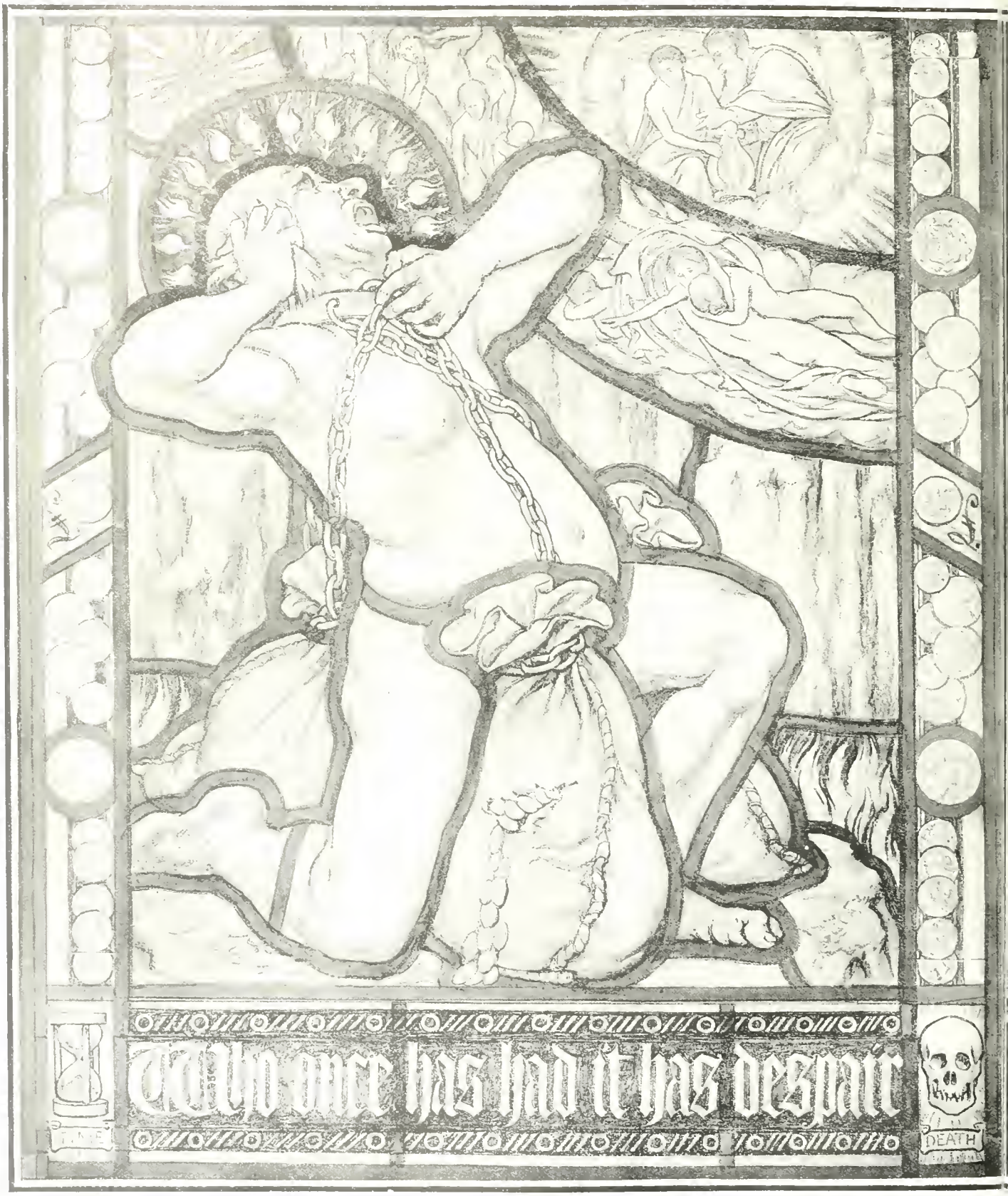
DETAIL OF EAST END.

T. ROGERS KITSELL. ARCHT.

ELEVATION

ROYAL ACADEMY EXHIBITION 1910

"PHOTO-TINT" [illegible]



NATIONAL GOLD MEDAL DESIGN FO

STAINED GLASS. By Edward Ridley.

LEGAL INTELLIGENCE.

THE DESIGNS FOR THE WELSH NATIONAL MUSEUM.—Seward v. Cardiff Corporation.—The adjourned hearing and final stage of this claim of great interest and importance to architects, brought by Mr. Edwin Seward, F.R.I.B.A., R.C.A., of Cardiff, against the corporation of that city for fees for services rendered to them in preparing designs for the National Museum for Wales, and also damages for failure to employ him, was resumed on Wednesday afternoon at the Royal Courts of Justice, when counsel addressed the Official Referee, Mr. Muir Mackenzie. The action was opened on December 12 last, and proceeded from day to day until December 22, when, all the evidence having been given, an adjournment was made until Wednesday of this week. A full report of the action was given in our issue of the 23rd ult., pp. 919-920. Mr. Ernest Pollock, K.C., and Mr. Vaughan Williams, appeared for the plaintiff, and Mr. B. Francis-Williams, K.C., Mr. J. Sankey, K.C., and Mr. St. John Francis-Williams represented the defendants. Mr. B. Francis-Williams, in summing up the evidence for defendants, asserted that he had no doubt the learned Referee would come to the conclusion that, at any rate, plaintiff's claim had been very much exaggerated. He submitted that the letters which plaintiff had relied on as proving the contract did nothing of the kind. The contract between the corporation and plaintiff of December, 1901, referred to nothing but the plans for a building which was to cost some £20,000. The plaintiff's case had shown absolutely no evidence that plaintiff had to prepare plans for a building to cost £150,000. It was quite obvious that throughout the whole of the proceedings the corporation were dealing very carefully with the matter, that they were getting all they could into the £20,000 scheme. Plaintiff admitted that the corporation were what he called cheeseparing in their proceedings, and yet he put forward this claim. With regard to the question of the specification about which so much had been said, whether it was properly or improperly prepared made no difference to the question to be decided in this action; but he claimed that whatever had been said on this matter was Mr. Seward's own fault. —Mr. Pollock, K.C., in reply for the plaintiff, regretted that his learned friend had thought it right to call the claim a dishonest one. To answer that, he had only to call attention to the fact that in 1908—long after the town-clerk's letter as to the specification—the corporation were recommending Mr. Seward to the Treasury as a fit and proper person as architect to the Welsh National Museum. There had been a successive change of plans since 1895. He also called the special attention of the Official Referee to the fact that the one person who could have thrown light on the matter of the specification, if there had been any dishonesty in the matter, Mr. Wheatley, the town-clerk, had not been called. He considered the suggestions made were quite unworthy of the Corporation of Cardiff, and he saw no ground why the Official Referee should conclude that the claim, by reason of inaccuracy of particulars, was not an honest one. The hearing was adjourned.

A life-size bust in bronze of King Edward is to be placed on a granite pedestal in the gardens at Mile End Waste, which have been recently laid out by the Stepney Borough Council. The bust will be a memorial to the late King by a number of London Freemasons.

A memorial in marble, sculptured by Signor Falbrucci, with a medallion portrait by Sir W. B. Richmond, R.A., has been erected in the south-east chapel of the parish church of Abbots Langley to the memory of the late Sir John Evans, for many years chairman of the Herts County Council.

A section of the main road between Eastbourne and Hastings—that from Little Common Inn and the Lamb public-house on the stretch connecting Bexhill and Pevensey—has many and short, sharp bends, rendering it very dangerous for traffic. Alternative proposals to widen and straighten this section of road, or to construct an entirely new road between the S.E. station at Bexhill and Pevensey Sluice are under consideration, and motorists in this district are asked to contribute to the latter scheme.

The *Bulletin Commercial* (Brussels) notifies, on the authority of the Belgian Consul at San Francisco, that owing to the rapid development of the town of San Diego, there is great activity in the building trade there, and, consequently, a large demand for reinforced concrete. About £750,000 was spent on building operations during 1910. Work will be begun shortly on three more large buildings—viz., a railway-station, a theatre, and an hotel, the total cost of which is estimated at nearly £200,000.

Our Office Table.

At the Surveyors' Institution on Thursday in next week, the 19th inst., a meeting of landowners and agents will be held under the presidency of Lord Clinton, to consider the desirability of forming an English Forestry Association. Mr. M. C. Duchesne, in the notice convening the meeting, states that the following have consented to act as the first council, with power to add to their number: Lord Clinton, the Earls of Shaftesbury and Chichester, Lord Hastings, Mr. G. L. Courthope, M.P., Mr. Charles Bathurst, M.P., Mr. S. H. Cowper-Coles, Colonel Mostyn, Mr Arthur Arnold, Mr. F. G. Parroughes, Mr. Gerald H. Morgan, and Mr. W. Anker Simmonds. The promoters of the association add:—We are particularly anxious for the association to be in a position to ascertain where supplies of English timber—particularly oak and ash—of good quality can be obtained. Would you kindly let me have some idea of the supply of timber ripe for cutting that you would be prepared to sell, provided, of course, that you obtained a really satisfactory price for it?"

The French Minister of Public Instruction and of Fine Arts has issued a circular to the Prefects of Departments insisting upon the more effective protection of scenes of natural beauty and monuments of historic interest, in view of numerous complaints which have been received. The local authorities are instructed to use their discretion in proposing the prohibition of commercial advertisements and similar disfigurements of the landscape, and to co-operate to this end with the departmental committees for the preservation of landscapes and monuments. In cases in which new roads or railways are to be constructed, or quarries to be worked, or watercourses to be diverted for generating electricity, every effort is to be made to reconcile æsthetic considerations with the requirements of public traffic and the demands of commercial and industrial enterprises.

Holborn Borough Council on Wednesday night passed a resolution, on the recommendation of the Housing of the Working Classes Committee, to make an order prohibiting the use of a certain dwelling-house for human habitation until it was made fit for that purpose. The resolution was the outcome of a representation made by the medical officer, in accordance with the Housing and Town Planning Act, that the premises—a tenement house of eighteen rooms, occupied by twenty-six adults and fifteen children—were quite unfit for habitation. Before last year a magistrate's order for closing such premises was necessary; but under the new Act the power is given to the local authority. Alderman Lacy W. Ridge, F.R.I.B.A., thought the Act might very easily result in much unfairness towards owners of property, and some interference with the liberty of the subject, as it took from the subject the right of appeal to a court of law. It was a great responsibility to take action, for it might involve the turning of forty-one persons from the house into the streets, and that was even more serious than pulling down the house. He proposed an amendment referring back the recommendation for further consideration. The town clerk, on being appealed to, said the Act was very definite. If they were satisfied that the house was uninhabitable, they had no alternative but to close it. The amendment was lost by 12 votes to 4, and the original motion was agreed to as stated.

The Local Government Board have written to the Winchester City Council in regard to the housing conditions in the city, inquiring what steps the council proposed to take to provide increased accommodation, and to deal with the houses which were unfit for habitation, and were in want of serious repairs. The town clerk has replied that the Ecclesiastical Commissioners have offered to sell to the city council 4½ acres of land at Fulflood for the erection of houses for the working classes, at a price equal to £100 per acre, plus the amount that has been expended upon the construction and making up of the road; they further stated that if the corporation preferred to transfer the carrying out of the scheme with a garden sub committee, or any other body restrained from making a profit beyond a reasonable interest (say, four, or even five, per cent.) upon their capital, the Commissioners would raise no objection to selling such land to that body upon the same terms as above. The council consider it undesirable that they should undertake the building of workmen's cottages until private enterprise failed to provide the houses. The council suggests that the Ecclesiastical Commissioners should transfer their offer to the Winchester Working Men's Housing Society, now in course of formation.

Gateshead is one of eight selected towns to share in a trust of £500,000, under the will of Mr. W. R. Sutton, for the erection of workmen's dwellings. The town council at its meeting on Wednesday night considered the matter, and the report of a special committee was adopted. The report recommended that the suggested housing accommodation should be made in the north-east district of the borough, and that it should be effected by the acquisition and pulling down of existing old properties in that district, and the erection on the cleared site of suitable buildings of the block type, avoiding those in the nature of barracks. The committee were satisfied that the erection of cottages on the principle of a garden suburb would not meet the needs of the case.

Some local opposition is being raised in Newcastle-on-Tyne to the General Powers Bill which is to be promoted in Parliament by the corporation. A clause of the measure provides that when a new building other than a dwelling-house is to be erected, not only have plans to be deposited, but the purpose for which the building is intended to be used must be stated. This clause would, it is asserted by the opponents, compel the owner of a proposed new building to state on his plans the purpose for which such building is to be used, and the corporation would have absolute discretion to refuse to pass the plans because they did not approve of the use. If such were the law it might be almost impossible to raise money on mortgage of property proposed to be used for business purposes.

The corporation of Ayr have been negotiating for the purchase of the ancient tower known as the "Fort Castle," all that remains above ground of the ancient church of St. John the Baptist, situated in the Fort, and at present used as a dwelling-house. The ancient Church of St. John, like many other Scottish pre-Reformation churches, exists only in fragments, and these mostly underground. The present tower is in an excellent state of preservation as regards its main walls. The entire church is portrayed by Slezer in an engraving published by him in 1693, and reproduced by Paterson as a frontispiece to his transcription of the Obit Book of the church. It is there shown as a cruciform edifice, with the tower as an adjunct at the west end, and apparently not forming part of the original church. The tower thus depicted is substantially that of the present day, but with various recent buildings of a castellated character at its base. But whereas the engraving shows the tower terminating in two stepped gables facing east and west, with a high-pitched roof, and several narrow windows in the walls, the tower now shows a battlemented top and flat roof, with additional modern windows. Twenty years ago the foundations of the church were opened up under the superintendence of Mr. James Kennedy Hunter, architect, Ayr, at the charge of the Ayrshire and Galloway Archæological Association. It was then definitely ascertained that the tower was of later origin than the church. When the citadel was purchased by the late John Miller, forty years ago, he forthwith proceeded to alter and modify the tower, to make it suitable as a dwelling-house. It was he who added the castellated top, made some new windows, and internal door openings, and added the extraneous

[illegible] Wednesday [illegible] Lecture No. 3, by Professor A. [illegible], at the Royal Institution, 21, Albemarle-street, W., at 5 p.m.

[illegible] Architectural Museum. "English Mediæval Doorways, Windows, and Tombs," Lantern Illustrations, by Banister F. Fletcher, F.R.I.B.A. 8 p.m.

Royal Institute of British Architects. "Original Models for Pleasure Houses," by Basil Ronalds, F.R.I.B.A. 8 p.m.

Junior Engineering Society. Discussion upon Library Lighting. Royal Society of Arts House. 8 p.m.

Liverpool Architectural Society. "The Street Architecture of Venice and Paris," by L. P. Abercrombie, 14, Harrington-street. 6 p.m.

THURSDAY.—British Museum. "Roman Circular Temples and Basilicas" (Lantern Illustrations), by Banister F. Fletcher, F.R.I.B.A. 4.30 p.m.

Institution of Civil Engineers. Discussion upon "The Strengthening of the Roof of Newstreet Station, Birmingham," and "The Reconstruction and Widening of Arpley Bridge, Warrington." 8 p.m.

WEDNESDAY.—Institute of Metals. Annual Meeting at the Institution of Mechanical Engineers, Storey's Gate, S.W. 10.30 a.m.

Royal Society of Arts. "The Dutch Labour Colonies," by John C. Medd, M.A. 8 p.m.

Borough Polytechnic Institute. "Oxford," by A. H. Verstage, A.R.I.B.A. 8.15 p.m.

THURSDAY.—Royal Society of Arts. "Banking in India," by Reginald Murray. 4.30 p.m.

FRIDAY, JAN. 20.—"The Flemish and Dutch Schools of Painting," No. 2, by Beckwith A. Spencer, Leighton House, 12, Holland Park road, W. 5 p.m.

Birmingham Architectural Association. Paper by Halsey Ricardo.

Glasgow Architectural Draftsmen's Society. "Geometry in Building Work," by David Skinner. 8 p.m.

Institution of Civil Engineers. "The Design and Construction of Reinforced-Concrete Arches," by G. F. Walton, Stud.Inst.C.E. 8 p.m.

SATURDAY, JAN. 21.—Architectural Association. Visit to the Law Courts Extension, Strand. 1.30 p.m.

The annual meeting of the Central New York Chapter of the American Institute of Architects was held at Cornell College, Syracuse, on December 12. The following officers were elected: President, Arthur N. Gibbs, Ithaca; vice-president, J. Foster Warner, Rochester; secretary, Prof. Albert O. Phelps, Ithaca; and treasurer, William V. Madden, Rochester.

Lady Meux has bequeathed her collection of Egyptian and Assyrian antiquities, for which she built a museum in Theobalds Park to the British Museum. There are about 1,800 exhibits in the collection, which was purchased for Lady Meux in Egypt by Dr. Budge, Keeper of the Egyptian and Assyrian antiquities in the British Museum. They include limestone figures and statuettes, mummies and their coffins, scarabs and amulets from Abydos.

Mr. J. Herbert Lewis, M.P., the initiator of the movement which led to the formation of the Flintshire Historical Society, and the recently appointed constable of Flint Castle, has discovered what he regards as traces of the old Roman road between Chester and Caerhun. In making known the discovery to the Prestatyn Gymmrodorion Society, he stated that it confirmed by experts, the discovery would prove a very valuable link in the chain of evidence in connection with that route.

A change more or less recently taken place in the membership of the Institute of Metals, which now totals over 550 members. On Thursday next the members will visit by the courtesy of the Thames Ironworks Shipbuilding and Engineering Company, Ltd., the yard in which his Majesty's ship Thunderer is being built. The second Autumn dinner will be held the same evening. The annual general meeting will be held at the Institution of Mechanical Engineers, Storey's Gate, Westminster, on Wednesday, commencing at 10.30 a.m.

The dredging and deepening of the channel of the Orwell at Ipswich from the sea to the export oil docks, which has been going on for the last ten years, is being continued, and the second stage of the improvement works has been reached, providing a depth of 24ft. at H.W.N.T. It is intended to deepen the channel another 4ft. A wider, deeper, and longer entrance to the dock has also been decided on. Deepwater berths in the channel have been provided. An expenditure of £100,000 on improvements is contemplated.

MEETINGS FOR THE ENSUING WEEK.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, Ethelburga House, 1, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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Telephone, Gerrard 1291.

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. The special rate to Canada is £1 1s. 8d. = 5dols. 27c. for 12 months, and 10s. 10d. = 2dols. 64c. six months.

NOTICE.

Bound copies of Vol. XCVIII. are now ready, and should be ordered early (price 12s. each, by post 12s. 9d.), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XLI., XLVI., XLIX., LIII., LXI., LXII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXIX., LXXX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., LXXXVI., LXXXVII., LXXXVIII., LXXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., and XCVII. may still be obtained at the same price; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

ADVERTISEMENT CHARGES.

The charge for **Competition** and **Contract** Advertisements, **Public Companies**, and all official advertisements is 1s. per line of Eight Words, the first line counting as two, the minimum charge being 6s. for four lines.

The charge for **Auctions, Land Sales,** and **Miscellaneous** and **Trade** Advertisements (except Situation Advertisements) is 6d. per line of Eight Words (the first line counting as two), the minimum charge being 4s. 6d. for 40 words. Special terms for series of more than six insertions can be ascertained on application to the Publisher.

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The charge for advertisements for **"Situations Vacant"** or **"Situations Wanted** and **"Partnerships,"** is ONE SHILLING FOR TWENTY-FOUR WORDS, and SIXPENCE for every eight words after. *All Situation Advertisements must be prepaid.*

. Replies to advertisements can be received at the Office, Ethelburga House, 1, Arundel-street, Strand, W.C., *free of charge*. It to be forwarded under cover of advertiser an extra charge of Sixpence is made. (See Notice at head of "Situations.")

Rates for **Trade** Advertisements on front page, and special and other positions, can be obtained on application to the Publisher.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

RECEIVED.—Head-Master.—T. and K.—C. E. L.—Meta.—W. G. K.—J. and J. P.—W. and G.—G. and L.—F. and Co.—C. and M., Ltd.—M. and Co.—E. E. Co., Ltd.—W. L. and Co.—G. Co., Ltd.—M. I. and Co.—W. S.—I. D. and Co.—N. W. and Co.—E. L. Co., Ltd.—E. B. D. and Co.—R. W. C.—R. C. and Son.—W., Ltd.—J. O. and Son—F. L. and Co.

PEARL.—No.

A. D. M.—There is no charge.

SPINNER.—Probably we may, very shortly.

A. R.—The powers that be seem anxious to revive the habits of the ostrich. That is all we can say.

W. S.—Many such in our own back vols. We know of no one book that combines all. B. T. Batsford, 94, High Holborn may.

V.—The point is worth fighting, and if you are quite sure of your facts, we advise you to contest it. Take careful legal advice first.

ARTHUR WILLIAMSON.—Thanks for offer; but we fear we cannot spare space just now. We have, of course, given other drawings of the church, more than once.

O. NEWBOLD.—The building you refer to was built by Messrs. Killby and Gayford, 87, Worship-street, E.C., from the design of the architect, Mr. H. O. Ellis, 46, Fenchurch street, E.C.

J. L. B.—We have very little faith in any of them. Dozens were recommended last week by makers and their friends praiseworthily anxious to edge in free advertisements as replies, but they all found their way to the waste paper basket, yours included.

"BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Serio," "Harvest Moon," "Ink Splash," "Arte et Labore," "M'C.," "Toby," "Nota Bene," "Occidens," "Showman," "Mike," "Grasshopper," "Mount Zion," "Weird Animal," "Hopper," "Planit," "Also Ran," "Prospero," "Margis," "North Pole" (Send name and address. This should be on the back of each drawing).

The King has been graciously pleased to command that henceforth the Society of British Sculptors shall be known as the "Royal Society of British Sculptors."

There has been dedicated in St. Catherine's Church, Milford Haven, a carved oak stall and canopy, designed by Mr. J. Coates Carter, architect to the Caldey Community.

New secondary schools are about to be erected in Ryefields-road, Ross, Herefordshire, from plans by Messrs. A. P. Small and Arthur Ashton, of that town. Accommodation will be provided for 100 boys and 100 girls, at an estimated cost of £5,700.

The Haslingden New Union Infirmary is being supplied with Shorland's single and double-fronted patent Manchester stoves with descending smoke flues, and also with Shorland's patent Manchester grates, by Messrs. E. H. Shorland and Brother, Ltd., of Failsworth, Manchester.

On Sunday there was dedicated in St. David's Church, Brecon, a stained-glass window, a memorial of the late vicar, the Rev. Rees Price. The window consists of two lights, with figures of St. Paul and St. John. The artists are Messrs. Pearce and Co., Ltd., of Bridge-street, Birmingham.

The Surrey County Council, with only one dissentient, decided on Tuesday in favour of the joint promotion, by the Surrey and Middlesex County Councils, of a Bill in the ensuing session of Parliament for the rebuilding of Kingston Bridge, which is to be widened to 55ft. between the parapets.

Mr. A. W. Ward, the present deputy engineer of the borough, is recommended by the Portsmouth Roads and Works Committee for appointment as borough engineer, to succeed Mr. P. Murch, at a salary of £500 per annum. Mr. Ward has been connected with the borough engineer's department for twenty years.

Dr. von Betham-Hollweg, the Imperial Chancellor, in opening the session of the Prussian Diet, on Tuesday, in his capacity as Prussian Premier, foreshadowed legislation for the union of Greater Berlin in questions affecting town planning and the preservation of a belt of forest and meadow land to be administered by the city, and for the opening-up of moor and waste land.

The Berwick Harbour Commissioners are taking steps to extend Berwick Harbour. Boring operations have been begun on the south side of the Tweed, near Spittal, and, should a suitable foundation be struck, additional accommodation for the herring fleet will be found here, and a Government grant will be applied for.

The Bishop of Worcester dedicated, on Sunday, St. Margaret's Church, Waldegrave-road, Coventry. The edifice is of red brick and white Bath stone. The length of the nave is 67ft. 3in.; the chancel is spacious, and there are transepts and a morning chapel; the baptistery is at the west end. The roof is of Oregon pine inside and tiled outside. The floor is of teak and red deal blocks. The building is heated by hot air. The total cost has been £7,000.

The new school which has been erected in Dens-road, by Dundee School Board, to take the place of St. Salvador's Episcopal School, was opened on Friday. It has been built and equipped at a cost of £15,000. The building is plain in character, and is in the form of a parallelogram of two stories, with a wide corridor running from end to end of the school. There are eleven classrooms and a central hall on the ground floor, and on the first floor thirteen classrooms and a central hall. The school accommodates 1,270 pupils.

H.M. Minister at Mexico City reports the publication of a contract between the Mexican Government and Mr. Charles Ernest Race for the construction of a custom house wharf at the port of Ensenada, Lower California. The wharf is to be constructed of wood and masonry, and equipped with lights, mooring buoys, cranes, etc. Warehouses are also to be built, and connected with the wharf by rail- or tram-lines. Plans are to be submitted for approval within six months from December 5, and work is to be begun within nine months after their approval. Building material, machinery, etc., may be imported free of duty.

TRADE NOTES.

Under the direction of Messrs. Worsfold and Haywood, architects, Dover, Boyle's latest patent "Air-pump" ventilators have been applied to the Elvington Institute, Dover.

Messrs. Siemens Brothers Dynamo Works, Ltd., Tyssen-street, Dalston, N.E., have obtained the contract for the supply of metal filament lamps for the L.C.C. Tramway and Stores Department, for the ensuing twelve months.

Messrs. Pinchin, Johnson, and Co., of 23, Bevis Marks, E.C., send us a specimen of their "Minerva" diaries, which they will send upon request from any bonâ-fide builder or decorator enclosing trade card. The notebook appended gives a lot of useful information on the subject of paints, etc., in which the firm have had over three-quarters of a century's experience.

The block of buildings opposite Portland-street, at the corner of Oxford-street and Chepstow-street, Manchester, late in the occupancy of the firm of J. and H. Patteson, marble, granite, and mosaic workers, has been pulled down, and the firm which has been established 105 years, and have occupied the premises for a period of seventy years, Messrs. J. and H. Patteson, have removed to new premises at 96, Oxford-road, where their extensive showrooms and offices are well worth a visit by anyone interested in the great variety of marbles, granites, mosaics, etc. The works of the firm have been removed to Elsinore-road, Old Trafford.

Telephone: DALSTON 1388

OGILVIE & CO. Many years connected with the late firm of W. H. LASCELLES & CO., Ltd of Bunhill Row.

Amhurst Works, **DALSTON LANE, N.E.**

EXPERTS in HIGH-CLASS JOINERY.

ALTERATIONS & DECORATIONS. ESTIMATES FREE.

FOR

Olivers' Seasoned Hardwoods,

APPLY TO—

WM. OLIVER & SONS, Ltd.,
120, Bunhill Row, London, E.C

TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender; it adds to the value of the information.

ASHFORD, KENT.—For erecting public conveniences in Beaver-road, for the urban district council. Mr. W. Terrill, Ashford, Kent, surveyor:—

Lawrence, A., South Norwood ...	£203 0 0
Day, J., and Son, Ashford	159 0 0
Shippam, W. R., Ashford	152 8 0
Bowles, E. J., Ashford (accepted)	144 15 0

BARNSTON.—For the erection of a detached villa called "Wychwood," for Mr. W. H. Blake. Mr. J. H. McGovern, 26, North John-street, Liverpool, architect

Beszant, E. N. (accepted)	£596 9 6

BRENTWOOD.—For making-up Kimpton-avenue and Warescot-road, for the urban district council. Mr. A. J. Meeson, surveyor:—

Kimpton-avenue:—

French, W. and C., Buckhurst-hill (accepted)	£589 0 0

(Surveyor's estimate, £550 8s. 1d.)

Werescot-road:—

French, W. and C. (accepted) ...	193 0 0

(Surveyor's estimate, £163 3s. 1d.)

Ongar-road, intersection:—

French, W. and C. (accepted) ...	67 0 0

(Surveyor's estimate, £65 18s. 6d.)

BROXBOURNE, HERTS.—For extension of sewer at Broxbourne, for the Ware Rural District Council:—

Jackson, J. (accepted)	£133 13 0

CLACTON-ON-SEA.—For construction of 550ft. stone wall on the West Beach, for the urban district council:—

Webb, G. C., and Co.	£4,531 14 1
Muirhead, W., and Co., Ltd. ...	4,500 0 0
Cochrane, J., and Sons	4,187 16 11
Whimpey, G., and Co.	3,893 0 0
Bell, G., and Sons, Ltd.	3,698 4 8
May, R. J.	3,642 15 2
Bell, W., and Sons	3,634 0 0
Gradwell, W., and Co., Ltd. ...	3,586 4 10
Brebner, R. C., and Co.	3,526 0 0
Pedrette, T. W. (accepted)... ...	3,277 11 2

FLEET.—For the formation and making-up of Wellington-avenue, for the urban district council:—

Hoar, W., Fleet (accepted).	£396 9 1

FLINT.—For alterations and construction of new Territorial headquarters at Flint, for the Flintshire Territorial Force Association. Messrs. J. H. Davies and Sons, 14, Newgate-street, Chester, architects:—

Wright and Sons, Hawarden, near Chester (accepted)... ... ... £880 0 0

(*Continued on p. XVII.*)

MODERN BUILDINGS.

By G. A. T. MIDDLETON, A.R.I.B.A.

A Practical Work for all Architects and Builders.

"Modern Buildings: their Planning, Construction and Equipment," aims to put before its readers all the essential parts of a modern building, to describe modern methods of planning and of constructing consecutively, and as they occur in the actual work.

It explains all possible sorts of Buildings, whether of the simplest or of the most complicated character, and supplies elucidative illustrations by the leading architects of the day. And it gives the principles that underlie building practice as it is undertaken in Great Britain and in the Colonies.

The aim of the Publishers and Author has been to make this work indispensable to all who are

Practically concerned with the Building Trades.

The construction of buildings as well as the subject of finishings and fittings, from the simplest to the most elaborate, is detailed in a manner equally useful to the artisan as to the architect. The tools used are described, as well as the methods of using them.

Attention is given to shoring, underpinning, and dealing with dangerous structures—a matter that is of increasing importance to builders whose businesses lie in our great cities.

Examples are included in this work of well-written specifications, such as are now in use for small and large works.

All information concerning the heating and ventilating of buildings, the introduction of electric light, and of gas lights of many new forms, on the combination of steel and concrete for large buildings, on the principles of drainage, on dilapidations, easements, etc., etc., is found here.

No point that concerns builders and building has been overlooked, and it is safe to say that this work—which is issued on terms that bring it within reach of everyone interested in the Building Trades, will save its cost when it has been in use a very short time.

TWO OPINIONS.

Mr. F. J. FORSTER, Architect and Surveyor, Great James-street, London, W.C.:—

"The plates are models of what architectural draughtsmanship should be. I think the detailed treatise on brickwork must be the best to be found anywhere."

Mr. JAMES S. STEEL, Builder and Contractor, Gourock and Greenock.—

"As a practical builder and teacher of building construction, I am of opinion that the work is second to none, first in its object, and more particularly in its careful production."

A FREE BOOKLET.

To the Caxton Publishing Co., Ltd.,
Surrey Street, London, W.C.

Please send me, free of charge, and without any obligation on my part, your illustrated booklet on "Modern Buildings," and particulars of your plan by which the work is delivered complete for a first payment of 1s. 6d., the balance being paid by a few small monthly payments.

NAME .....

(Send this form or a postcard, mentioning the BUILDING NEWS.)

ADDRESS .....

.....

LATEST PRICES.

IRON.

	Per ton.				Per ton.	
Rolled-Iron Joists, Belgian	£5	7	6	to	£5	12	6
Rolled-Steel Joists, English	7	5	0	,,	7	15	0
Wrought-Iron Girder Plates	7	0	0	,,	7	5	0
Bar Iron, good Staffs	6	5	0	,,	8	10	0
Do., Lowmoor, Flat, Round, or Square	20	0	0	,,	20	0	0
Do., Welsh	5	15	0	,,	5	17	0
Boiler Plates, Iron—							
South Staffs	8	0	0	,,	8	15	0
Best Snedshill	9	0	0	,,	9	10	0

Angles 10s., Tees 20s. per ton extra.

Builders' Hoop Iron, for banding, &c., £8 15s. to £9.

Builders' Hoop Iron, galvanised, £14 to £15 10s. per ton

Galvanised Corrugated Sheet Iron—

	No. 18 to 20.				No. 22 to 24.		
	Per ton.				Per ton.		
6ft. to 8ft. long, inclusive gauge	£13	0	0	...	£13	10	0
Best ditto	13	0	0	...	14	0	0

Wire Nails (Points de Paris)—

3 to 7	8	9	10	11	12	13	14	15	B.W.G.
8 3	8 9	9 3	9 9	10 3	11 -	11 9	12 6	13 6	per cwt.

	Per ton.						
Cast-Iron Columns	£6	10	0	to	£8	10	0
Cast-Iron Stanchions	6	10	0	,,	8	10	0
Rolled-Iron Fencing Wire	8	5	0	,,	8	10	0
Rolled-Steel Fencing Wire	6	5	0	,,	6	10	0
,, ,, ,, Galvanised	7	15	0	,,	8	5	0
Cast-Iron Sash Weights	4	17	0	,,	4	17	0
Cut Floor Brads	10	5	0	,,		—	
Corrugated Iron, 24 gauge	16	0	0	,,		—	
Galvanised Wire Straud, 7 ply, 14 B.W.G.	14	5	0	,,		—	

B.B. Drawn Telegraph Wire, Galvanised—

0 to 8	9	10	11	12	B.W.G.
£10 5 0	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.

Cast-Iron Socket Pipes—							
3in. diameter	£6	2	6	to	£6	7	0
4in. to 6in.	6	0	0	,,	6	5	0
7in. to 24in. (all sizes)	5	7	6	,,	6	0	0

[Coated with composition, 5s. 0d. per ton extra; turned and bored joints, 5s. 0d. per ton extra.]

	Per ton.						
Pig Iron—							
Cold Blast, Lillesball	110s.	0d.	to	117s.	6d.		
Hot Blast, ditto	70s.	0d.	,,	75s.	0d.		

Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.) :—

Gas-Tubes	75 p.c.
Water-Tubes	72½ ,,
Steam-Tubes	67½ ,,
Galvanised Gas-Tubes	65 ,,
Galvanised Water-Tubes	62½ ,,
Galvanised Steam-Tubes	57½ ,,

OTHER METALS.

	Per ton.				Per ton.		
Spelter, Silesian	£23	17	6	to	£24	2	6
Lead Water Pipe, Town	17	2	6	,,		—	
,, ,, ,, Country	17	17	6	,,		—	
Lead Barrel Pipe, Town	18	2	6	,,		—	
,, ,, ,, Country	18	17	6	,,		—	
Lead Pipe, Tinned inside, Town	19	2	6	,,		—	
,, ,, ,, ,, Country	19	17	6	,,		—	
Lead Pipe, Tinned inside and outside, Town	21	12	6	,,		—	
,, ,, ,, ,, Country	22	7	6	,,		—	
Composition Gas-Pipe, Town	20	2	6	,,		—	
,, ,, Country	20	17	6	,,		—	
Lead Soil-pipe (up to 4½in.) Town	20	2	6	,,		—	
,, ,, ,, Country	20	17	6	,,		—	
[Over 4½in. £1 per ton extra.]							
Lead Shot, in 28lb. bags	24	15	0	,,		—	
Copper Sheets, sheathing & rods	72	0	0	,,	72	10	0
Copper, British Cake and Ingot	59	15	0	,,	60	5	0
Tin, Straits	179	5	0	,,	179	15	0
Do., English Ingots	181	0	0	,,	181	10	0
Do., Australian	181	10	0	,,	182	0	0
Do., Bars	182	0	0	,,	182	10	0
Pig Lead, in 1cwt. pigs	14	10	0	,,		—	
Sheet Lead, Town	16	12	6	,,		—	
,, ,, Country	17	7	6	,,		—	
Genuine White Lead	21	0	0	,,		—	
Refined Red Lead	19	0	0	,,		—	
Sheet Zinc	33	5	0	,,		—	
Old Lead, against account	12	6	3	,,		—	
Tin, per cwt.	10	0	0	,,		—	
Cut Nails (per cwt. basis, ordinary brand)	0	10	6	,,		—	

TIMBER.

CONSTRUCTIONAL.

Per St. Petersburg Standard (100—12ft. by 11in. by 11in.)

Yellow Pine Deals, Quebec, 1st quality	£31	0	0	to	£42	0	0
,, ,, ,, 2nd ,,	21	0	0	,,	26	0	0
,, ,, ,, 3rd ,,	15	0	0	,,	18	0	0
Spruce Deals: St. Johns	8	0	0	,,	11	0	0
,, ,, Miramichi	7	5	0	,,	8	10	0
,, Boards: Swag	7	0	0	,,	8	0	0
Red Deals: Archangel 1st quality	20	10	0	,,	21	10	0
,, ,, ,, 2nd ,,	15	0	0	,,	17	0	0
,, ,, ,, 3rd ,,	11	0	0	,,	12	0	0
,, ,, St. Petersburg—							
,, 1st quality	16	0	0	,,	17	0	0
,, 2nd ,,	13	0	0	,,	14	10	0
,, ,, Wyburg & Ulcaborg	10	0	0	,,	12	0	0
,, ,, Gefle, Gothenburg, and Stockholm	10	0	0	,,	17	0	0
White Deals: Crown	10	0	0	,,	12	0	0
,, ,, Seconds	9	10	0	,,	10	0	0
Flooring: White and Planed—							
1st and 2nd quality mixed	9	0	0	,,	9	5	0
1st, 2nd, and 3rd quality mixed	8	5	0	,,	8	10	0
Red Planed, 1st quality	11	5	0	,,	11	10	0
Pitch Pine: Prime Deals and Boards	17	0	0	,,	20	0	0
Lignum Vitæ	5	10	0	,,	12	0	0

Per foot super, as 1in.							
Yellow Pine Logs (waney board)	0	2	9	,,	0	4	3
Pitch Pine Logs	0	1	6	,,	0	1	10
Canary Whitewood: Prime	0	3	6	,,	0	3	9
Birch: Quebec Logs	0	2	0	,,	0	2	6
Oak: Austrian Wainscot	0	7	0	,,	0	8	0
Mahogany: Gaboon	0	0	1¾	,,	0	6	2¼

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (50c.ft.)	£20	0	0	to	£21	10	0
,, Java ,, ,,	15	0	0	,,	18	0	0
	Per cubic foot.						
Canary Whitewood: Prime bds. 14in. average	0	3	0	,,	0	3	3
Canary Whitewood: Medium bds. 11in. average	0	2	2	,,	0	2	6
Oak Planks: U.S.A., imported..	0	1	9	,,	0	2	6
,, Boards ,, ,, Prim.	0	2	4	,,	0	2	9
,, ,, ,, ,, Mdm.	0	1	10	,,	0	2	2
Sequoia (Californian Redwood)	0	3	0	,,	0	3	6
Birch: Quebec logs	0	1	6	,,	0	2	2
,, ,, sawn planks	0	1	0	,,	0	1	2
Oak: Austrian Wainscot	0	6	0	,,	0	7	0
Walnut: Prime boards & planks	0	5	0	,,	0	6	0
,, Mdm. ,, ,,	0	3	4	,,	0	3	6
Greenheart: Hewn logs	0	3	6	,,	0	4	6
Cedar: Cigar box	0	3	6	,,	0	4	8
Satin Walnut: Imp. sawn boards, prime	0	2	3	,,	0	2	6
Orham: Imp. sawn boards, prime	0	1	10	,,	0	2	2
Mahogany: St. Domingo, Cuba, and Honduras	Per foot of 1in. 0	0	5½	to	0	0	6
,, African, Assinee, &c.	0	0	4½	,,	0	0	9
,, Lagos and Benin	0	0	3½	,,	0	0	4½
,, Sekondi and Cape Lopez	0	0	2½	,,	0	0	3½
,, Gaboon	0	0	1½	,,	0	0	0
Satinwood: West Indian	0	0	10	,,	0	2	2
Rosewood Per ton	7	0	0	,,	12	0	0
Lignum Vitæ ,,	4	0	0	,,	11	10	6

STONE.*

Red Mansfield, in blocks	per foot cube	£0	2	4	
Darley Dale, ditto	,, ...	0	2	3	
Red Corsehill, ditto	,, ...	0	2	2	
Closeburn Red Freestone, ditto	,, ...	0	2	0	
Ancaster, ditto	,, ...	0	1	10	
Greensbill, ditto	,, ...	0	1	10	
Chilmark, ditto (in truck at Nine Elms)	,, ...	0	1	9	
Beer, ditto	,, ...	0	1	6	
Hard York, ditto	,, ...	0	2	10	
Ditto ditto 6in. sawn both sides, landings, random sizes	per foot sup.	0	2	8	
Ditto ditto 3in. slab sawn two sides, random sizes	,, ...	0	1	3	

* All F.O.R. London.

Bath Stone, delivered ou rail at quarry stations	per foot cube	0	1	0			
Delivered on road waggons, Paddington Depot	,, ...	0	1	6½			
Ditto ditto, Nine Elms Depot	,, ...	0	1	8½			
Beer Stone, delivered on rail at Seaton Station	,, ...	0	1	0			
Ditto, delivered at Nine Elms Station	,, ...	0	1	6			

Portland Stone, in random blocks of 20ft. average:—

	Brown Whit Bed.				White Base Bed.		
Delivered to railway depot at the quarry ... per foot cube	£0	1	5¾	...	£0	1	7¼
Delivered on road waggons at Paddington Depot ... Ditto, Nine Elms Depot ... Ditto, Pimlico Wharf ...	,, ...	0	2	1	...	0	2	2½

BRICKS.

(All prices net.)

Hard Stocks	£1	6	6	per 1,000 alongside, in river	
Rough Stocks and Grizzles	1	6	0	,, ,, ,,	
Picked Stocks for Facings	2	10	0	,, delivered at railway station.	
Flettons	1	6	0	,, ,, ,,	
Pressed Wire Cuts	1	18	0	,, ,, ,,	
Red Wire Cuts	1	14	0	,, ,, ,,	
Best Fareham Red	3	12	0	,, ,, ,,	
Best Red Pressed Ruabon Facings	5	0	0	,, ,, ,,	
Best Blue Pressed Staffordshire	3	15	0	,, ,, ,,	
Ditto Bullnose	4	0	0	,, ,, ,,	
Best Stourbridge Fire Bricks	3	14	0	,, ,, ,,	
2½in. Best Red Accrington Plastic Facing Bricks	4	13	0	,, Net, delivered in full truck loads in London.	

GLAZED BRICKS.*

HARD GLAZES. (PER 1,000.)

White, Ivory, and Salt Glazed. Best.	Seconds.	Best. Buff and Cream.	Other Colours.	Second Colours.
Stretchers—				
£10 17 6	£9 7 6	£12 7 6	£16 7 6	£10 17 6
Headers—				
10 7 6	6 17 6	11 17 6	15 17 6	10 7 6
Quoins, Bullnose, and 1½in. Flats—				
13 17 6	12 17 6	16 7 6	19 17 6	14 7 6
Double Stretchers—				
16 7 6	14 17 6	19 7 6	22 17 6	16 7 6
Double Headers—				
13 7 6	11 17 6	16 7 6	19 17 6	13 7 6
One side and two ends, square—				
17 7 6	15 17 6	20 7 6	24 17 6	17 7 6
Two sides and one end, square—				
18 7 6	16 17 6	21 7 6	25 7 6	18 7 6
Splays and Squnts—				
15 17 6	14 7 6	20 7 6	23 7 6	15 17 6
Plinth and Hollow Bricks. Stretchers and Headers—				
5d. each	4d. each	6d. each	6d. each	5d. each
Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres—				
5d. each	4d. each	6d. each	6d. each	5d. each
Rounded Internal Angles—				
4d. each	3d. each	5d. each	5d. each	4d. each

MOULDED BRICKS.

Stretchers and Headers—				
8d. each	8d. each	6d. each	6d. each	6d. each
Internal and External Angles—				
1/2 each	1/2 each	1/2 each	1/2 each	1/2 each
Cill Bullnose, Stretchers and Headers—				
5d. each	4d. each	6d. each	6d. each	5d. each

	Per 1,000
Majolica or Soft Glazed Stretchers and Headers	£21 17 6
,, ,, ,, Quoins and Bullnose	26 17 9

Compass bricks, circular and arch bricks of single radius £6 per 1,000 over above list for their respective kinds and colours } Not exceeding 9in. × 4½in. × 2½in.

Camber arch brick, any kind or colour, 1s. 2d. each

Stretchers cut for Closers and Nicked Double Headers, £1 per 1,000 extra.

* These prices are carriage paid in full truck loads to London stations.

	e.	d.		
Thames and Pit Sand	7	0	per yard, delivered	
Thames Ballast	5	6	,,	,,
Best Portland Cement	28	0	per ton,	,,
Best Ground Blue Lias Lime	19	0	,,	,,

Exclusive of charge for sacks.

Grey Stone Lime ... 11s. 6d. per yard, delivered

Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. stn.

SLATES.

	In.	In.	£	s.	d.			
Blue Portmadoc	20×10	...12	12	6	per 1000 of 1200 at r.etr.			
,, ,,	16× 8	.. 6	12	6	,,	,,	,,	
Blue Bangor	20×10	...13	2	6	,,	,,	,,	
,, ,,	20×12	...13	17	6	,,	,,	,,	
First quality	20×10	...13	0	0	,,	,,	,,	
,, ,,	20×12	...13	15	0	,,	,,	,,	
,, ,,	16× 8	... 7	5	0	,,	,,	,,	
Eureka unfading green	20×10	£ .15	s. 17	d. 6	,,	,,		
,, ,,	20×12	...18	7	6	,,	,,	,,	
,, ,,	18×10	...13	5	0	,,	,,	,,	
,, ,,	16× 8	..10	5	0	,,	,,	,,	
Permanent green	20×10	...11	12	6	,,	,,	,,	
,, ,,	18×10	... 9	12	6	,,	,,	,,	
,, ,,	16× 8	.. 6	12	6	,,	,,	,,	

TILES.

	s.	d.	Delivered
Plain red roofing tiles	42	0	per 1000 at rly. stn.
Hip and Valley tiles	3	7	per doz. ,, ,,
Broseley tiles	50	0	per 1000 ,, ,,
Ornamental tiles	52	6	,, ,, ,,
Hip and Valley tiles	4	0	per doz. ,, ,,
Ruabon red, brown, or brindled do. (Edwards)	57	6	per 1000 ,, ,,
Ornamental do.	60	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	0	,, ,, ,,
Selected "Perfecta" roofing tiles:—Plain tiles (Peake's)	46	0	per 1000 ,, ,,
Ornamental do.	48	6	,, ,, ,,
Hip tiles	3	10½	per doz. ,, ,,
Valley tiles	3	4½	,, ,, ,,
"Rosemary" brand plain tiles	48	0	per 1000 ,, ,,
Ornamental tiles	50	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	8	,, ,, ,,
Staffordshire (Hanley) Reds or Brindled tiles	42	6	per 1000 ,, ,,
Hand-made sand-faced	45	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	6	,, ,, ,,
"Hartsbill" brand plain tiles, sand-faced	50	0	per 1000 ,, ,,
Pressed	47	6	,, ,, ,,
Ornamental do.	50	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	6	,, ,, ,,

OILS.

Rapeseed, English pale,	per tun	£28	15	0	to	£29	5	0
Do., brown	,, ...	26	15	0	,,	27	5	0
Cottonseed, refined	,, ...	29	0	0	,,	30	0	0
Olive, Spanish	,, ...	39	10	0	,,	40	0	0
Seal, pale	,, ...	21	0	0	,,	21	10	0
Cocoanut, Cochin	,, ...	46	0	0	,,	46	10	0
Do., Ceylon	,, ...	42	10	0	,,	43	0	0
Do., Mauritius	,, ...	42	10	0	,,	43	0	0
Palm, Lagos	,, ...	32	5	0	,,	33	5	0
Do., Nut Kernel	,, ...	35	0	0	,,	35	10	0
Oleine	,, ...	17	5	0	,,	19	5	0
Sperm	,, ...	30	0	0	,,	31	0	0
Lubricating U.S.	per gal.	0	7	0	,,	0	8	0
Petroleum, refined	,,	0	0	6¾	,,	0	0	6¾
Tar, Stockholm	per barrel	1	6	0	,,	1	10	6
Do., Archangel	,,	0	19	6	,,	1	0	0
Linseed Oil	per gal.	0	3	10	,,		—	
Baltic Oil	,,	0	4	1	,,		—	
Turpentine	,,	0	4	8	,,		—	
Putty (Genuine Linseed Oil)	per cwt.	0	11	0	,,		—	
,, Pure Linseed Oil, "Stority" Brand	,,	0	10	0	,,		—	

VARNISHES, &c.

	Per gallon.
Fine Pale Oak Varnish	£0 8 0
Pale Copal Oak	0 10 0
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 18 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 6
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

GLASS.

	15oz.	21oz.	26oz.	32oz. Net.
English Sheet Glass: Fourths	1½d.	2½d.	3d.	4½d. ,,
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Royal Institute of British Architects Soane Medallion Prize Design for a Gateway to a City. By Mr. Prentice Mawson. View and Plan.

House at Hertford Heath, Haileybury. Messrs. J. W. Simpson, F.R.I.B.A., and Maxwell Ayrton, A.R.I.B.A., Architects.

Royal Academy Prize Drawing Eastern Dome, Greenwich Hospital. (Sir Christopher Wren, Architect.) By Mr. Augustus Brysett.

Pair of Cottages, Oxhey Woods, Watford. Mr. R. St. A. Roumieu, Architect.

The London Opera-House, Kingsway, W.C. Mr. Bertie Crewe, Architect.

BALUSTRADES AND STAIRCASE ENCLOSURES.

Extremes meet, and if the first barbarous buildings began without stairs, because stairs had not yet been invented, so the latest civilised ones (if it *is* civilisation which New York is undergoing just now) promise soon to end without stairs, because lifts are superseding them. But as this abandonment of staircases has not gone so far in England yet, and perhaps never will—at least, in structures that have not to be cautioned at every moment, like the overgrown "Sprouts," in Albert Smith's story, to "mind the moon," it does not seem too late to set down some notes on the physiology of those very important architectural organs. The staircase of a house looks like its backbone; but it is really more than that—its windpipe, spinal cord, and œsophagus as well—and must have been so for more thousands of years than the most daring archæologist can venture to reckon. Cave-men at first did not need staircases, perhaps; though they may have used and needed steps, and have roughly hacked them out where they were wanted in the limestone rock. To tree-men, on the contrary, stairs, however rough, must have been indispensable, especially to the aged and the very young, though with some types of tree, there were so freely offered ready-made by Nature that little in the way of invention can have been needed.

If there were not a well known tower in Copenhagen, in which the staircase consists of one continuous inclined plane, so that a carriage with horses can be driven from bottom to top, it might, perhaps, be laid down as a universal rule that a staircase consists of a succession of steps. It was only to form a temporary substitute for these that Lancashire builders formerly laid, and perhaps still sometimes lay, sloping planks from landing to landing, up what is hereafter to be the well-hole of the stairs. But the presence of a little sand or dirt in hard, rounded particles makes the foothold on slopes of this sort so very uncertain that even in this age of wholesale experiments, though planks have sometimes been recommended for ways from floor to floor in public buildings, inclined planes seem very unlikely to be adopted with public approval. Our subject relates to the enclosure of wooden staircases—not those of very complex plan, such as may be found in the halls of City companies and municipal buildings, but such as might give a touch of picturesqueness to the interior of a country house, or even of a rural cottage. This implies invention—that invention of which old buildings are full, and modern ones mostly empty; but it need imply very little in the way of expense, or, if the building owner insists on ornament, it may imply a good deal. The common stairs enclosure for many years past has consisted of a moulded oak or mahogany handrail carried by inch-square deal balusters—as idea-less a piece of design as the human mind can conceive of; and yet a very little thought and ingenuity will make out of its unattractive elements a composition not only tolerable, but actually attractive. There is a well-known modern example which many of us have studied, and some of us perhaps long ago wished to imitate, where, by making one bar-baluster in four a little thicker than the usual size, and the rest a little thinner, the balustrade as it rises is turned into a series of square-topped panels filled, as it were, with rectilinear tracery. It is in a cheap house, meant for a tenant who could appreciate refinement—who presumably would be content to accept his "portion under the sun" without feeling bound to impress on his neighbours that he was richer by a few pounds or a few hundreds every year than they happened to be themselves. Such a man may be found here and there; but he is such a rarity that very few houses are built to suit him. Building owners seldom seek to suit him, and still less to suit his wife. They find it safer to cater for tenants to whom turned and moulded balusters are a cheap and easy bait. But before we deal with these—which, if sometimes very worthless, are sometimes also very effective—we may call attention to another and rather unusual type of rectilinear stairs enclosure which used to exist in Whitecross-street, E.C., and was demolished nearly twenty years ago. A drawing of it, from sketches by Mr. E. H. Martineau, may be found in the Building News for June 21, 1895. Its type is so unusual that it is still worth referring to. The stairs are in short flights; there is a square newel at the top and bottom of each flight, and the parapet between consists of a group of five panels, also set raking like the handrail. The central panel, which is the biggest, is in section a boldly raised one; the rest are open. The square newels run through two flights of stairs, and have long "drops" and pendants beneath them. They had originally, it appears, globular heads, like the stone ones often to be seen on 17th- and 18th-century gateposts; but most of these seem to have succumbed to time and chance before this 17th-century piece of detail had to feed the flames, and show the men that are to come after us how superior was the good taste of the Victorian period even in its later decline.

But before we come to turned balusters we ought also to point out that there exist in old work, and sometimes in recent buildings, staircase parapets with oak boarding only an inch or two in thickness cut into profile or quasi-balusters which support the handrail. Pine and deal hardly answer for things like these—they are too ready to split. Perhaps some tougher wood, like hornbeam, which abounds in Epping Forest, and of which skittles are made, might succeed best of all if it were properly seasoned and would not warp. But these profile balusters need not have the profile of a baluster at all. They may have the outline of harps or scrolls, or of any other feature which suits their position, and may, if desired, be cut through in places, and not merely outlined. Also, they look well intermixed with square-bar balusters here and there—perhaps better than by themselves. Balusters of the stock Classic form (which may be found in Sir Wm. Chambers's works) abound in English Classic buildings—mostly of stone. The 17th-century wooden ones, like those at the Free School, Corsham, are sometimes worked with their mouldings parallel to the rake of the stairs. Where they stand on a horizontal floor, however, their lines are horizontal, as is customary. A well-known architectural treatise, in which students for the Institute are still examined, speaks of balusters as one of the happiest of Renaissance inventions; and undoubtedly the Renaissance men did invent a great many profiles for them, especially for those we find in Elizabethan and Jacobean staircases. But Romanesque ones exist—not later insertions, but with all the feeling of the style, such as those in the very early tower of the old parish church at Valladolid, in Spain—four hundred years, at least, before the Italian Renaissance made its début. So that the credit of their invention is due, not to the "pestilent Renaissance" (as Ruskin delighted to call it), which severed the last link of affection which bound the workman to his work, but rather to those admirable inventors to whom Europe owes the forms of life whose growth made the Middle Ages, and which have yet undeveloped germs in them which may fill the world with beauty "far on in summers that we shall not see."

The old staircase at Ightham Mote (illustrated, with details, in the Building News for August 6, 1886) shows the complete baluster (and not merely its profile cut out of board) in one of its types.

Except its top and bottom [illegible] is [illegible] the [illegible] [illegible] [illegible]

other architects will take part, but prepare a scheme for a building such as is likely to be required, after careful selection of a site and obtaining an option for its purchase, and then to go round amongst his friends or business acquaintances, and either induce one individual to become his client for the work, or form a small company or syndicate to carry it through. Competition in merit, as far as the plans are concerned, is eliminated in favour of competition in priority, the principal essential being that the scheme is one which is likely to prove profitable to those who put their money into it. It is here where foresight is essential. The architect must begin preparing his scheme for a type of building in which he recognises there is likely to be what speculators on the Stock Exchange call a "boom," and must lay it before capitalists at the time when it is likely to meet with their approval—that is, when the "boom" is coming and before it has burst. He is again in the position of the costumier, forecasting the fashions of next month in order to attract customers when those fashions become established, and not adopting them, after others have secured the better customers, when they are being replaced by something else. The wearer in the one case, and the client in the other, takes a different view, desiring to be in the fashion, but not in front of it. If, however, the architect waits until the fashion matures, he will not be ready for his clients until it has passed, and meanwhile they will have gone to some other architect who has been more prompt to grasp the needs of the moment.

Now, at the commencement of the second decade of the 20th century, architects are finding themselves threatened with an entire revolution in constructional methods, which have been traditional for hundreds of years. It is a commonplace observation in the great cities that reinforced concrete has "come to stay." Its study may not be neglected safely by anyone who can look forward to another ten years of life and practice. First it must be mastered from the constructional point of view. Suitable decoration will follow, as will also a recognition of its adaptability to almost all requirements of building and the possibility of performing feats in it which were undreamt of by even our immediate predecessors. The second problem, of artistically treating the material, will probably resolve itself into one of artistically casing it while indicating the system of construction which is behind.

So much for one important fashion factor, of which everyone must take account, though it is not one which will greatly affect the kind of buildings called for by the public, which rapidly-changing developments of city life bring into prominence in kaleidoscopic succession. Here, at the present moment, the two prevailing fashions are for rinks and cinematograph theatres. Those who two years ago were alive to the growing popularity of the rink, and who seized their opportunity, were able to reap a considerable harvest for the moment, though more work was done in the erection of temporary buildings and the conversion of old ones to rinking purposes than in the production of new and permanent structures. The latter were contemplated, but were never carried out. The fashion proved evanescent, and architects, where they were employed, only succeeded in obtaining small commissions, and perhaps satisfactory promoters' fees, in addition, when they took up the work of company organiser.

Cinematograph theatres are still in vogue, and from their nature have involved the erection of more permanent buildings, and these of a somewhat highly decorative character, frequently more ornate than beautiful. Architects who recognised the coming of the cinematograph boom, and the possibilities which it opened up, must have done very well, even though they may not be recognised leaders in the profession. The point which we wish to make, however, is that some architects, at least, were wise enough to specialise in something which was new. Now that the boom is on, architects generally are turning their attention to buildings of this sort, only to find that nearly as many have been erected in the country as there seems to be room for at the moment, while the watchful may very well have their doubts about these theatres retaining their popularity much longer. To specialise in cinematograph theatres now would be very much like a dressmaker setting to work laboriously to learn how to cut out a hobble skirt, which it may safely be prophesied will not be fashionable next summer.

The last development in building enterprise is the temperance billiard-hall—the word "temperance" being used in its very strictest sense, for, as a matter of fact, in most which have been built, so far, no provision is made for supplying any kind of refreshments whatever. Not many have been erected yet; but they are substantial buildings, attractively designed to meet the popular taste—or the lack of it—but hardly so flagrantly hideous as the cinematograph theatres. Only one company seems yet to be at work, and its capital is comparatively small; but in every case, so far, there is ample evidence that the investment will prove permanently remunerative. In one which we call to mind there are fourteen tables. It has now been open for nearly a year, and throughout the whole of that period, from the very commencement, every table has been occupied for an average of at least five hours per night. The charge is one shilling per hour per table, and only two attendants are necessary. It requires little calculation to show that, even after making every allowance for necessary repairs and renewals, there is left a very satisfactory dividend for the shareholders. The game of billiards, unlike rinking and cinematography, is well established in popularity. There are many districts in many towns where young men would be only too glad to play without having necessarily to go to a public-house or hotel for their game. Architects who are on the look-out for work could, at the present moment, scarcely do better than make themselves acquainted with the simple requirements of these buildings, and then take the trouble to organise local syndicates for their erection in suitable places. If each building and its fittings costs £4,000, and a company devoting itself to one county were to put up ten such from the plans of the architect who was first on the scene and took the necessary trouble to originate the scheme, it is easy to see that he would be satisfactorily rewarded for his trouble, while at the same time bringing himself in touch with persons who might afterwards employ him upon other buildings, as new fashions arise, each with its own opportunity for the successful investment of capital."

The Clyde Trustees have accepted a tender for the supply of machinery for the new granary to be erected at Meadowside, received from Messrs. Spencer and Co., Ltd., at Melksham, Wilts, at £39,888.

Messrs. Balfour, Beatty, and Co., Ltd., have deposited with the Board of Trade a draft order for the construction of a tramway from Horns Cross to Swanscombe, so as to connect the Dartford and Gravesend systems.

ROYAL INSTITUTE OF BRITISH ARCHITECTS PRIZES AND STUDENTSHIP DRAWINGS EXHIBITION.

[WITH ILLUSTRATIONS.]

This week, for the first time in the annals of the Institute, the Architectural Students' designs and measured drawings or sketches of old work have been shown to real advantage—a gain by no means the least manifest among others resulting from the acquisition of the three commodious and amply-lit galleries added to the Conduit-street premises last autumn. Hitherto the examination of these competitive works has been most inconvenient, while anything approaching a comprehensive survey of a series of drawings like the present, which includes about 300 strainers, has been out of the question. No doubt it was foreseen by the promoters of these alterations how largely these new galleries would add to the comfort and more befitting conduct of these annual displays of students' competitive undertakings; but we very much question if the members generally have so far realised the relative importance of these extensions, and only those who have seen the present assemblage, opened to inspection last Monday, can fully appreciate the extent of such practical and long-needed improvements. No comparisons with the displays held for many sessions past in the Alpine Club rooms are required, because the transformation is so complete. The Exhibition is a credit instead of a makeshift, and therefore satisfactory to all concerned.

Whether, however, the designs and drawings thus submitted to the public demonstrate any precise and corresponding advance must remain a matter of individual opinion. While not, perhaps, relying upon a few unquestionably brilliant contributions, we are inclined to pronounce the exhibition, as a whole, as ranking somewhat above the usual average. We cannot say more, chiefly because of the entire failure of all who competed for the Grissell Gold Medal (a timber-built skating rink), and for the Saxon Snell prize (a convalescent home). Had this not been so, we think the students' work of 1911 would distinctly have ranked as more promising than that of late years, though not a few designs are rather wild and extravagant, and most of them are deficient in imaginative skill. The measured work redeems much that is wanting in other classes, and the draughtsmanship of these competitors is encouraging and excellent.

No doubt the Pugin Studentship has been well contested, and we have no hesitation in endorsing the award of this prize to Mr. J. B. F. Cowper, of Manchester, whose excellent details from Stamford St. Mary's Church Tower and of Patrington Church, Yorkshire, are ably supplemented by general sketches and views, making a praiseworthy display of honest workmanlike care. The Rievaulx and Rouen drawings submitted by Mr. P. Hepworth show undoubted industry and no little pluck, and he honestly deserved the extra prize of five guineas awarded him. Mr. N. W. Hadwen creditably wins an Hon. Mention for some capable studies, including a spirited little sketch of Halifax Church.

The Institute Silver Medal and ten guineas for measured drawings was wisely accorded to Mr. T. F. W. Grant, A.R.I.B.A., London, for a monograph of Edington Church, Wiltshire, feelingly drawn to detail in pencil, with parts washed in. This church furnished an extremely good and comparatively new subject, which is represented and set out with much sympa-

[illegible] Owen Jones Studentship has perhaps seldom been more deservedly won than on this occasion, though as a matter of fact Mr. A. W. Bellis has had a walk-over, his sole advantage not hardly reckoning as the winning. As Scholar in the Royal College of Art he must be presumed intending to practise as an architect, and notices it is that the bequest stipulates. We have noted several of his drawings in previous occasions in Painted Decoration at the Kensington School of Design, and few students, speaking architectural students, could be expected to hold [illegible] against such a formidable competitor, who, [illegible] solely made a [illegible] works. His drawings here include decorations from Castle Angel, Ste. Chapelle, and the Palais Palais, Madrid.

[illegible] two competitors [illegible] Art [illegible] Early [illegible] [illegible] good [illegible] in the list [illegible] Mr. Andrew Graham [illegible] winner [illegible] Egypt [illegible] to be quite ex[illegible] judged as "Instruments [illegible] study, and as such they are extremely [illegible]. We observed particularly two [illegible] of the well known Hotel Vulcain, Cairo, with [illegible] and the gate[illegible] Oxford, [illegible] practical constructional studies. This prize is not perhaps one of the most popular, but this may be because of its being [illegible] open to those who have passed the [illegible] examination of the Institute, a process [illegible] to some ways than one, [illegible] men who have already taken the most [illegible] systematic and technical manner.

The leading competition held under the auspices of the Institute is the annual Owen Jones Studentship, the Silver Medallion with £100 for Continental travel. This [illegible] twelve competitors out of the lists and their work taken as a whole is distinctive and well worthy of the occasion. The [illegible] Gateway and Gate-House to a capital city naturally allowed [illegible] most [illegible] variety of treatment, while being [illegible] as to style, a relative [illegible] was [illegible] to be submitted to exceedingly diversified and consequently rather difficult to adjudicate. A question naturally arises whether such a prize as the Soane Medallion, primarily intended to encourage capacity [illegible] [illegible] [illegible]

cated, as unworthy of a competitor whose marked ability should have saved him from such mawkish meretriciousness.

The prize is awarded to a less strikingly original but more consistent scheme, with a domed chapel of refined detail, submitted by Mr. George Herbert Foggitt, of the Royal College of Art, whose modest-looking drawings suffer in comparison with bolder, not to say flagrant, delineations adopted by some of his compeers. The building is cruciform, and stands at the head of a cloistered and sloping garth, with a double stairway as a grand approach from the lake, with three terraced and colonnaded cloisters after Bramante piling high up as wings sheltering the quadrangle thus formed. To the rear of the chapel a site is obtained for monuments of the departed. A sanctuary is formed, with a sacristy on one side, and the organ of the chapel on the other. "Catafalque," by Mr. H. Boddington, junr., of Stockport, obtains an Hon. Mention and ten guineas with a scheme which has an outlet for the crematorium shaft on the summit of the hill, the chapel being near the shore. "Apex" levels a plateau in front of his Campo Santo, which is perched on an eminence, with a processional way leading up to the rock on which it stands, but the method of access to the top of the cliff where the chapel stands is not clear. The chapel is situate in a colonnaded cortile, and the view is prettily managed in colour.

Of the Grissell Gold Medal competition, already mentioned, we can only express regret that "Oregon," with his very original scheme for a skating rink, was not successful. The perfect forest of timber in his great roof no doubt is far overdone, and it may be questioned as a feat of sound construction, though we are inclined to think it would have looked well if executed. One of the schemes adopted a laminated form of framing which, for practical but less original purposes, is the more obvious method of dealing with such a building.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The sixth ordinary meeting of the present session of the Royal Institute of British Architects was held at 9, Conduit-street, W., on Monday evening, the chair being occupied by the President, Mr. Leonard Stokes.

Mr. Halsey Ricardo, F.R.I.B.A., read a paper, illustrated with lantern views, on

THE CARDINAL MEDICI'S PLEASURE-HOUSE.

The chief point of interest, he remarked, in the poor, uncompleted, and now ruined building, now called the Villa Madama, was its ancestry. It bore the name of Raphael as its designer, and, architecturally speaking, Raphael was the son of Bramante, who was the son of Alberti, and half-brother to Leonardo da Vinci. The pleasure-house was built for the Cardinal Giulio de Medici, cousin of Leo X. (and eventually himself Pope under the title of Clement VII.), outside the city of Rome on the slopes of Monte Mario. It was to be modelled on Pliny's description of his country house in Tuscany. Raphael made various designs for the Cardinal, and lived long enough to see the actual building started and the terraces beginning to shape themselves. His mind—eager to grasp and assimilate the word-pictures of the learned authorities poured freely into his ears—saw the possibilities of house and landscape gardening, and at once to materialise them. Raphael had gone through similar experiences before, but had no time to brood over the significance of things. The amount of business going on in his workshop was tremendous. He was carrying on the painting of the Stanze, the work in the Farnesina, the cartoons for the tapestries to be hung in the Sistine Chapel—an all-important competition with Michael Angelo; was responsible for the conduct of the work at St. Peter's, and had undertaken the immense task of reconstructing Rome. His jurisdiction included the country ten miles round, he had control over all the excavations, and we are indebted to him for the preservation of some of the most interesting antiquities of the city. Raphael proposed to undertake the restoration by measurement, ground plans, cross sections and elevations of the buildings of the former denizens of Rome. This tremendous archæological undertaking aroused the greatest enthusiasm, and the loss of Raphael the antiquary was as great a blow to the circle of Leo X. as that of Raphael the painter. A throng of pupils surrounded him. At his advice they studied and measured the ruins of ancient work, and especially the examples of internal decoration that were coming to light owing to the excavations that were being made for the discovery of statues, bronzes, Greek pottery, and medals, in all likely spots in and about Rome. The remains of celebrated villas, of the few rooms remaining on the Palatine, of the tombs and chapels scattered up and down the city and the Campagna were measured, sketched, and profiles of their mouldings taken. The ancient use of stucco enrichment was thus discovered. Raphael was quick to seize upon the new possibilities of chamber decoration that this modelled stucco enrichment seemed to promise, and also on the fanciful painted motives that were found on the walls of the excavated rooms. Under the hands of two of his pupils—Giulio Romano and Giovanni da Udine—the walls of the Villa Madama were encrusted with this filigree work, and the charm of this decoration led to its wide acceptance in Italy, and soon afterwards in France. The Villa Madama, after Raphael's death, was carried on by Antonio San Gallo the younger, as far as construction was concerned, Giulio Romano and Giovanni da Udine fashioning the decoration. The villa was never finished in its entirety. Pope Leo died most unexpectedly at the end of 1521, after a reign of eight years, aged only forty-five. The next Pope, a severe ascetic Fleming, spread terror and dismay into the hearts of polite Rome by his grim disapproval of every form of luxury and the arts. His tenure of the chair lasted little longer than a year, and then Cardinal Giulio found himself elected Pope, and took the name of Clement VII. The villa was now no longer of the same importance. Eventually, the villa came into the possession of Margaret of Parma, daughter of the Emperor Charles V., and it is from her that it derives its name of Villa Madama. But this attempt of the Cardinal's was the beginning of many other such undertakings. The discussions that must have raged round it—the ideals as formulated by Raphael, by his pupils, by the literary authorities, by the rich patrons who crowded the Court of his cousin, Leo X., at the Vatican—helped to constitute this building as a model of what a country retreat and pleasure-house should be, so that when, after the death of Raphael, his school was dispersed, and, after the sack of Rome, all employment for artists was for for some years in abeyance, Baldassare Castiglione was able to pick up Giulio Romano and introduce him to the Gonzaga at Mantua, and Giulio Romano was able to fire that prince with a desire to have also a pleasure-house of his own just outside the walls of Mantua. The ground where the horses were stabled and trained was devoted to this purpose, and thus the well-known Palazza del Tè came into being. All round Rome, at Tusculum, on the Alban hills, princes and cardinals took to building in after years these country mansions, with elaborated gardens, fountains, terraced walls, and sheltered arcades, and gradually a race of water engineers sprang up to construct the water jets, cascades, and hydraulic surprises that struck Evelyn's fancy so much, and won his admiration when he visited Italy in the days of Oliver Cromwell. Henry VIII.'s palace at Nonsuch, Shakespeare's reference to pleached alleys, Bacon's directions for laying-out the gardens to a stately house, derive from this initiative of Cardinal Giulio's as materialised by Raphael, and behind Raphael stand Bramante and Da Vinci.

At the conclusion of the paper the lecturer showed upon the screen a number of lantern views of works of the great Italian architects of the Renaissance, including a section of Leonardo da Vinci of his competitive scheme for the reconstruction of the crossing of Milan Cathedral, Bramante's Cancelleria at Rome, palaces by Peruzzi at Siena and Bologna, the Pandolfini Palace at Florence, Romano's palace at Mantua, and, finally, a series of illustrations of the Villa Madama, including plans and sections.

In proposing a vote of thanks to Mr. Ricardo, Sir Charles Holroyd said Bramante was the architectural schoolmaster rather than the father of Raphael. As for Leonardo da Vinci, he was altogether beyond Raphael, who never achieved like greatness in conception, although he surpassed him in the lightness of his touch. In his work at Mantua, Leonardo da Vinci was more decorative, broader in treatment, and much more detailed than any building Raphael had left us. Probably these sumptuous Roman villas were originally derived from the villas of Greece, of which we knew very little; they certainly seemed to have inherited the power of utilising the beauty of natural surroundings from at least the days of the later Roman Empire. When last at Pompeii, he was impressed, when standing at the intersection of the principal streets, with the fact that one great thoroughfare was so aligned as to have, at the termination of its vista, the splendid outline of Vesuvius, another looked down on a little town in a bay, a third showed a stretch of sea, while in the fourth direction the view was closed by the distant Apennines. Mr. Ricardo had blamed Pope Julius's administration of the patronage system, but that Pope got the best out of the artists he employed, and insisted on work being carried to completion. As for the Platonic Academy formed by Lorenzo de Medici, it was not so much a club as a combination of our Office of Works, London University, and Morris and Co. The villas which surrounded Rome, nearly all of which were on the opposite bank of the Tiber to that occupied by the Villa Madama, were architecturally designed, and were adorned with frescoes; the gardens were magnificently laid out, and were decorated with sculpture, but not of a costly character. The work of Raphael at the Villa Madama was marked with the easy grace and distinction that characterised all his productions. It was obvious that Raphael was not a profound scholar, but a great executant.

Mr. Paul Waterhouse seconded the motion, remarking that Mr. Ricardo had taken them in the spirit into the very heart of the Renaissance. The secret of the charm of the work of the Renaissance masters lay in the fact that they so completely identified themselves with the past, and with the sources of its pleasure that we were able to enjoy the Classicism which they enjoyed.

The vote of thanks was briefly acknowledged by Mr. Ricardo.

AWARD OF INSTITUTE PRIZES AND STUDENTSHIPS.

The Secretary, Mr. Ian MacAlister, read the awards by the Council of the Institute Prizes and Studentships for 1910-11, as follows:—

The Institute Silver Medal and Twenty-five Guineas, for Essays.—Subject: "The Design and Construction of Belfry Stages and Spires in Stone or Brick." "Dulce est Desipere in Loco." Herbert Lewis Honeyman, 120, West Regent-street, Glasgow. Two competitors.

The Institute Silver Medal and Ten Guineas, for Drawings. Subject: "Measured Drawings of Ancient Buildings in the United Kingdom or Abroad. "Ethandun." T. F. W. Grant, A.R.I.B.A., 12, Great James-street, Bedford-row, W.C. Five competitors.

The Soane Medallion and £100 (for Continental travel).—Subject: "Design for an Entrance Gateway to a Civic City. "Civitas," Prentice Mawson, 28, Conduit-street, W. Hon. Mention and Ten Guineas to "Mauerthor." C. Percival Waldgate, A.R.C.A., Royal College of Arts, Exhibition-road, Kensington; and Hon. Mention to "SLLab." A. Douglas Robinson, 29, Beacon Hill-road, Camden-road, N.W. Thirteen competitors.

The Owen-Jones Student-ship: Certificate and

[illegible]

[illegible]

[illegible]

unaware of this, made it up again. A frontager, knowing the circumstances, ignored the notices, but was held liable for his share, as he had not objected within the time limited by the Act. Local authorities would appear to have a dangerous power in the benefit-derived principle. In a case at Skipton, the Court of Summary Jurisdiction allowed four-fifths of the expenses of making up a street to be apportioned over owners of houses fronting streets which had already been made up, and which led into the street in question, a decision which does not appear to have been appealed against.

THE TAKING-OVER OF PRIVATE STREETS.

Under the Highways Act, 1862, with the consent of owners and occupiers, a highway authority may take over a road in return for its use by the public. Under the Public Health Act, 1875, where the street is made up to the satisfaction of the local authority, they may declare it a highway repairable by the public at large, unless the majority of owners object within one month. The Public Health Act Amendment Act, 1890, extends this to allow of a part or all of a street being taken over, when all, or any, of the works enumerated in Section 150 have been done by the authority, but it does not touch the case of the owners doing the work themselves. Under the Amendment Act of 1907, also an adoptive Act, the owners can call on the authority to make up the street, and it must then be declared repairable by the public. Under the Private Streets Works Act, when any or all of the works are done, the authority may take it over, there being no right of objection. When all the works are done and paid for, on application of the majority, in value, of the owners, the authority must take the road over within three months.

THE LIABILITY TO REPAIR.

The liability to repair may be upon either the local authority or the private owner, the former being responsible if it has taken the highway over, or otherwise been made liable by statute. In London, under the Metropolis Management Acts, the borough councils can take a street over unless written objection is made by not less than two-thirds of the owners or rated occupiers. Under the Metropolis Management Amendment Act, 1890, the borough council can do temporary repairs to any road or street which has been thrown open to the public for not less than six months, and can recover the expenses from the owners without prejudice to their power of compelling the paving of the street in due course. Somewhat similar powers are obtainable in the provinces under the Public Health Act Amendment Act, 1907, but in this case the majority of owners, in number or rateable value, may call on the local authority to proceed under the Private Street Works Act, or Section 150 of the 1875 Act, whichever is usual in the locality. A novel point has been introduced in the 1907 Act, the liability for temporary repairs, if done, being proportional to the extent of one's lands fronting, adjoining, or abutting on the street, and not to their frontage. In the case of highways laid out before the passing of the Highways Act, 1835, the local authority is liable to repair, the mere throwing open unreservedly to the public, and the user by the public, being sufficient to produce such liability. The same Act gives the highway authority power to take any necessary materials from waste lands, and under certain circumstances from private lands, the occupier having power of objection, such objection being heard by magistrates, and compensation being payable. In the case of highways laid out after 1835 the liability of the local authority may arise under a course of procedure set out in Section 23, under which, if the road is constructed in a substantial manner and of the width required by the Act, it may, on being used by the public and kept in repair by the owner for twelve months, be declared by magistrates a public highway. By common law an owner became liable to repair a highway if he fenced it; but the Highways Act, 1864, altered this, and removed the liability if the fences were erected with the written consent of the authorities. We may summarise the cases in which the liability to repair is upon the public at large:—

(1) Highways dedicated to the public before August 30, 1835;
(2) Those dedicated after 1835, under Section 23 of the 1835 Act;
(3) Those taken over in return for their use under the Highways Act, 1862;
(4) Those set out under Enclosure Awards;
(5) Those taken over after private street works have been done;
(6) Those repairable under agreement with owners, under the Public Health Act, 1875, Sections 146 and 148;
(7) Those made by a local authority under an improvement scheme;
(8) Main roads taken over by county councils under the Highways and Locomotives Act, 1878, and the Local Government Act, 1888;
(9) Districts under the control of a rural district council under the Local Government Act, 1894.

The extent of the liability of county councils was practically settled by what is known as the Warminster case ("Warminster Local Board v. Wiltshire County Council"), in which it was held that the liability included footpaths, crossings, scavenging, etc., but not lighting. We now come to the liability of private owners. Apart from the cases of private streets not yet made up and taken over, there is a form of liability existing in many cases, known as the liability to repair ratione tenuræ. This liability exists where an individual or corporation is bound to repair a highway by reason of a condition attached to his tenure of lands. Persons so liable may transfer their liability to the authorities on paying an annual or capital amount. The person liable is the occupier, under the decision in "Cuckfield Rural District Council v. Goring," and in case of default the authorities can do the work and recover the cost by action. Persons liable to repair ratione tenuræ, who have paid a capital sum, even though of nominal amount, in full discharge of such liability, are not liable to highway rates, under the House of Lords decision in "Overseers of Dalton v. North-Eastern Railway Company"; but the existence of a liability to repair ratione tenuræ does not of itself show that there is an exemption from liability to contribute to the repair of other highways in the same district. ("Ferraud v. Bingley Urban District Council.") The occupier of a field, by occasionally doing small repairs to a public footpath for his own benefit does not necessarily show a liability to repair ratione tenuræ, and in a case where a defective stile caused injury to a man the occupier was held not liable. ("Rundle v. Hearle.") There appears to be no case determining the liability to repair stiles and gates on public footpaths, but the Local Government Board has expressed the opinion that such expenses are expenses which a parish council can reasonably incur.

EXTRAORDINARY TRAFFIC.

Before leaving the question of repair, attention may be given to a point which is often of interest to the land agent. Extraordinary traffic, according to a judgment of Lord Justice Bowen, "is a carriage of articles over the road at either one or more times, which is so exceptional in the quality or quantity of the articles carried, or in the mode or time of user of the road, as substantially to alter or increase the burden imposed by ordinary traffic on the road, and to cause damage and expense thereby, beyond what is common." ("Hill v. Thomas.") The basis of all claims for expenses incurred in respect of extraordinary traffic is the Highways and Locomotives Act, 1878, Section 23, as amended by the Locomotive Act, 1898. The former provides that where a certificate of a surveyor is issued to a local authority to the effect that, having regard to the average expenses of repairing the highways in the neighbourhood, extraordinary expenses have been incurred in repairing any highway, by reason of extraordinary traffic thereon, such authority may recover from any person, by whose order such traffic has been conducted, the amount of such expenses. Persons may enter into an agreement with the authority to pay a composition, and are then exempt from proceedings under the section. The words "by whose order" were rather indefinite. The House of Lords held, in "Kent County Council v. Lord Gerard," that they did not mean "in consequence of whose order." Lord Gerard, incidental to the alteration of his residence, entered into an agreement with a contractor to deliver materials carriage paid, and neither employed nor paid the actual carriers. He was held not liable for the extraordinary traffic. The Locomotives Act, 1898, removed the effect of this decision, altering the words of the 1878 Act to "by or in consequence of whose order," the effect of which seems to have given the authorities the right to sue the building owner, builder, traction-engine owner, or all three. Roads should, of course, be suitable for the traffic of the district, and if such traffic is largely due to some prominent local industry such industry should not be crippled by claims of this kind. This was undoubtedly the view taken by the Court in "The Attorney-General v. Scott," which practically decides that an authority must keep its roads in such a state as to be strong enough to carry the traffic which they, as reasonable men, ought to expect on it. This was a case in which the local industry was stone quarrying. Care should be taken in the choice of route, as the claim is not made without specific reference to the highway in question, and in "Geironydd Rural District Council v. Green" it was held that the haulage of timber may constitute extraordinary traffic though the timber business is a recognised industry of the district. No action can be brought till the expenses have been actually incurred. The 1898 Act provides that proceedings shall be commenced within twelve months of the time of damage, or, in the case of damage in consequence of a contract extending over a long period, within six months of the completion of such contract. In "Story v. Sheard" it was held that proceedings cannot be taken against the executors of a person by whose order the traffic was conducted. In an action for the recovery of such expenses the road authority must deal only with the particular road in respect of which they are claiming, and show the nature of the ordinary traffic along it, proving the alleged traffic to be extraordinary. The claim must include merely the amount necessary to put the road in such a state of repair as would bear the ordinary traffic, and the offender must not be charged with any expenses incurred by reason of an increase in the ordinary traffic. Any increase in expenditure on the road due to exceptional weather or similar points must also be considered and borne by the authority.

MAKING AND IMPROVING ROADS.

Any authority can make or improve roads as part of an improvement scheme under the Housing Acts. In London, under the Metropolis Management Act, 1855, the London County Council can make, widen, or improve any roads, streets, or ways, and, under the Amendment Act of 1862, any borough council may, with the consent of the London County Council, either on their own account or in conjunction with the central authority, do the same. The Act does not, however, authorise the removal of any barriers, and similar items preventing a thoroughfare into any street without the consent of the owners. Under the Highways Act, 1862, power is given to, amongst other items, widen existing roads, level them, cut off corners where land must be purchased for the purpose, make new roads, and build or enlarge bridges. Under the Public Health Act, 1875, a local authority may purchase any premises for the purpose of widening or otherwise improving any street, or, with the sanction of the Local Government Board, for forming a new street. The Amendment Act of 1907 empowers the authority to require the corners of buildings to be splayed or rounded off, but they must pay compensation. In a general paper of this kind the Development and Road Improvement Funds Act, 1909, cannot be given more than a passing mention. The newly-constituted Road Board has power to make advances to county councils, and other highway authorities, in respect of the construction of new roads, or

the improvement of existing ones, and to itself construct and maintain any new roads which appear necessary. The Board can only proceed with the approval of the Treasury, and local authorities have opportunities of objecting to any new roads proposed by the Board. The improvement of roads means widening, cutting off corners, levelling, dust prevention, and any other work beyond ordinary repairs. The Board can acquire land for new roads, together with a depth of 220 yards on either side so as to get the advantages of betterment and power over the connection of side roads. Power is given to enable compulsory sale, if necessary, and restrictions are imposed as to the nature of the land which can be taken. The Board had already resolved that in making advances priority of consideration shall be given proposals for dealing with curves, corners, and cross roads in dangerous places, and for dealing with narrow roads which have no footpaths.

DIVERSION, STOPPING UP, OR ABOLITION OF HIGHWAYS.

A public highway cannot cease to be such except by Act of Parliament or order of Quarter Sessions. Even if disused and overgrown, proof of public rights will enable an order to be obtained for clearing and reopening it. The Highways Act of 1835, as amended, provides that if a district council think it expedient, or any other party desires, that a highway, which includes a footpath, should be stopped up or diverted, it shall be viewed by two justices, after certain formalities, who may, if they agree, and after further formalities, issue a certificate giving reasons why the proposal should be acceded to, such certificate being enrolled at Quarter Sessions. Any person aggrieved by the proposal may appeal to the Sessions, and the matter will be settled by a jury. If the appeal fails, or if no appeal, the Court of Quarter Sessions will make an order for diversion or stopping up. The consent of both parish council and district council is necessary in a rural parish. Under the Highways and Locomotives Act, 1898, where any highway authority consider a highway unnecessary for public use, application may be made to a Court of Summary Jurisdiction, and two justices shall view the road. If the Court agree with the proposal, they must see that one month's public notice is given of the time and place for hearing objections, and also one month's notice to all owners and occupiers of abutting lands, etc. After hearing any objections the Court can allow or dismiss the application. In the former case an order is issued declaring the highway to be no longer repairable by the public. An appeal lies to Quarter Sessions, and such Sessions has also power to issue an order on application, supported by evidence that through change of circumstances the road has again become of public use, directing the liability of the public to revive as regards repairing it. It should be noted that this matter is ferent one to stopping a road up, since the order does not abolish the highway, and it remains dedicated to the public, though no longer repairable by them. The Housing, Town Planning, etc., Act, 1909, provides that the Local Government Board may prescribe a general code of provisions for town planning schemes, such provisions including the stopping up or diversion of roads or other ways, amongst many other things.

ROADSIDE WASTES, HEDGES, AND DITCHES.

The probable origin of most roadside wastes was due to an ancient right to pass over unenclosed land at the side of the road if the roadway was out of repair. The owners can, as a rule, let the right of pasturage on roadside wastes; but the herbage at the sides of the highways is sometimes the property of the local authority. The adjoining owners may not enclose the wastes; such enclosure amounting to an obstruction which any member of the public might take proceedings to remove. The Local Government Act, 1894, makes it the duty of the district councils to prevent unlawful encroachments on roadside wastes. Such councils may remove encroachments without first bringing an action, and may recover the expenses of so doing. The Highways Act of 1835 compels the surveyor of highways to maintain a clear width of 20ft. where the space between the road fences will allow of this being done without infringing the rights of the adjoining owners. Where the latter have enclosed, the hedge and ditch belong to them absolutely, the public roadway only extending to the edge of the ditch. The curtailment of ditches is generally done with the consent of the owners, but in case of refusal the Act provides that the authority may take the extra ground and pay compensation, there being some restrictions as to minerals, timber, parks, nurseries, etc. The same Act gives the highway authority power to cleanse, scour, and keep open all ditches adjoining highways. It is the custom to request the owners to do this, but if they fail, and the authority does the work, the Act provides that the ditches shall be thenceforward under their control, and the original owners liable for interfering with them. While dealing with hedges and ditches, a few notes as to fences may be given. The Quarry (Fencing) Act, 1887, provides that dangerous excavations within fifty yards of a highway, or other open place dedicated to the public, shall be properly fenced, or otherwise dealt with as a nuisance under the Public Health Acts. The Barbed Wire Act, 1893, provides that barbed wire adjoining a highway may be indicted as a nuisance. When barbed wire was first introduced, many actions for damage occurred. In one typical case, just before the passing of the Act, the wind blew a man's coat against a barbed-wire fence, and the coat was torn. The Court of Appeal held the fence to be dangerous to the public, and a nuisance. ("Stewart v. Wright.") It is necessary to keep fences adjoining highways in a safe condition. Where a child stood on a fence which was rotten, and which fell on him and hurt him, the Court of Appeal held that the defective fence was a nuisance, and caused the injuries, and that the defendant was liable. ("Harrold v. Watney.")

OBSTRUCTIONS, PROJECTIONS, AND ENCROACHMENTS.

Generally speaking, any person has a common law right to remove obstructions to a highway, but must show his necessity for travelling over the part obstructed. There are, however, certain legal obstructions. Thus the Highways Act, 1835, made it the duty of the authority to provide direction posts, and the General Turnpike Act, 1822, empowered turnpike trustees to erect milestones, this power being extended to local authorities by the Highway Rate Assessment and Expenditure Act, 1882. The Motor Car Act, 1903, legalises the erection of danger signs. The Public Health Acts in the provinces, and the Metropolis Management Acts in London, make it necessary to erect hoardings, with platforms, handrails, etc., as may be required where building works are going on adjoining footways. This is done in London by written license from the local authority. The Telegraph Acts empower the erection of poles on highways with the consent of the local authority. In some cases telephone companies get similar powers under license from the Postmaster-General under the Telegraph Acts. Poles erected without statutory powers are a nuisance and indictable. The grass strips at the sides of the roads and the hedge and ditch belong to the adjoining owner, who merely dedicates a right of passage over the roads. The local authorities have, therefore, no power to grant permission to companies for the erection of poles in the absence of statutory authority and it is doubtful if the owner can do so if the poles would interfere with the public rights of passage. Both the Post Office and the National Telephone Company pay wayleaves where poles are put in between the inner and outer butts of hedges. It is, I think, rather doubtful if local authorities need do so in the case of sewer vent shafts, unless the owner's rights can be shown to be affected. If trees are blown down across the road the local authority has power to remove them under the Local Government Act, 1894, and under the decision in "Louth Urban District Council v. West," would appear to be able to recover the cost of so doing. Wires across a highway at any height could be objected to by owners of the soil, but damages would not be likely to be obtained if no injury could be shown. They cannot, however, be objected to by the local authority if high enough not to interfere with traffic. ("Wandsworth Board of Works v. United Telephone Company.") Where a private person is injured, such as by difficulty of access to his premises, owing to works carried out by a local authority under statutory powers, even if the works have been unreasonably delayed, an action for damages will not lie unless he can show that he has been injured specially, directly, and substantially. ("Martin v. London County Council.") The Towns Police Act, 1847, requires the projecting blinds and awnings of shops to be not less than 8ft. from the ground. The Towns Improvement Act, 1847, deals with projections into streets, enacting that anything which is an obstruction to the safe and convenient passage along any street, whether overhead or underfoot, may be ordered by the local authority to be removed. The Metropolis Management Act, 1855, provides that if projections existing before the commencement of the Act are an annoyance, or dangerous to traffic, they may be removed or altered by the local authority, who must pay compensation for any damage sustained. In the case of such obstructions formed after the Act, the owner may be given fourteen days' notice to remove or alter them at his own expense. An urban district council has power to remove encroachments on any highway vested in it without first taking proceedings against the offender. ("Reynolds v. Presteigh Urban District Council.") The Highways Act, 1835, provides that no tree, bush, or shrub shall be planted within 15ft. of the centre of the highway (i.e., the centre-line of the metalled portion). Also that if owners neglect to trim their hedges and trees, to the detriment of the highway, they may be summoned and the justices may make orders calling on them to do so within ten days, failing which the authority may do the work and recover the cost. The Act makes sound provisions as to the time during which pruning or cutting shall be done by the authority or required of the owner. The Highways Act, 1864, also deals with encroachments, providing that if anyone encroaches in any way within 15ft. of the centre of the highway, or by removing soil or turf from the sides, except for improving the road, and by order, he shall be liable to penalties, and for the expenses of restoring the highway to its original state. The Act also provides that where fences exist on both sides no encroachment shall be allowed which would reduce the width between the fences to less than 30ft. I feel that I have trespassed beyond the usual length of a paper at this Institution, but would plead excuse that the subject is an extremely wide one, and one in which, with such trespass, it is possible to give a few notes which may be of service to members of each branch of the profession.

APPENDIX I.

THE METROPOLIS MANAGEMENT ACT, 1855.

Section 105.—In case the owners of the houses forming the greater part of any new street laid out or made, or hereafter to be laid out or made, which is not paved to the satisfaction of the vestry or district board of the parish or district in which such street is situate, be desirous of having the same paved, as hereinafter mentioned, or if such vestry or board deem it necessary or expedient that the same should be so paved, then, and in either of such cases, such vestry or board shall well and sufficiently pave the same, either throughout the whole breadth of the carriageway and footpaths thereof, or any part of such breadth, and from time to time keep such pavement in good and sufficient repair; and the owners of the houses forming such street shall, on demand, pay to such vestry or board the amount of the estimated expenses of providing and laying such pavement (such amount to be determined by the surveyor for the time being of the vestry or board), and in case such estimated expenses exceed the actual expenses of such paving, then the difference between such estimated expenses and such actual expenses shall be repaid by the said vestry or board to the owners of houses by whom the said sum of money had been paid; and in case the said estimated expenses be less than the actual expenses of such paving, then the owners of the said houses shall, on demand, pay to the said vestry, or board, such further sum of money as, together with the sum already paid, amounts to such actual expenses.

APPENDIX II.

THE PUBLIC HEALTH ACT, 1875.

Section 150.—Where any street within any urban district (not being a highway repairable by the

inhabitants at large) or the carriageway, footway, or any other part of such street is not sewered, levelled, paved, metalled, flagged, channelled, and made good, or is not lighted to the satisfaction of the urban authority, such authority may, by notice addressed to the respective owners or occupiers of the premises fronting, adjoining, or abutting on such parts thereof as may require to be sewered, levelled, paved, metalled, flagged, or channelled, or to be lighted, require them to sewer, level, pave, metal, flag, channel, or make good, or to provide proper means for lighting the same within a time to be specified in such notice.

Before giving such notice the urban authority shall cause plans and sections of any structural works intended to be executed under this section, and an estimate of the probable cost thereof, to be made under the direction of their surveyor, such plans and sections to be on a scale of not less than 1in. for 8ft. for a horizontal plan, and on a scale of not less than 1in. for 10ft. for a vertical section, and in the case of a sewer, showing the depth of such sewer below the surface of the ground; such plans, sections, and estimate shall be deposited in the office of the urban authority, and shall be open at all reasonable hours for the inspection of all persons interested therein during the time specified in such notice; and a reference to such plans and sections in such notice shall be sufficient without requiring any copy of such plans and sections to be annexed to such notice.

If such notice is not complied with, the urban authority may, if they think fit, execute the works mentioned or referred to therein, and may recover in a summary manner the expenses incurred by them in so doing from the owners in default, according to the frontage of their respective premises, and in such proportion as is settled by the surveyor of the urban authority, or (in case of dispute) by arbitration in manner provided by this Act; or the urban authority may by order declare the expenses so incurred to be private improvement expenses.

The same proceedings may be taken, and the same powers may be exercised in respect of any street or road of which a part is, or may be, a public footpath, or repairable by the inhabitants at large, as fully as if the whole of such street or road was a highway not repairable by the inhabitants at large.

APPENDIX III.

THE PRIVATE STREET WORKS ACT, 1892.

Section 6.—(1) Where any street or part of a street is not sewered, levelled, paved, metalled, flagged, channelled, made good, and lighted to the satisfaction of the urban authority, the urban authority may, from time to time, resolve, with respect to such street, or part of a street, to do any one or more of the following works (in this Act called private street works); that is to say, to sewer, level, pave, metal, flag, channel, or make good, or to provide proper means for lighting such street, or part of a street; and the expenses incurred by the urban authority in executing private street works shall be apportioned (subject as in this Act mentioned) on the premises fronting, adjoining, or abutting on such street, or part of a street. Any such resolution may include several streets, or parts of streets, or may be limited to any part or parts of a street.

(2) The surveyor shall prepare, as respects each street or part of a street—

(A) A specification of the private street works referred to in the resolution, with plans and sections (if applicable);

(B) An estimate of the probable expenses of the works;

(C) A provisional apportionment of the estimated expenses among the premises liable to be charged therewith under this Act.

Such specification, plans, sections, estimate, and provisional apportionment shall comprise the particulars prescribed in Part I. of the Schedule to this Act, and shall be submitted to the urban authority, who may by resolution approve the same respectively, with or without modification or addition, as they think fit.

(3) The resolution approving the specifications, plans, and sections (if any), estimates, and provisional apportionments, shall be published in the manner prescribed in Part II. of the Schedule to this Act, and copies thereof shall be served on the owners of the premises shown as liable to be charged in the provisional apportionment within seven days after the date of the first publication. During one month from the date of the first publication the approved specifications, plans, and sections (if any), estimates and provisional apportionments (or copies thereof certified by the surveyor) shall be kept deposited at the urban authority offices, and shall be open to inspection at all reasonable times.

Section 7.—During the said month any owner of any premises shown in a provisional apportionment as liable to be charged with any part of the expenses of executing the works may, by written notice served on the urban authority, object to the proposals of the urban authority on any of the following grounds (that is to say):—

(A) That an alleged street, or part of a street, is not, or does not form part of, a street within the meaning of this Act;

(B) That a street or part of a street is (in whole or in part) a highway repairable by the inhabitants at large;

(C) That there has been some material informality, defect, or error in, or in respect of, the resolution, notice, plans, sections, or estimate;

(D) That the proposed works are insufficient or unreasonable, or that the estimated expenses are excessive;

(E) That any premises ought to be excluded from or inserted in the provisional apportionment;

(F) That the provisional apportionment is incorrect in respect of some matter of fact to be specified in the objection, or (where the provisional apportionment is made with regard to other considerations than frontage, as hereinafter provided) in respect of the degree of benefit to be derived by any persons, or the amount or value of any work already done by the owner or occupier of any premises.

For the purposes of this Act joint tenants or tenants in common may object through one of their number, authorised in writing under the hands of the majority of such joint tenants or tenants in common.

Section 8.—(1) The urban authority at any time after the expiration of the said month may apply to a Court of Summary Jurisdiction to appoint a time for determining the matter of all objections made as in this Act mentioned, and shall publish a notice of the time and place appointed, and copies of such notice shall be served upon the objectors; and at the time and place so appointed any such Court may proceed to hear and determine the matter of all such objections in the same manner, as nearly as may be, and with the same powers and subject to the same provisions with respect to stating a case, as if the urban authority were proceeding summarily against the objectors to enforce payment of a sum of money summarily recoverable. The Court may quash in whole or in part, or may amend the resolution, plans, sections, estimates, and provisional apportionments, or any of them, on the application either of any objector or of the urban authority. The Court may also, if it thinks fit, adjourn the hearing and direct any further notices to be given.

(2) No objection which could be made under this Act shall be otherwise made or allowed in any court proceeding or manner whatsoever.

(3) The costs of any proceedings before a Court of Summary Jurisdiction in relation to objections under this Act shall be in the discretion of the Court, and the Court shall have power, if it thinks fit, to direct that the whole or any part of such costs ordered to be paid by an objector or objectors shall be paid in the first instance by the urban authority, and charged as part of the expenses of the works on the premises of the objector or objectors in such proportions as may appear just.

Section 9.—(1) The urban authority may include in any works to be done under this Act with respect to any street or part of a street any works which they think necessary for bringing the street, or part of a street, as regards sewerage, drainage, level, or other matters, into conformity with any other streets (whether repairable or not by the inhabitants at large), including the provision of separate sewers for the reception of sewage and of surface water respectively.

(2) The urban authority, in any estimate of the expenses of private street works, may include a commission not exceeding five pounds per centum (in addition to the estimated actual cost) in respect of surveys, superintendence, and notices, and such commission, when received, shall be carried to the credit of the district fund.

Section 10.—In a provisional apportionment of expenses of private street works the apportionment of expenses against the premises fronting, adjoining, or abutting on the street, or part of a street, in respect of which the expenses are to be incurred, shall, unless the urban authority otherwise resolve, be apportioned according to the frontage of the respective premises; but the urban authority may, if they think just, resolve that in settling the apportionment regard shall be had to the following considerations (that is to say):—

(A) The greater or less degree of benefit to be derived by any premises from such works;

(B) The amount and value of any work already done by the owners or occupiers of any such premises.

They may also, if they think just, include any premises which do not front, adjoin, or abut on the street, or part of a street, but access to which is obtained from the street through a court, passage, or otherwise, and which, in their opinion, will be benefited by the works, and may fix the sum or proportion to be charged against any such premises accordingly.

THE SOCIETY OF ARCHITECTS.

A new departure, so far as the Society is concerned, was made last Thursday week, when only formal business was taken at the ordinary meeting at 28, Bedford-square, and the remainder of the time devoted to social intercourse and music.

The President, Mr. Geo. E. Bond, contrived to combine in his brief address (directed more particularly to the students) both instruction and humour, and his remarks were received with every indication of appreciation.

Round the walls of the reception rooms, and other parts of the building, were exhibited measured drawings, sketches, water-colours, and photographs, the work of Col. F. S. Leslie, R.E., Hon. Secretary, Mr. B. R. Tucker, Mr. F. M. Cashmore, Mr. Frank Hearne, Mr. H. Y. Margery, Mr. S. R. Smith, Mr. A. B. Dury, Mr. A. F. Davies, Mr. F. R. Catling, Mr. J. T. Westbye, Mr. E. J. Williams, Mr. J. D. Stewart, and Mr. H. Phayre.

Light refreshments were provided, and smoking was permitted.

A feature of the evening was the very excellent programme of music arranged by Mr. R. Willock, F.R.I.B.A., to which the following artistes contributed:—Miss Hilda Campbell, Miss Dorothy Eales, Mr. Harry Jackson, and Mr. Craig, whose efforts, mostly in lighter vein, as became the occasion, were rewarded by hearty applause and encores.

During the evening the Chairman extended a welcome to the visitors, and Mr. Max Clarke, F.R.I.B.A., in responding, referred with satisfaction to the arrangements made for the deliberations of representatives of the R.I.B.A. and the Society on Registration, which he hoped would result in great benefit to the profession.

THE PSYCHOLOGY OF COLOUR.

Sir W. B. Richmond, R.A., delivered a lecture on house decoration to the students of the London County Council School of Building, Ferndale-road, Brixton, on Thursday evening in last week. From a large hall and only six workshops in 1904 the school had, he observed, expanded into an institution with eighty workshops, as well as a lecture hall, library, and common room. It was to be hoped that such schools would be established by all the great manufacturing towns, because they provided a perfect education of brain and hand for the technical man. It was no use cramming boys with a lot of knowledge which would not be the slightest service to them in after-life. Discussing the principles of decoration, and emphasising the first importance of absolute stability in any shape, since the beauty of stability implied relative proportion, he declared that there was no greater mistake than to think that all ornamentation was ornament. An embellishment might entirely ruin a good piece of structural work. The decoration of every material must be subservient to the material. It was one of the most fanciful fallacies that everything must be ornamented. Decorative colouring was of enormous importance in the art of decoration, for wrong colouring might alter the scale of a room as well as make it ugly. They must aim at the harmonious. Refinement was always pleasing because it was restful, and vulgarity was startling because it was the reverse. There was no doubt about this psychological law concerning the colouring of rooms. A great Italian physician who had the walls of various rooms in an asylum painted with various colours found that blue seemed to calm immediately the most violent lunatic; but if the patient went into a red room he became still madder, and in a yellow room he was quite unmanageable. Refinement was attained by reserve and harmony, and consequently quiet tones must be employed. The lecturer also dealt with the importance of accent in colouring, the best accents being the two neutralities, white and black, used in small quantities. He expressed the view that one of the most delightful crafts were carpentering, which every human being, boy or girl, prince or working man's child, ought to learn.

CHRISTIAN ART AND ARCHITECTURE.

Professor Baldwin Brown delivered, on the 10th inst., the first of the spring term lectures in connection with the Chair of Fine Art at Edinburgh University. The subject for the course is "Christian Art," and the subject of the opening lecture was "Recent theories as to the origin of the Christian meeting-place." The lecturer pointed out that the question of the origin and early history of the forms of Christian architecture had now behind it the controversy as to whether the fresh ideas that transformed classical art and culture into Christian had their origin in Rome or in the Hellenistic East. Rome, at any rate, had now been dethroned from her traditional position as the source of all those new elements of culture, and Strzygowski had shown how much account must now be taken of Egypt, North Africa, Syria, and Asia Minor, with their great cities, such as Alexandria and Antioch, which were artistically more important at that period even than

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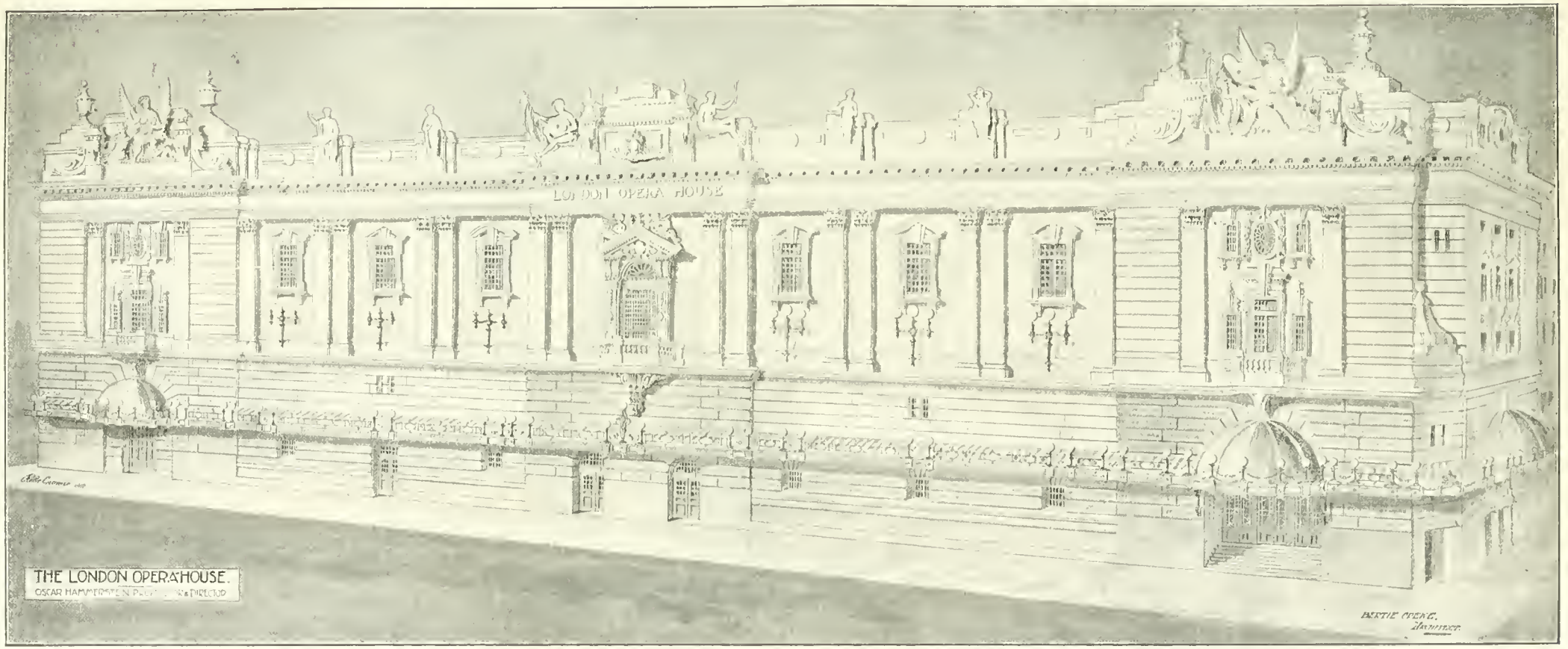

THE NEW LONDON OPERA HOUSE, KINGSWAY, W.C.—Mr. Bertie Crewe, Architect.

NEW LONDON OPERA-HOUSE.

London's new opera-house is now being built in Kingsway by Mr. Oscar Hammerstein. There will be seating accommodation for 2,700, and the seats will be made extra wide, to allow of plenty of room for each person. The interior decoration will be carried out mainly in white and gold, special attention being directed to making the electric lighting as perfect as possible.

Mr. Bertie Crewe is the architect of the new building. It will be something after the style of the French Opera House. The façade to Kingsway will be Portland stone, with a Norwegian granite plinth. The frontage will be 275ft. in length, with a height of 75ft. The main entrance will be at the south end. The building will extend about 100ft. along Sardinia street and Portugal street.

The height is divided into two stories, the upper consisting of a range of Corinthian pilasters with carved capitals, and the lower story being heavily rusticated. Above the cornice there will be groups of symbolical statuary. A verandah of glass and wrought iron will run along the Kingsway front.

The interior decoration will be after the Louis XVI. style. The stage will be 90ft. by 60ft., and one of the largest in London. Over the pro scenium opening there will be an arch, the soffit of which will extend about 30ft. right over the boxes, to throw out the sound. Over the auditorium there will be a flat elliptical roof, with an elaborately-painted ceiling. The whole interior is designed to afford the best acoustic properties. There will be two grand lounge halls, 60ft. by 30ft. The building is of concrete and steel.

CHIPS.

The death occurred at Great Yarmouth on Wednesday of Mr. W. W. Spelman, senior partner in the firm of Messrs. Spelman, valuers and estate agents.

The Bishop of Carlisle was present on Wednesday at the opening of Threlkeld Church, after restoration. The church is the oldest chapelry in the diocese, existing records carrying its history back to 1311, while the bells are each known to be over 500 years old.

The vestry of Wimborne Minster has decided to apply for a faculty for rehanging and recasting some of the bells of the Minster. In addition to the work, which is to be done by subscription, two new bells are to be given by Mr. H. O. Chislett, and General Sir J. Fryer has undertaken the cost of recasting the seventh bell. The peal will be made up to ten, and it will be the only peal of ten bells in the diocese of St. Albans.

Mr. Isaac C. Johnson, the inventor of Portland cement, will on the 28th inst. attain the age of one hundred years. He resides at Gravesend, and his favourite occupation at present is the translation of the Gospels from the Greek. He is also keenly interested in photography. At eighty-seven he took up cycling, but had soon to give up the exercise. He has been an abstainer for eighty-two years.

The London County Council intend to ask Parliament for powers to develop, or lease for development, on the lines of a garden suburb, and not solely for the accommodation of the working classes, any part of the White Hart-lane Estate, Tottenham. The L.C.C. propose that in connection with the development all buildings, streets, roads, and sewers shall be exempt from any by-laws or regulations of the district, and on this ground the scheme is to be opposed by the Tottenham District Council.

PROFESSIONAL AND TRADE SOCIETIES.

CIVIC LESSONS FROM PARIS AND VIENNA.—"Some Notes on the Street Architecture of Paris and Vienna" formed the subject of a lecture given before the Liverpool Architectural Society on Monday evening, by Mr. L. P. Abercrombie. Mr. P. C. Thicknesse, F.R.I.B.A., presided. The audience keenly enjoyed a joke scored by the lecturer in passing. He mentioned that a certain public building proposed in Vienna was experimentally constructed on the site in canvas, in order to judge of the effect. The result of the experiment was that the building had never been erected. From this it was inferred by the bargaining audience that not a few British cities might by such experiments have averted many a failure. The lecturer dealt principally with two broad types of street grouping and design, the vista, as seen in Paris, and the ring, as exhibited by Vienna. The race of architects who could at one time design with cold restraint, and at another explode into a hot eruption of gorgeous richness, had, he remarked, certainly a command of great resources. Proceeding to demonstrate by photographs the fine effects of the Paris vista, as attained by Haussmann at Napoleonic command, and the lack of such effects in Vienna, he pointed out that the architecture of the latter city consisted almost solely of horizontal lines, the few breaks being in incongruous styles. The river Danube, he observed, did not run near the centre of Vienna, and the canalised offshoot of it began at Francis Joseph-place with a curve which soon degenerated into a straight line. The architectural opportunity afforded by the Ringstrasse had been lost. Mr. W. H. Lever, in moving a vote of thanks to the lecturer, said that as to the vistas, which Vienna lacked, while Paris had them in plenty, he hoped English cities would not become slaves to the idea of the vista. He thought many Continental cities tended to monotony, and that the variety of the English cities possessed, on the whole, the greater charm. Lectures such as these given under the auspices of the Liverpool Architectural Society, if delivered throughout the length and breadth of England, and attended by the right people, would do an immense amount of good in correcting the want of dignity and sense of proportion in street architecture. He particularly wished that more aldermen, councillors, and city engineers would visit the Continent. He knew a street which had had to be widened thrice because the local authority thought in inches instead of in yards, regarding Paris, he pointed out that the improvements planned by Haussmann, although costing twice the amount estimated, had yielded the city cent. per cent. per annum for fifty years since in the extensive patronage of visitors, and thus had proved the best civic investment Paris ever made. Mr. G. Hastwell Grayson, A.R.I.B.A., seconded the motion. Speaking of his own impressions of Vienna, he said the Viennese understood the use of stucco ornamental cornices in a high degree, and were remarkably successful in keeping the exteriors of their buildings clean. In reply to a cordial vote, the lecturer admitted that perhaps Paris had an excess of vistas, but England had hardly realised the meaning of vista. Architecturally, Vienna was a disappointment, but otherwise it offered many hints in town planning, and notably in civic gardening.

EDUCATION OF YOUNG ARCHITECTS.—Mr. W. H. Bidlake, M.A., F.R.I.B.A., presided on Friday night at a gathering of local architects, held at the Grand Hotel, Birmingham, at which a paper was read by Mr. Harry E. Rider, of London, on "The Efficient Professional Education of a Young Architect, and How it may be Obtained." Initiating a discussion which followed the reading of the paper, Mr. Bidlake said the question of architectural education was a very pressing one, because nowadays everyone was becoming more highly educated, and architects must move with the rest. Then, again, the scope of architectural work had increased continuously, and the sub-contractor had come in. He was a very important personage, and was rather apt to play ducks and drakes with an uneducated architect. Therefore, it was important that the architect should know something of the sub-contractor's work, as well as of the general principles of building. Referring to the methods of instruction, Mr. Bidlake said he had come to the conclusion that correspondence was one of the best. When one heard a thing it often went in at one ear and out of the other. One saw things, but did not always think very much before speaking of them. But it was a different matter when one came to write of things. Then one had to crystallise one's thoughts; one had to think definitely before committing oneself to paper. To crystallise the thoughts was a difficult mental process, and inasmuch as education was very much a matter of memory, it was of paramount importance that some system of education should be adopted by which the facts learned should be definitely impressed upon the memory. Another advantage of the correspondence method was that one could study at all times, and this was not so under the class method.

GUILD OF ARCHITECTS' ASSISTANTS.—A meeting of the guild was held at 17, Fleet-street, E.C., on January 10, when Mr. J. H. Elder Duncan took the chair. Mr. H. Guicharde Todd, F.S.A., Scot., read a paper on "Art and Registration." He said the Architects' Copyright Bill was the only alternative put forward, and its effect would be to provide more work for lawyers, and give the public the impression that architects could not manage their own affairs. The effect of Registration upon art could not be otherwise than that of elevating the general level of proficiency, whilst the men of exceptional merit would be eminent under any regime. It would be folly to assert that Registration could do more than regulate the first artistic studies of intending architects, or restrain their ultimate vulgarity; but by making the profession a trained one a diminution in the number of utterly bad works of architectural art would follow. A discussion followed.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—The annual dinner of this society was held on the 12th inst. at the Queen's Hotel. The chair was taken by the president (Mr. S. D. Kitson), who was supported by Lord Airedale, Mr. E. Guy Dawber, V.P.R.I.B.A., the Lord Mayor of Leeds (Mr. W. Middlebrook, M.P.), Mr. Rowland Barran, M.P., Sir Nathan Bodington, Mr. P. Worthington (president of the Manchester Society of Architects), Mr. A. G. Lupton, Alderman F. M. Lupton, Mr. J. S. R. Phillips, Alderman C. F. Tetley, Mr. A. J. Fossdike (president of the Yorkshire Federation of Building Trade Employers), Mr. W. J. Hale (president of the Sheffield Architectural Society), Mr. G. B. Bulmer, Mr. J. W. Connon, and Mr. H. Perkins. Lord Airedale submitted "The Royal Institute of British Architects." In humorous vein he chaffed the president—who is his Lordship's half-brother—about some recent speeches with reference to smoke-production in Leeds. They had given opportunities to architects to endeavour to meet the necessities of the situation, and he was glad to see such beautiful examples of street architecture as could now be seen in Infirmary-street, East Parade, and Park Row, which were meeting the necessities of a great and smoky town. He had done his utmost to reduce the production of smoke, and to consume the largest possible quantity of coal. They were amongst the first to introduce the Siemens gas furnace for heating iron and steel, and if it were not for those gas furnaces they would be producing an intolerable quantity of smoke. Mr. E. Guy Dawber, in replying, said they must educate their young men up to the highest possible pitch of attainment. The recent Town Planning Exhibition organised by the Institute showed to the people who had never before realised that architecture was of any use, that good architecture, open spaces, and broad streets not only add to the health and comfort of the people, but were a national asset. Mr. H. S. Chorley proposed "The City of Leeds." He believed the bonds which united the corporation with the architects of the city would be strengthened, as they had already been strengthened, by the recent Town-Planning Act. The lord mayor, in reply, said he trusted that the commercial prosperity upon which they were now entering would make itself felt in the architectural profession. Sir Nathan Bodington submitted the toast of "The Leeds and Yorkshire Architectural Society." The president, in responding, said he believed that democracy and Mr. John Burns had thoroughly mastered the fact that architecture was the poor man's picture gallery. Mr. J. S. R. Phillips, responding to the toast of "The Guests," which had been proposed by Mr. W. H. Thorpe, suggested amongst forthcoming work for architects a new house for the lord mayor, whose present rooms were inadequate to the dignity of his position.

MANCHESTER SOCIETY OF ARCHITECTS.—At a meeting of the Manchester Society of Architects on Wednesday last, the 11th inst., Mr. Albert H. Hodge read a paper on "Architectural Sculpture." It was a great mistake, Mr. Hodge said, to think of architectural sculpture as a form of decoration applied only to buildings, and as secondary to the bust and the portrait statue. Each has its place in the world of utilitarian art, and must be subservient to the principles of architecture, and must have truthful construction, balance, scale of parts. Sculpture, when part of an architectural motive, should be so closely allied to its setting, that to strip one piece of it is to rob the composition of a necessary "factor of scale." How were we to bring about this oneness of mind and motive? When he studied the problem he felt that the greatest quality of a piece of sculpture was scale. It was better to err on the small side when fixing the size of figures than to make them too large. In the former case, the figure only suffers, whereas in the latter the whole building is dwarfed. The placing of sculpture on our buildings ought to be considered when the façade is conceived in the mind, and should not have the appearance of being added. The Parthenon pediment was not an afterthought, nor the friezes an extra. To obtain a monumental feeling, we should have to look up slightly to the sculpture. When used low down, it should be severe or Egyptian in character. Mr. Hodge analysed the sculptures of the Parthenon pediment, and showed how the expression was graduated, from Helios rising from the sea at one side of the pediment, to the birth of Minerva in the centre, the action of the figures increasing as the central group was approached, and decreasing towards the quiet Selene on the other side. He instanced many other Greek sculptures designed on architectural principles. A portion of the Panathenaic frieze was planned with the wave ornament as its motive, and another part with square outlines on the basis of the fret ornament. The whole motive becomes slower and steadier as it approaches the main entrance, where the assembled gods are seated. We ought to realise the limitations of sculpture and architecture, and not make our sculpture represent life models. It should look as if it were cut out of stone, not built up of small pieces. Egyptian work owes its austerity to this quality. Modern French work looks as if it were clay modelling. Straightness of drawing and trueness of surface are always found in the work of a master; rough lumps of stone left to make the adjoining parts look refined are tricks unworthy of sculpture. Style in our work is simply the outcome of true form.

NORTHERN ARCHITECTURAL ASSOCIATION.—The third meeting of the session of this association was held at the headquarters, 6, Higham-place, Newcastle, on Jan. 11, Mr. H. C. Charlewood, president, occupied the chair. Mr. Francis Douglas Caws (Sunderland) and Mr. William Steel (Sunderland) were elected members, and Mr. Horace J. Young (Gateshead) was elected an Associate, and Mr. George Hall Gray (North Shields) was elected a Student. Mr. J. Walton Taylor, F.R.I.B.A., delivered a lecture on "Town Planning in Germany," and described a tour which he made a year or two ago with a view of making a special study of the town planning in that country.

YORK AND YORKSHIRE ARCHITECTURAL SOCIETY.—In a paper read before the above society on January 11, Mr. J. Stuart Syme said Egyptian art, as might be expected from the remote position it occupied in history, was very closely dependent for its characteristics on those of the race which practised it, and on the conditions under which it lived, and no study of the one is complete without the other. So far as we can judge from contemporary records, the tools employed for carving in wood or stone, and the method of using them did not differ greatly from those in use at the present day. In addition to various chisels and mallets, they used the bow-drill, the saw, and the gouge. They were very partial to the use of the adze in wood-working. The tools were of bronze and iron, and we have no evidence that they had any knowledge of steel, or had any method of tempering to an unusual degree of hardness. Wooden statues, if of large size, were framed up, owing to lack of large timber. The Egyptian artists were very skilful in line drawing, which was really the basis both of their decorative painting and their bas-reliefs. They had regular methods of study for beginners, arranged progressively from simple objects to finished heads, capitals, etc. The models consisted of small plaques and cubes, showing the object in various stages of execution. Bas relief proper was not so much employed for surface decoration as simple incised work, or what has been called "relieved intaglio," in which the object was outlined with deeply incised lines and swelled out gradually from the bottom of the recess thus formed, and slightly modelled. The bas-reliefs were almost invariably painted, the colours being used fairly pure, and on conventional rather than naturalistic lines. Statues in sandstone, limestone, or wood were also painted; but those in granite or other hard stone were more highly finished off and brought to a fine polish. Egyptian art did not undergo any marked development once the characteristics of the style had been fairly established, and the differences were rather in degree than in kind, except as regards minor details of costume, technique, etc. The most vigorous work originated early during the Ancient Empire, and some of the best examples date from about the fifth dynasty. From that time onward the tide of excellence ebbed and flowed, through the Middle Empire, till in the New Empire, after the overthrow of the "Shepherd Kings," issued a Renaissance, during which the quality of the work produced probably excelled that of any other period. All Egyptian art, both in painting and sculpture, is extremely conventional, and many of their mannerisms and methods may appear crude and unjustifiable, but they were probably dictated by considerations which, under the circumstances, were fit and proper. Their decorations were, in fact, not mere ornament, but rather histories and tales written for a purpose in a lazy age, the lines of which were clearly defined, and would be understood of all, and with an aim which is worthy to rank high among the best the world has seen. Mr. Bellamy proposed a vote of thanks, which was seconded by Mr. R. R. T. Smith, and the lecturer briefly responded.

Mr. Dunkley, surveyor to the Wednesfield Council, has resigned his post in order to take up another appointment.

Mr. Cuthbert Brown, borough engineer of Chelmsford, has been appointed engineer and surveyor to the Edmonton Urban District Council. There were 147 applicants for the post.

At Abram a Local Government Board inquiry will be held on Wednesday next into an application of the urban district council for permission to borrow £13,000 in connection with the service reservoir at Stubshaw Cross in the urban district of Ashton-in-Makerfield.

A Local Government Board inquiry has been held into an application of the urban district council of Aberystwith to be permitted to borrow £3,000 for water supply works for the village of Borth in the townships of Cyfoeth y Brenin and Henllys, including the construction of a reservoir having a capacity of 664,000 gallons at Brynyrodyn.

Correspondence.

CONGRATULATIONS.

To the Editor of the BUILDING NEWS.

SIR,—As old friends, we should like to congratulate you, not only on the completion of your 100th volume, but on the fact that it has been the occasion of Royal recognition. —I am, etc., D. W. R. GREEN,

Director and Secretary for Waygood and Co.

Falmouth-road, London, S.E.

[Both "lifts" due more to the *elevating* impetus of such invaluable support as that which has made the name of Waygood famous than to any efforts of ours.—ED "B.N."]

FROM ANOTHER OLD SUBSCRIBER.

SIR,—I am sure no one joins more heartily than I do in congratulation upon the golden wedding of the BUILDING NEWS, a union with its readers that has been greatly appreciated by us all. I trust very many decades of continued success is before it. The Royal note is exceptionally gratifying. I had a letter myself from Queen Alexandra last week, and enclose a copy.

I have been a longer continuous subscriber than Mr. Pratt, as I have certainly had the BUILDING NEWS every week since the commencement of 1863, if not before, and I have preserved and bound its illustrations from 1865 until the present time. With renewed congratulations, and all kind wishes,—I am, etc.,

Exeter. HARRY HEMS.

ROYAL LETTER TO HARRY HEMS.

At the conclusion of the dinner at Mr. Harry Hems's 42nd successive Christmas feast to a large number of the broken-down old people at Exeter on Boxing Day, Mr. Harry Hems sent a telegram to Queen Alexandra conveying the respectful sympathy and loyal attachment of all present. It also added, all united in the prayer that Almighty God would ever continue to be her Majesty's friend and comforter.

Mr. Hems has received the following characteristic and gracious communication:—

Sandringham, 3rd January, 1911.

SIR,—I am desired by Queen Alexandra to convey to you the expression of her great regret that the telegram sent on December 26th to her Majesty by the nearly one hundred aged citizens and naval and military veterans at Exeter was inadvertently mislaid, and has only just been recovered.

Her Majesty has been deeply touched by the words in which the message is conveyed, and by the thought which prompted its despatch.

Queen Alexandra hopes that, if it is possible, this expression of her thanks and acknowledgment may be conveyed to the kind senders of the telegram, together with the explanation of the reason it was not acknowledged before.

It has deeply touched Queen Alexandra to hear of the manner in which the memory of his late Majesty was honoured.—I am, Sir, your obedient servant,

ARTHUR DAVIDSON (Colonel), Equerry-in-Waiting.

To Harry Hems, Esq., Fair Park, Exeter.

CATHEDRALS OF NORTHERN FRANCE.

SIR,—In writing to thank you for the very kind and appreciative notice of my "Cathedrals of Northern France" in your issue of the 13th inst., allow me to observe that the distinguished French antiquary to whom I allude as having remarked of Rheims Cathedral that it is "Le Parthénon de Notre Architecture Nationale" was M. de Caumont, author of the "Cours d'Antiquites Monumentales" and the "Bulletin Monumental," the second volume of which latter, published between 1834 and 1851, is an admirable treatise on Mediæval architecture, illustrated chiefly by French specimens.

Although I am quite aware I have not alluded to that sanguinary and protracted struggle between the rival crowns of France and England between 1330 and 1450, that had so great an effect on the progress of church architecture in France, in the introductory chapter, I have devoted some space to it in the one on Nantes Cathedral (p. 331). Hoping these lines may remove any impressions your readers may have entertained as to my negligence on this matter,—I am, etc.,

T. FRANCIS BUMPUS.

225, Albion-road, Stoke Newington,
January 18, 1911.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. Gordon Thorne, 10, Atherley-road, Southampton.

QUESTIONS.

[12997.]—CLEANING LEADWORK.—I have recently completed a two story bay window, and covered the space between the head and sill with leadwork, the ornament of which has been tinned, but, owing to the smoky atmosphere of the town, it soon gets very black and dirty. I should be pleased if any of your readers would kindly give me what he considers the best material to periodically clean it down with a minimum amount of labour, and at the same time something that will not damage the leadwork or the tinning.—H. B.

REPLIES.

[12992.]—DOOR OPENINGS.—(1) The size of a door should be governed principally by the size and height of the room entered by it; not by the size of the corridors from which the room is entered, for the door opens into the room, and is rarely into the corridor. For a room 12ft. to 17ft. in height, a door 7ft. to 8ft. by 2ft. 8in. to 3 ft. 6in. would be suitable. A door should be as dignified a feature of the room as the window or fireplace. A heavy and imposing effect is obtained by making it of moderate height, but of good width. Divisional mullions should be narrow. Panels are for the express purpose of saving material, and that should be borne in mind when designing them. An overdoor of narrow dimensions, with a good final projection, can be made a feature in this class of house, if designed proportionately with the door beneath. A door placed at the corner of the room should have a space of at least 14in. between it and the end wall, for elbow room. This is often unwisely ignored. For a long and narrow room, doors on the long wall could conveniently be "folding." It is obvious that these, when open, fold into the room, take up less room than those of the ordinary single type. (2) A cheap and efficient dampcourse is formed by bedding two courses of slates in Portland cement, taking care to break the joint in the two courses on all their sides.—Leonard F. Smith, Westhall, Clarendon-road, Redhill, Surrey.

[12993.]—DOOR OPENINGS.—The general rule for the height of doors is to add 4ft. to the width, and this will be found to give very good proportions. Fanlights should only be used internally, where light to a passage or corridor is necessary, or in the case of the servants' wing, for supervision is required as to the burning of gas, etc., at night. To add height and importance to the doors of the principal rooms, the use of an overdoor is the most legitimate, as it lends itself so readily to any scheme of decoration. The slates generally used for a damp-proof course are specified to be thick roofing slates, laid to break joints in two courses, bedded and pointed in cement. The drawback to this is that the slates are liable to crack with the superincumbent weight, and thus destroy their usefulness. A much better and more efficient damp-proof course is obtained by using sawn slate slabs ¾in. to 1in. thick, cut to suit the thickness of the walls, and in long lengths. The line of the damp-proof course, being a necessary part of the construction, may be made a feature. The increased cost is not great, whilst the fewer joints and more uniform thickness adds to the efficiency. —K. H. Read, Lecturer on Building Construction, Gloucester Technical Schools.

[12995.]—FONT IN MELLOR CHURCH, NEAR MARPLE.—This is one of about two dozen belonging to the Norman period existing in Derbyshire. The others may be seen at Ashover, Bradbourne, Church Broughton, Crick, Chesterfield, Darley, Eyam, Haddon, Hognaston, Kirk Ballam, Longford, Melbourne, Marston-on-Dove, Ockbrook, Pentrick, Parwick, Staveley, Somerset Herbert, Tissington, Thorpe, Winster, and Youlgreave. That at Mellor is circular on plan, the whole assuming the shape of the stump of a column, resting upon a very slightly projecting base. It is not illustrated in Paley's "Baptismal Fonts" (1844). The only instance that well-known author gives of fonts of the period of similar outline are those at St. Anne's, Lewes (Sussex), and at Gillingham (Kent). Both are of about the same date. The former is described in the book in question as "a good specimen of a cylindrical Norman font . . . . its date seemingly towards the end of the twelfth century." Francis Bond, M.A (probably the most diligent of all modern writers upon architectural topics), in his "Fonts and Font

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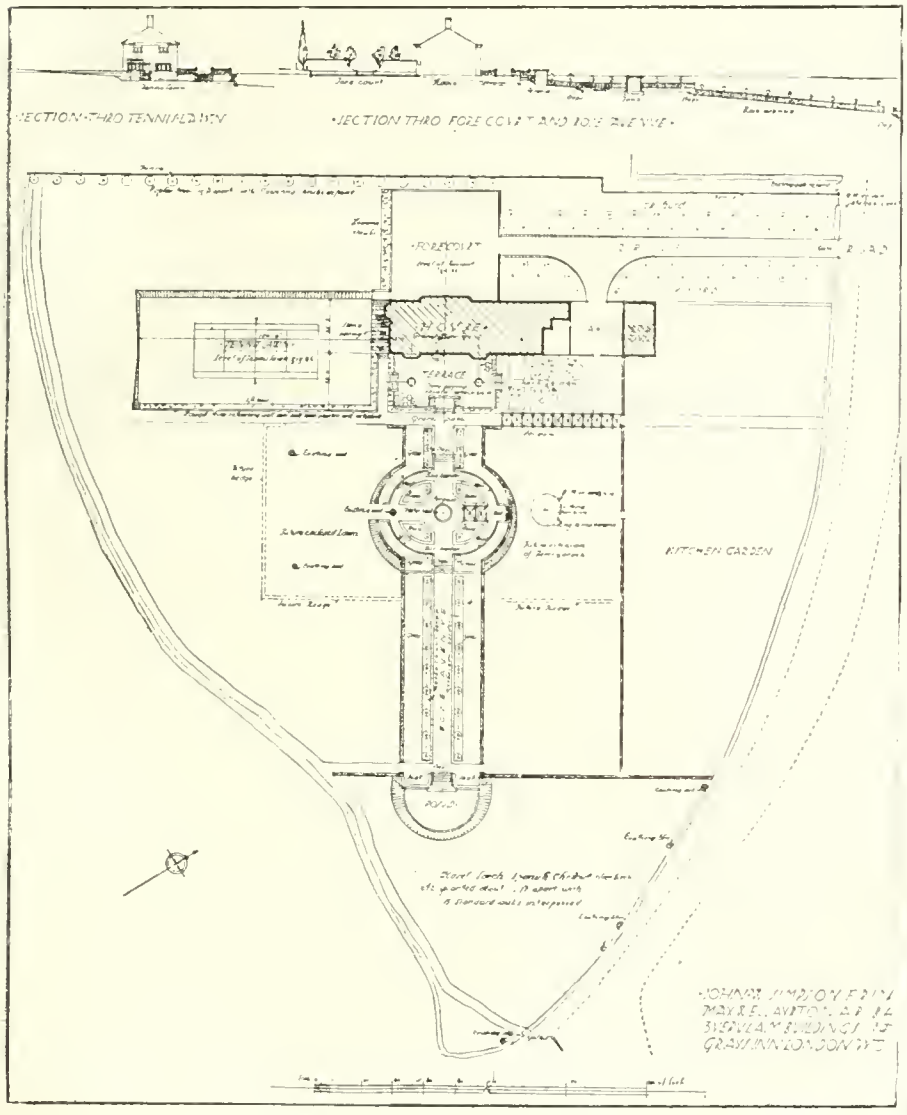
Our Illustrations.

HOUSE AT HAILEYBURY, HERTS.

This House has been built for Mr. N. Roy D. Tennant at Haileybury, Hertford, from the designs of Mr. John W. Simpson, F.R.I.B.A., and Mr. Maxwell Ayrton, A.R.I.B.A. The walls are roughcast, with Bath stone dressings and windows, and the roof is covered with thick green Welsh slates, varying in tone. The terrace is paved with Old London paving, and the balustrade carried out in Bath stone, with York flag steps and tile risers. The garden has been laid out during the erection of the house, in accordance with the accompanying plan. The house is lit by electricity, the plant being installed next to the garage at the north end.



HOUSE AT HAILEYBURY, HERTS.

The contract for the house was in the hands of Messrs. Allen Fairhead and Sons, of Enfield. The drawings given were exhibited at the Royal Academy last summer.

GREENWICH HOSPITAL: ROYAL ACADEMY PRIZE PERSPECTIVE VIEW OF THE EASTERN DOME.

The Royal Academy Architectural Perspective Prize Competition, held last month, was set for an outline representation of the Eastern Cupola of Sir Christopher Wren's great hospital buildings at Greenwich; and the previous season's competition for the Royal Academy Silver Medal for measured drawings of an architectural example was devoted to the same subject. To-day we reproduce the perspective for which Mr. Augustus G. Bryett, of Barnes, has just been awarded the R.A. prize. The perspective was set up from measurements taken from the building. On February 11 last we gave the elevation and plans of the same building, for which Mr. Stanley A. Tuffs won the R.A. Silver Medal. This dome marks the entrance to Greenwich Hospital Chapel. That at the western end of the façade crowns the entrance to the Great Hall. Hawksmoor assisted Sir Christopher Wren, and was appointed clerk of works in 1698. He is thought to have carried out the Bell Turret over the colonnade, as that is hardly equal to Wren's work.

PAIR OF COTTAGES, OXHEY, WATFORD.

This pair of cottages was recently erected for Mr. W. R. Blackwell at Oxhey, Watford, for his bailiff and for the laundress working for Oxhey Place. The contract for these two buildings was £825. The fronts are built of red bricks, with variable tints, whilst the roofs are covered with sand-faced Loughborough tiles. Mr. Rackham, of Harrow Weald, Middlesex, was the builder. Mr. Reginald St. A. Roumieu, A.R.I.B.A., of Lancaster-place, W.C., is the architect.

R.I.B.A. SOANE MEDALLION, 1911: SELECTED DESIGN FOR A CITY GATEWAY AND BRIDGE.

We publish a review of the students' works for 1911 at the Royal Institute of British Architects, on page 87, and herewith give the perspective view and general plan of the gateway and gatehouse to a capital city, approached by a bridge over a river, this being the design for which the Soane Medallion and the sum of one hundred pounds has this week been awarded to Mr. Prentice Mawson, of Conduit street, W., and Windermere. We shall give further drawings from this and the other competitions. The exhibition of all the drawings was opened to the public on Tuesday last in the New Galleries of the Institute, at 9, Conduit-street, W., and the exhibition will remain open till the 30th inst.

CHIPS.

The new parochial buildings of St. Mark's Church, Byker, Newcastle-on-Tyne, were opened on the 11th inst. The architect is Mr. A. B. Plummer, of Newcastle.

The Herts Education Committee have instructed Mr. Urban A. Smith, the county surveyor, to prepare plans, specifications, and estimates for a Council school to be built at Borehamwood, Elstree, to accommodate at present 270 mixed children.

Mr. W. G. Lane, of Brynmawr, South Wales, has been appointed borough surveyor of Dartmouth out of over 150 applicants. Mr. Lane was formerly surveyor to the urban district council of Tavistock, and prior to that surveyor to the Kingsbridge Urban District Council.

Mr. J. Stewart, an inspector of the Local Government Board, held an inquiry at the town-hall, Merthyr Tydfil, on the 12th inst., into the application of the corporation for sanction to borrow £1,870 for the provision of fire appliances, a fire-station, and firemen's dwellings.

A movement is on foot, promoted by numerous local authorities, to promote a Bill in the next session of Parliament, with the objects of defining what is a combined drain, and of relieving corporations of the expense of maintaining and repairing such drains, "and other provisions with respect thereto."

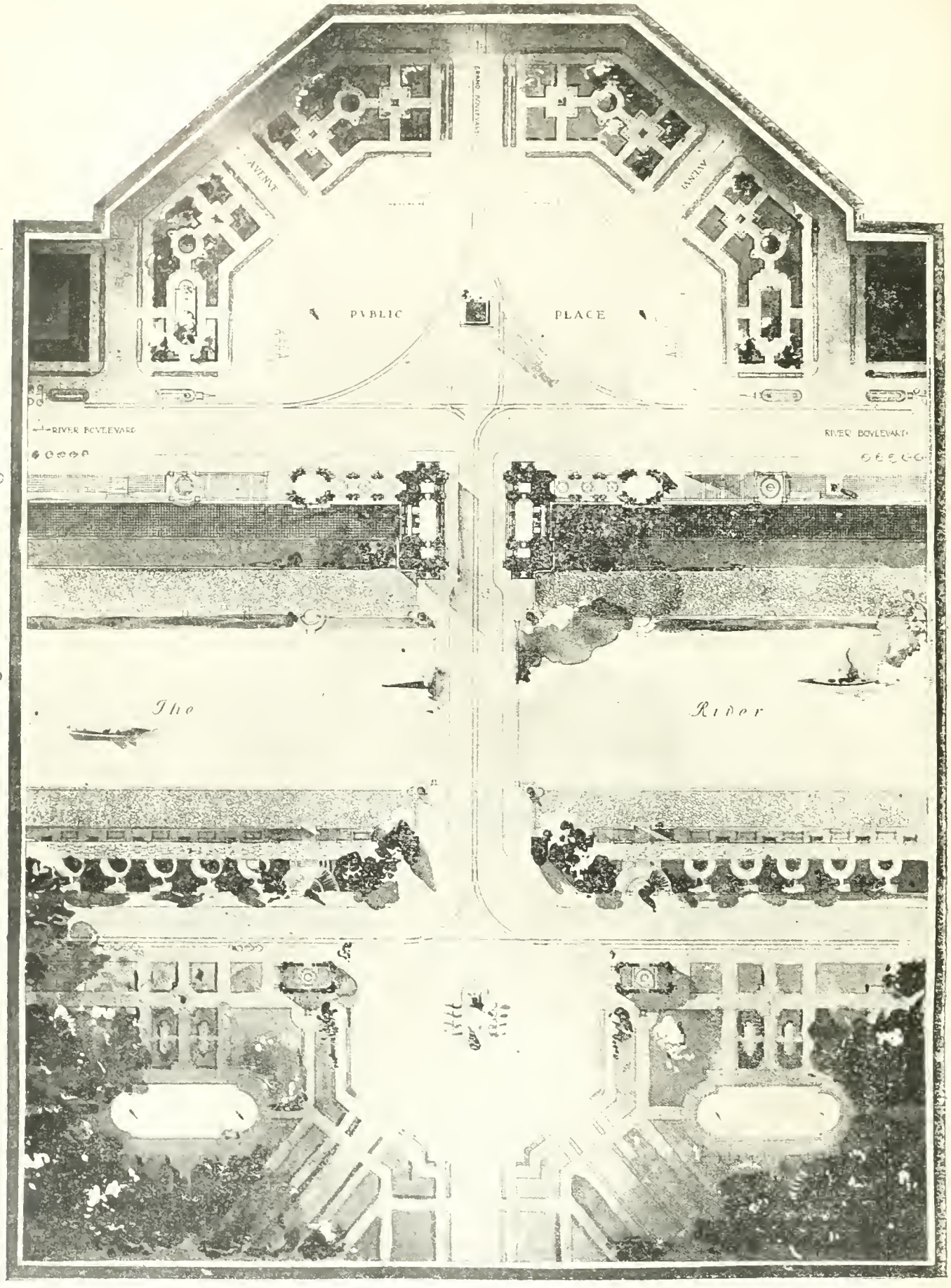
The Hartlepools Board of Guardians have decided to submit to the Local Government Board a scheme for the provision of accommodation of the 140 or 150 children at present in the workhouse by building on land adjoining the present school block at the workhouse. The new buildings, including land, are estimated to cost about £10,000.

On Saturday, at Castle Eden Petty Sessions, Mr. J. G. Heslop, surveyor to the Easington Rural District Council, made application for an order declaring a road at Easington Colliery repairable at the public expense. It was stated that the old highway stopped short of the colliery by about 500yd., and that the section in respect of which the application was made took it up to the colliery. The magistrates granted the order asked for.

The Garden Cities and Town-Planning Association has arranged for a town-planning tour in Germany at Easter next, starting on Thursday, April 13, for the purpose of studying some of the most interesting examples of German town planning. The towns which will be visited include Essen, Cologne, Dusseldorf, Frankfurt, Mannheim, Ulm, Nuremberg, Stuttgart, with excursions from these places to industrial villages in the neighbourhood. Applications and inquiries should be addressed to Mr. Ewart G. Culpin, secretary, 31, Birkbeck Bank-chambers, Holborn, W.C.

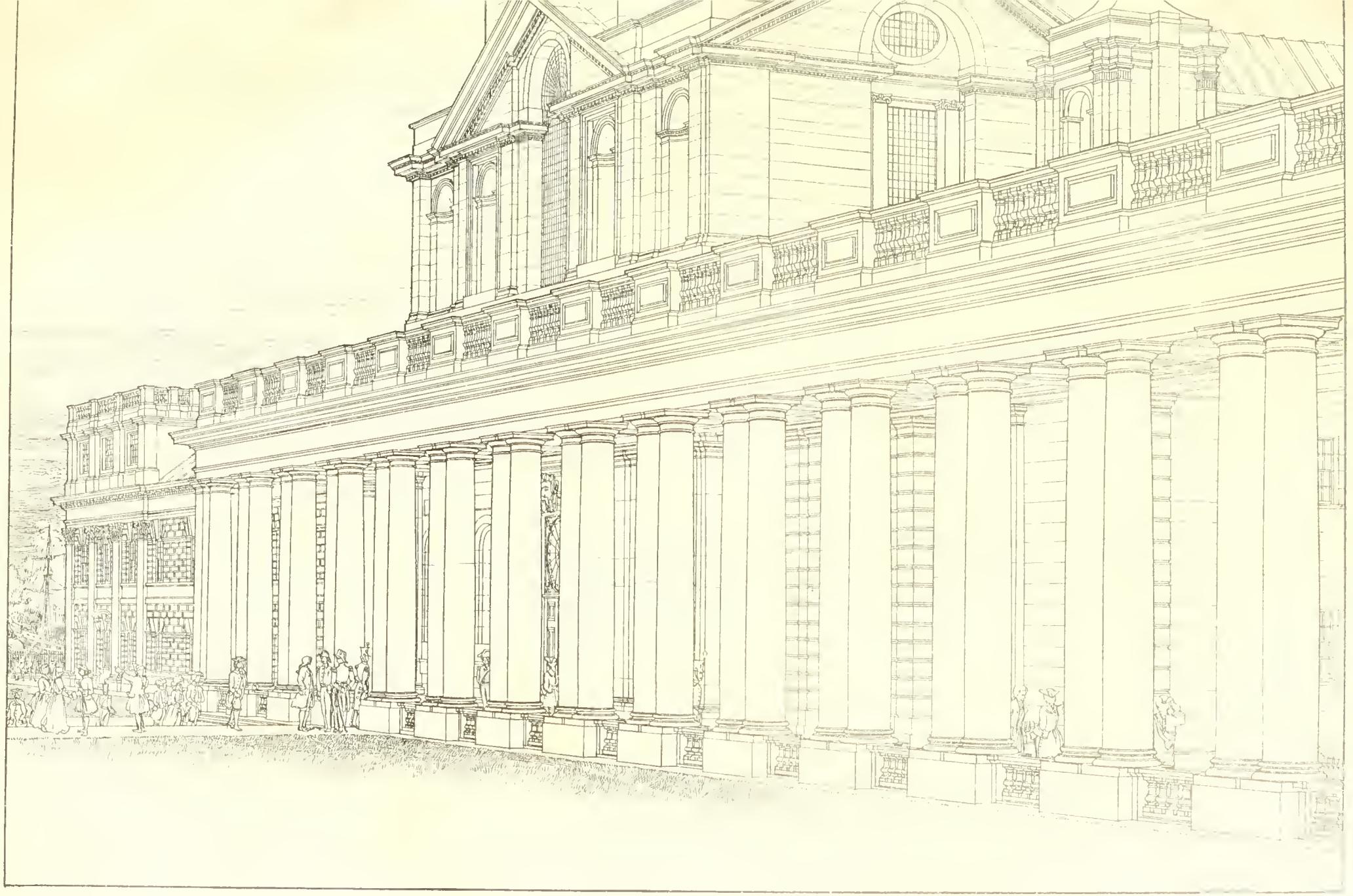
In consequence of an outbreak of enteric fever at Berry Wood Lunatic Asylum, the committee of visitors under the Northamptonshire County Council decided to have the drainage and sanitary arrangements of the institution subjected to a thorough examination. This was done by Mr. J. A. Gotch, F.R.I.B.A., and Mr. Tindale, M.I.C.E., who reported that in many respects the system was unsatisfactory, and recommended that the whole system, with the exception of the main sewers, should be relaid. A scheme for carrying out these recommendations is now under consideration.

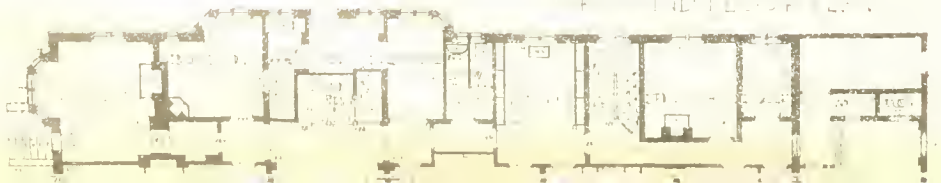
A deputation from the Aberdeen Chamber of Commerce have waited upon the Joint Station Committee to represent the need for expediting the reconstruction and equipment of the joint passenger station at Aberdeen. The chairman of the committee, Sir C. Bine Renshaw, assured the deputation that the Caledonian Company had authorised already the preparation of working plans and the issue of estimates for the rearrangement of the Guild-street goods yard. The plans for the passenger station had been gone over that day by the Caledonian engineer and the Great North engineer, and had been adjusted, so that they might be regarded as now completed, and that would enable them, as soon as possible, to proceed with the erection of a new station, to supersede the existing one.



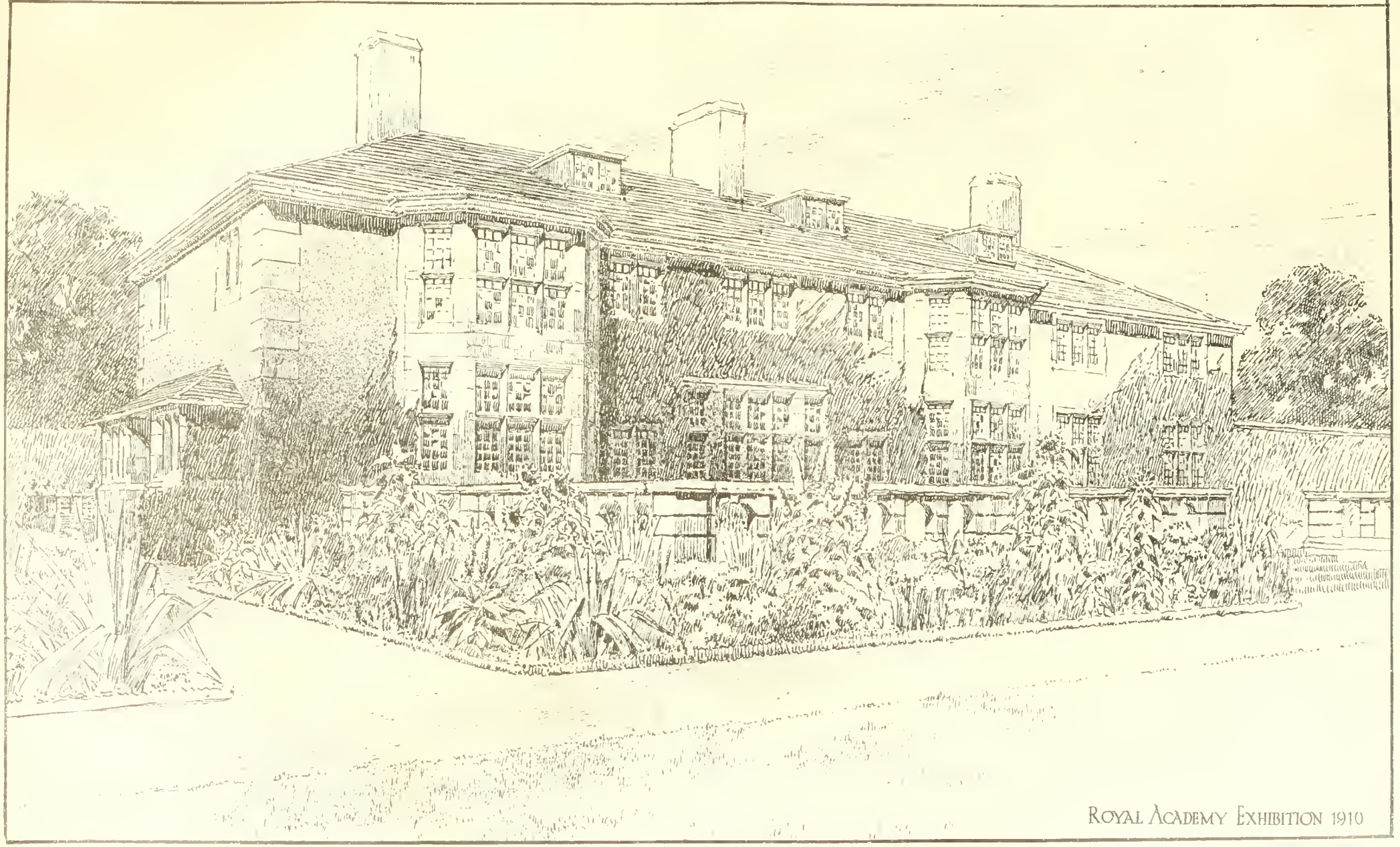
AN ENTRANCE GATEWAY TO A CAPITAL CITY: GENERAL PLAN.—By Prentice Mawson, R.I.B.A. Soane Medallion Competition, 1911.

GREENWICH * HOSPITAL
PERSPECTIVE · VIEW · OF
EASTERN · DOME





FIRST FLOOR PLAN.

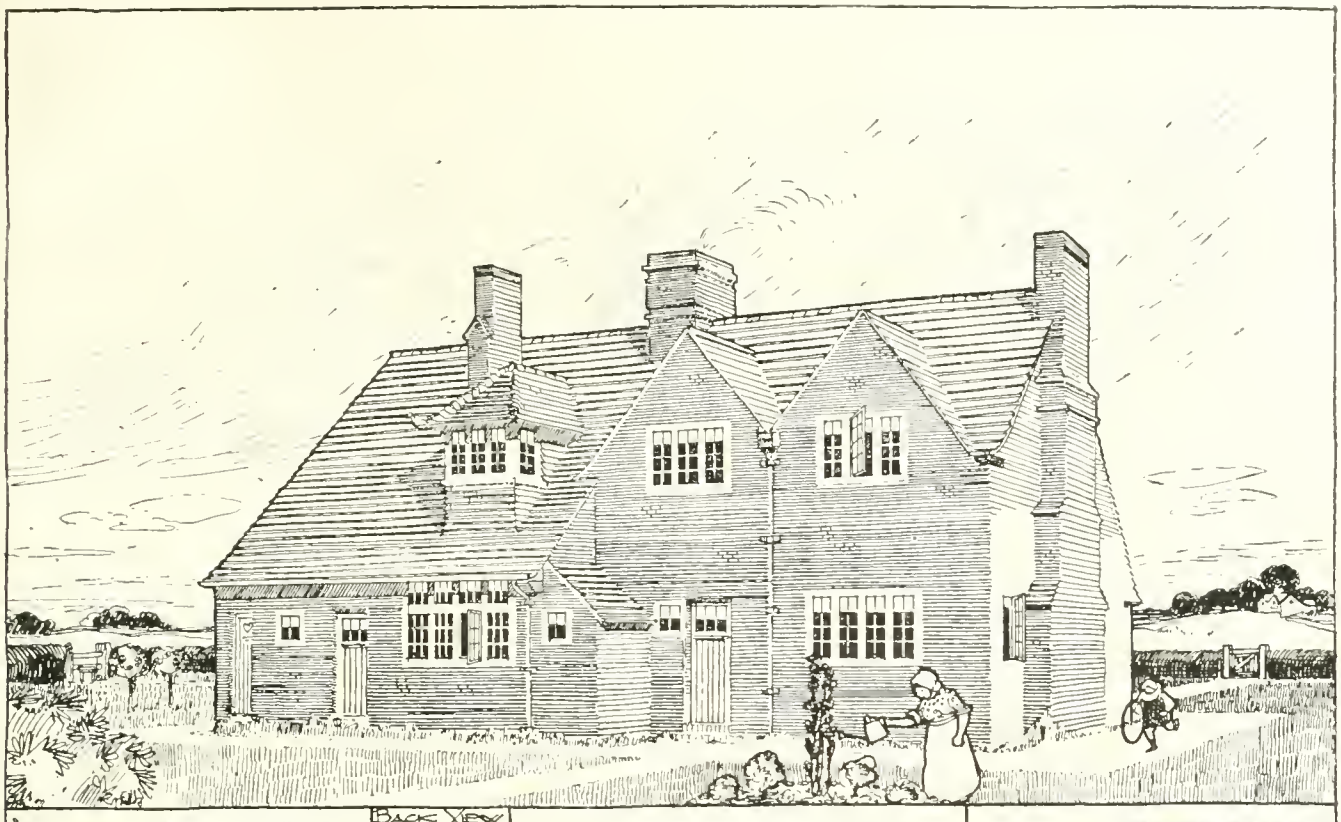


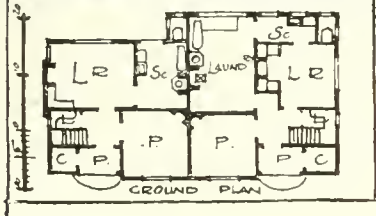
ROYAL ACADEMY EXHIBITION 1910

PHOTO-TINT

HOUSE AT HERTFORD HEATH J.W. SIMPSON & MAXWELL AYRTON ARCHTS

AN ENTRANCE GATEWAY TO A CAPITAL CITY.—PRIZE DESIGN.
By Prentice Mawson.
Royal Institute of British Architects. Soane Medallion Competition, 1911.

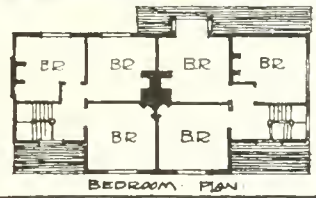




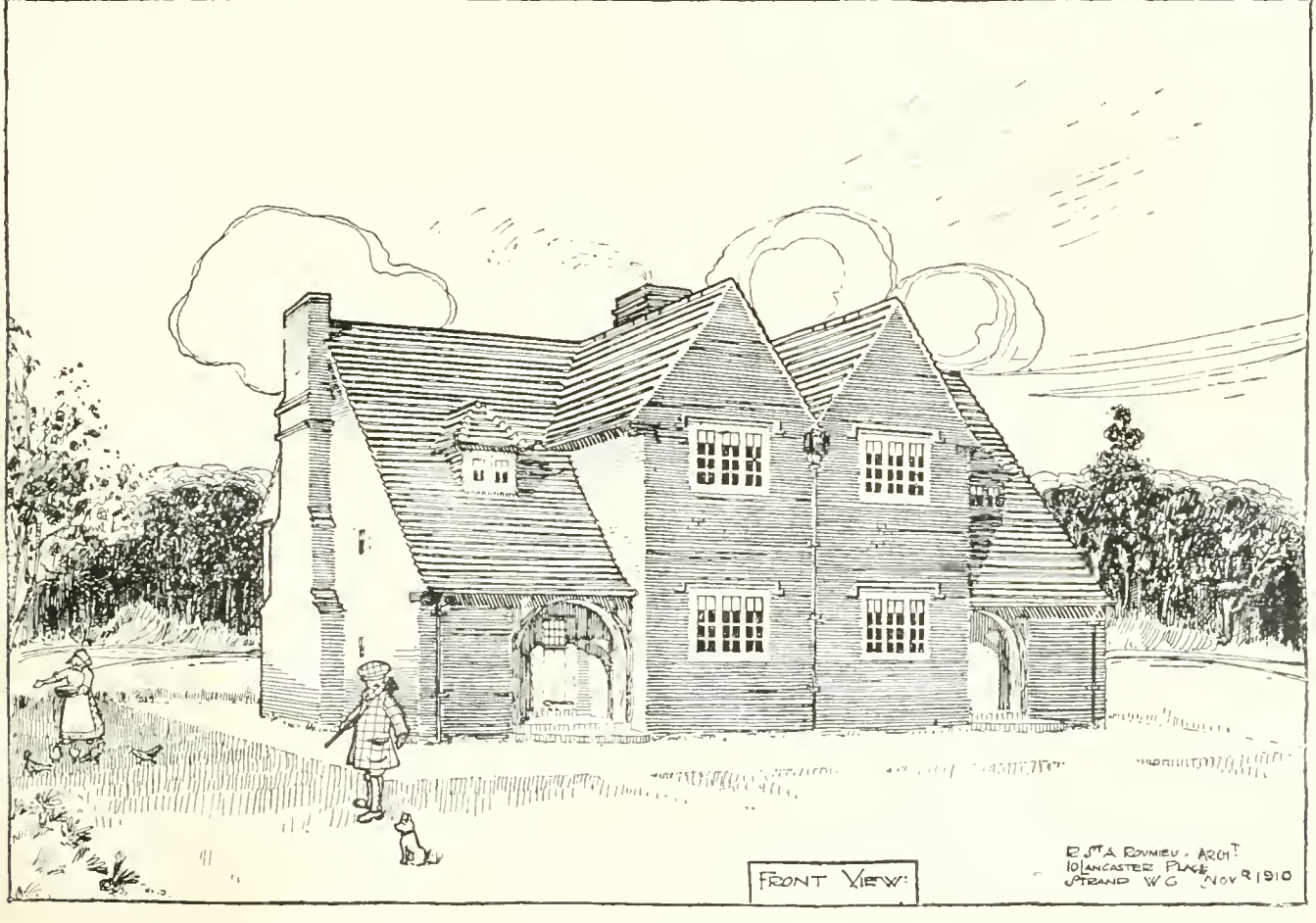
GROUND PLAN

BACK VIEW

A PAIR of COTTAGES
ERECTED by W.R.BLACKWELL · ESQ^RE
at OXHEY · WOODS ·
WATFORD
for BAILIFF and LAUNDRESS ·



BEDROOM PLAN



FRONT VIEW

R. ST. A. ROWNEY · ARCH^T
10 LANCASTER PLACE
STRAND W.C. NOV^R 1910

Building Intelligence.

EDINBURGH. [illegible] Dean of Guild Court for the [illegible] Church, Morningside, Church, the Pleasance, Edinburgh, [illegible] prepared by Mr. J. B. [illegible], Edinburgh. The style is [illegible] Gothic. There will be [illegible] Brewster Street [illegible] right of [illegible] the battlements [illegible] with turrets [illegible] square will [illegible] of [illegible] Provision [illegible] hall for [illegible] 400 people, and [illegible] The [illegible] will accommodate [illegible] It is [illegible] £6,000.

TRAFALGAR SQUARE.—Within the next few days the extension on which has recently been added to the National Gallery will be opened to the public. The new galleries are largely constructed of Kahn reinforced concrete. The extension consists of a series of three rooms on the ground floor and four galleries and a circular dome gallery on the first floor. The roofs consist of each case of arched girders in reinforced concrete, finished with fibrous plaster and panelled with wired glass. The galleries are lined throughout with black and dark green marble, and the walls hung with paper of rich design, to form a background for the pictures. Both the western and the eastern portion of the galleries are now in course of reconstruction in the same way.

WINDSOR.—The first instalment of the reconstruction work on the Victoria Barracks, Windsor, which is now practically completed, was officially inspected on Wednesday by the members of the Army Council. Mr. H. B. Measures, M.V.O., F.R.I.B.A., the Director of Barrack Construction at the War Office, has striven, in these new buildings, to bring together in one block the whole requirements for a battalion of infantry, both in respect of day and night accommodation. The scheme has been planned for the housing of two half battalions, each being complete in itself with regard to day, cooking, and lavatory accommodation, with a common use of space allotted for recreations. The buildings consist of two parallel blocks placed 75ft. apart and open at the ends. The centre space thus formed has been enclosed by a flat roof with undulating lantern lights. Beneath these are the two main messrooms. The elevations have been erected in red pressed facing bricks, relieved with picked bricks of a lighter tint, and dressings of a buff-coloured terra-cotta. The interior walling, except where plastering is used, is of glazed brickwork of various tints. The main roofs are covered with slates; all other roofs are flat. The floors, staircases, and landings are fire-resisting. The interior accommodation is planned in five sections. There are dining and canteen and recreation rooms and lavatories for day use, etc., etc., sleeping, and necessary accommodation. The messrooms open directly upon the kitchens and the canteen bars. One is provided with a small stage for theatrical and entertainment purposes, and in six alcoves at the end are a series of lockers, one for each man. The floors are of maple blocks, and the walls above the glazed brick wainscot are distempered. Each mess hall is lighted with 60 electric lamps. On the same floor are a billiard room, a smoking and games room (40ft. long by 20ft. [illegible]), a reading room, a writing room, library and corporals' room, beside a separate sergeants' canteen, supper, cooking kitchen, and dry canteen. The lavatory accommodation includes shaving cubicles, ranges of basins, hopper, shower, and foot washing baths, all with a hot and cold water service. The walls are of white glazed brick, and the baths are of enamelled fireclay. The sleeping accommodation is of the cubicle principle. The partitions are carried to a height of 7ft. 5in., leaving a space of 2ft. 9in. up to the ceiling.

The [illegible] are [illegible] for Mr. Wadham Baker, [illegible] of Peterborough.

COMPETITIONS.

BANGOR, COUNTY DOWN.—The [illegible] district council have accepted the plans submitted in competition by Messrs. Kaye Parry and Ross, of Dublin, for the scheme of hot sea-water baths. The estimated cost of carrying out the selected designs is placed at £6,903. Fifteen other sets of plans were submitted.

PENISTONE.—The district council of Penistone is about to build a free library. Plans must be in by Feb. 11. We have seen a copy of the "Particulars to Architects." If any reader is desirous of possessing a curiosity, it is worth his while to apply to the clerk to the district council for a copy. Its "lucidity," and evident intention to give the maximum of information in a small compass are unique.

Mr. John Chatham, surveyor to the Bridgnorth Rural District Council, has resigned his appointment.

At the last meeting of the Mersey Docks and Harbour Board a tender was accepted for the supply of stone required for the proposed training bank south of Dingle Point.

Mr. W. H. Groves, late surveyor to the urban district council of Buxton, has been presented with an illuminated address and a cheque by the members and officials of the council.

The new Roman Catholic schools, at Aberdare, erected at a cost of £2,000, have been formally opened. The schools were built by Messrs. John Morgan and Sons, Ltd., of Aberdare, Mr. George Kenshole, of Bargoed, being the honorary architect.

Mr. F. R. Gibbs, highway surveyor to the Hereford Rural District Council, has been appointed highway surveyor to the Cookham Rural District Council at a commencing salary of £140, rising £10 annually to a maximum of £160 per annum.

The contents of an extensive timber yard belonging to Messrs. Ashworth, Kirk, and Co., close to the Midland and Great Northern Railways at Nottingham, were destroyed on Wednesday by fire. The damage, which is estimated at £45,000, is covered by insurance.

The new municipal secondary school at Bury, Lancs., has been formally opened. The building has been erected from plans prepared by Mr. J. T. Holliday, of Manchester, whose designs were selected out of 141 submitted in open competition. The builders were Messrs. James Byrom, Ltd., of Bury, the contract price being £13,637.

The death, from heart failure, is announced, in his fifty-first year, of Mr. Joseph Milne, an artist who was well known both in Edinburgh and London as a figure and landscape painter. Among his best pictures were "Crossing the Moor" (1891), which was on the line at the Royal Scottish Academy exhibition, and was also well hung at Burlington House; "A Backwater on the Tay," and "A Storm on the Fife Coast." Mr. Milne leaves a wife and family.

Mr. Herbert Wilson, of Monkseaton, and formerly of Birtley, has presented to the church at the latter place a pair of church gates designed in the Perpendicular style, and set between stone pillars 14ft. apart. The new gates have been set back 5ft. from the wall-line, to afford a fine-bay entrance. Messrs. Joseph Burnett and Son, Birtley, have carried out the work, under the personal supervision of the architect, Mr. Percy L. Browne, of Newcastle.

The *Oesterreichische Zentral-Anzeiger* of January 5 notifies that the authorities of the Budapest Gymnasium Association invite a competition of plans for the erection of a skating rink the cost of which must not exceed 180,000 Kronen (£221,000). Premiums will be given for the three best plans submitted, viz., 1,500 kronen (£63), 1,000 kronen (£42), and 500 kronen (£21). Plans will be received up to January 31 at the "Sekretariat des Bedienter Orbet Turvereines, I. Attila 2," Budapest.

At the first meeting of the joint committee of the proposed Swansea and Merthyr Asylum, on Tuesday at Swansea, the chairman, Mr. James Lewis, Esq., of Swansea, suggested that Mr. Hicks, who had already acted as architect to the Swansea committee, should be invited to attend when the committee met. Invitations were extended to inspect the proposed sites. Mr. Hopkins, the clerk, read the letter that Mr. Hicks should be invited down the three sites to advise on them. Alderman Jones (Merthyr) urged that the appointment should be advertised in order to give local architects a chance. It was agreed to adopt this course.

LEGAL INTELLIGENCE.

SOCIETY OF ARCHITECTS v. KENDRICK.—In the Chancery Division, on the 12th inst., before Mr. Justice Joyce, the case of the Society of Architects v. Kendrick came on for hearing, the defendant living at Kinver. Mr. Younger, K.C. (with him Mr. Neville), appeared for the plaintiff. This was a motion for judgment in default of appearance in an action for an injunction to restrain the defendant from using the letters "M.S.A." (Member of the Society of Architects). Mr. Justice Joyce asked if any information could be afforded him regarding the position of the defendant who did not appear.—Mr. Younger said he was a person who, being a builder, professed to be an architect.—Mr. Justice Joyce: There is no harm in that. Where does he carry on business?—Mr. Younger: At Kinver, in the county of Stafford.—Mr. Justice Joyce: Does he carry on business there now?—Mr. Younger replied in the affirmative. He understood that the defendant was engaged in erecting a large house, and said he could produce his diploma if necessary.—Mr. Justice Joyce said the action was curious. The plaintiffs did not ask for damages, but simply for an injunction. The matter had been before him on a previous occasion when, on a motion for judgment in default of appearance, he dismissed the action. He was wrong in dismissing the action, as, if his view of the case was correct, he ought to have made no order, and allowed the plaintiffs to go to trial. Then the facts could be proved. That was the course he thought should be adopted now.—Mr. Younger doubted if that could be done, as the defendant did not appear.—Mr. Justice Joyce said he would not grant the injunction, as he had not the whole proceedings before him, nor would he dismiss the action, but, in the exercise of his discretion, would decline to make any order on the motion under the peculiar circumstances of the case. The plaintiffs might take whatever course they liked, and he gave them leave to appeal against his decision, refusing to make any order on the present motion for judgment. As we go to press we are informed that the Council of the Society have lodged notice of appeal.

CHANCERY-LANE ANCIENT-LIGHT CASE.—In the Chancery Division on Thursday and Friday of last week, Mr. Justice Warrington had before him the case of Stevens and Sons, Ltd. v. the Law Union and Rock Insurance Co., Ltd. This was an action for an injunction to restrain the erection of a proposed building in Chancery-lane to such a height that it would interfere with the plaintiffs' ancient lights. Mr. George Cave, K.C., M.P., and Mr. Harman appeared for the plaintiffs, Mr. Henry Terrell, K.C., M.P., and Mr. Tanner represented the defendants. The facts of the case, as stated by the Judge, were these: The plaintiffs, Messrs. Stevens and Sons, are law booksellers and publishers. They are entitled to Nos. 119 and 120 on the west side of Chancery-lane, for a term of which about twenty years remain unexpired. Chancery-lane, opposite to the plaintiffs' two houses, is about 53ft. wide from house to house. On the opposite side of the lane to the plaintiffs' two houses there stood until recently, buildings known as Old Serjeant's-inn. They were 48ft. in height. The plaintiffs, therefore, had two houses in a street with houses on the opposite side 12ft. higher than the width of the street. The plaintiffs' two houses are used for business purposes. The two basements, the two shops, the first floor, and the remaining floors of No. 119 are occupied by themselves for the purposes of their own business. Portions of 120 are let as offices to other people. The basement is used by plaintiffs for packing books, addressing parcels, and, to some extent, for storing the books, but for the purposes of this action it is the user by them of the basement for packing purposes that was material. The basement obtains light through a small vertical window on the same plane as the front of the house. The light from that window goes into a bulkhead, and from there finds its way into the room. The bulkhead is so constructed that a certain amount of, but very little, direct light came into the room over the old building previously opposite to plaintiffs' houses. In 119 plaintiffs have fixed in the interior of the room a reflector, in such a position as to throw back the light so far as it can be done, and so increase the amount of light in the interior of the room. In No. 120 there is no reflector. Mr. Leadsham said he was satisfied on the evidence that before the alteration in the defendants' premises the plaintiffs were able to use that basement for the purposes for which they desired to use it on ordinary days in the summer, without the use of artificial light, and even on ordinary days in winter. The light must always be deficient, and the plaintiffs had obviously not attributed any great importance to it because this window was constructed of rolled glass, partially opaque, and in front of

that glass there was an iron railing, the uprights of which were of considerable thickness. Still, there was a certain amount of daylight coming into that room, sufficient, as he had already said, in ordinary weather in summer to enable the porters to do their work without the aid of artificial light, and even on some days in winter. With regard to the shop, the two shops, subject to some variation which he would point out directly, were in substantially the same position. They had large shop windows, and there was a door leading into each of the two shops, or, rather, each division of the one large shop, such door being in each case on the outside of the shop window. The shop windows, if there were nothing else to mention, would admit a very considerable amount of light. The greater part, in fact, of the surface of the plaintiffs' houses on the ground floor consisted of glass windows. But the plaintiffs were booksellers, and they displayed a certain quantity of wares, as usual, in the window of their shop. Accordingly, for perhaps, half the window, the light was obscured by rows of books standing on shelves pretty close to each other, and it was further observed by the fact that the cases in which the books stand were shut in at the back by glass doors which had been painted over with white paint, which admitted a certain amount of light, but, at the same time, also excluded a certain amount of light. But up above the books, and for certainly a good half of the window, the glass was not obstructed in this way, but freely admitted the light which impinged on it. There was at the shop 119 a reflector which occupied about the width of the middle of the three lights, and in No. 120 there was a reflector which occupied practically the whole length of the window, that reflector having been placed there for the purpose of throwing the light, or some of it at all events, as far back as might be into the shop. The plaintiffs' houses had not been recently built, and quite independently of the fact that there was no question as to the antiquity of their lights it was, he thought, material to mention that the two houses were in the same position in which they had been for certainly thirty-five years past: how much longer than that he did not know. Each of the shops had a back shop with another opening quite separately. One of them had a window looking into a small courtyard, and the other had a skylight. But he was only considering the front shops. The first floor of 119 was used as an office and board room for the transaction of the ordinary office business of the plaintiff company. It was lighted by a large and high window. The room on the second floor was also lighted by a large window, and it was used for the storage of certain valuable old books, which were arranged on racks running at right angles to the plane of the window, and it was a room in which there was no artificial light, owing to the valuable nature of the contents of it, and not only so, but the servants of the plaintiffs were forbidden under any circumstances to take any artificial light whatever into the room, so that for the plaintiffs' business, as it was now carried on, they depended on the natural light. The defendants had acquired the site of the Old Serjeant's-inn Buildings. The frontage of these old buildings extended from the corner of the large house at the corner of Chancery-lane and the Strand right up to the corner of what was now the garden of the Record Office, and the site overlapped to a considerable extent the plaintiffs' two houses on either side, both north and south. The defendants were proposing to erect, and had partially erected, on this site a large block of buildings, the height of which from the ground would be 58ft. 6in., as against the 48ft. of the Old Serjeant's-inn Buildings, and, in addition to that, there would be two stories higher, but those two stories were to be carried back; that was to say, the building from the 58ft. 6in. would go up in steps. They were not building right up to the line of Old Serjeant's-inn, but they had set their building back an average of 2ft. 4½in., taking the general line, but that was reduced to a few inches in two places one of which was exactly opposite plaintiffs' shop, No. 119. Besides setting their building back, defendants were not carrying it quite to the limit of Old Serjeant's-inn. The corner of their building facing Chancery-lane stopped short a few feet before reaching the corner of Old Serjeant's-inn, and they had erected their buildings with what had been referred to in the course of the case as a "canting": that was to say they had cut off the corner, to put it shortly. They cut off the corner, and the line of the building erected at the corner, if projected, would about intersect the party-wall between No. 120 and No. 119. The result of that, no doubt, was that so far as the light coming from the north-easterly direction was concerned, No. 119, and, to a much lesser extent, No. 120, got much more of that light than they got when the Old Serjeant's-inn was standing up to this extreme point, and, of course, the fact that the defendants' building was also set back a little had to be taken into account. What was the question that he, the learned Judge, had to determine? There were, it seemed to him, two questions. He had first to determine what was the right which the plaintiffs had acquired by their easement of the light which they had enjoyed for upwards of twenty years past, and having once arrived at what it was that they had acquired, he had then to determine whether what the defendants were about to do was such a material and substantial interference, or, rather, would be such a material and substantial interference with that right as to give a right of action. It became important to consider whether what the plaintiffs had hitherto enjoyed was or was not in excess of that which, by their enjoyment, they were entitled to acquire. Had the plaintiffs hitherto enjoyed more light than that which was required for the ordinary purposes of inhabitancy or business of their tenements? For this purpose the question of locality became of importance, evidence before him he found that according to the ordinary notions of business men, was sufficient light for the purposes of the inhabitancy or occupancy of these premises, which were situated in a business part of London. He had listened carefully to the evidence, and on the evidence before him he found that according to the standard of ordinary persons carrying on business in this locality, the light enjoyed by the plaintiffs' premises had never been more than sufficient for the beneficial use and enjoyment of those premises for the purposes for which it had been enjoyed. He thought therefore, in other words, that what the plaintiffs were entitled to was that which they had hitherto enjoyed. Having arrived at that, the question was, Would the proposed building of the defendants so interfere with the light which the plaintiffs had hitherto enjoyed, and to which, he thought, they were entitled, as to give rise to a cause of action: that was to say, as to be a nuisance? What interference was it which would amount to a nuisance? It was such an interference, such a diminution of light as would substantially interfere with the beneficial use of the plaintiffs' premises for the purposes of their business, or for general purposes of business or occupancy of such a kind as premises in that neighbourhood were likely to be occupied for. Again, on the facts, he found that, at all events as regarded the shop, the erection of buildings to the height to which the defendants proposed to carry their buildings would deprive the plaintiffs of such an amount of light that the shop at all events would be less beneficial than it had hitherto been for the purposes of their business—that they would carry on their business with a substantial amount of discomfort, and with such a substantial amount of discomfort as, according to the ordinary notions, the notions of ordinary people, would amount to a nuisance. Having come to that conclusion with regard to the shop, at all events it was not necessary to say much with regard to the other parts of the building. If the plaintiffs' rights had depended only on the basement he didn't think he should have felt justified in interfering, for the reason that the basement was so arranged that although such direct light as now arrived in would no doubt be obstructed by the proposed new buildings, they would still, he thought, get such an amount of light as would substantially leave the basement, having regard for the purposes for which it was used, in its existing condition. With regard to the first floor, if it were necessary to determine it, he thought in that case also he should have held, as in the case of the shop, that the proposed new buildings would make such substantial alterations in the comfort of that room as would amount to a nuisance. As to the second floor, he should not have come to that conclusion—he thought, on the evidence, it would be quite impossible to do so. But having come to the conclusion that he had with regard to the shop, it was really not necessary to go further. The result was, that he found that the erection of the defendants' buildings was a curse of material and substantial diminution of that light to which the plaintiffs were entitled, and so materially and substantially as materially to reduce the beneficial value of the plaintiffs' houses to them; and that being so, the plaintiffs were, he thought, entitled, *prima facie* at all events, to an injunction to restrain the erection of defendants' building in the way it was now proposed to erect it. It had been argued that he ought not to grant an injunction, but to award the plaintiffs damages. He did not think he ought to take that course in this case, even if in some cases it might be proper to do so. He thought the interference with this shop would be substantial and important, and further, he had evidence that the erection of the new buildings would affect the value of the shop and of the plaintiffs' house generally, both from the point of view of rental and from the point of view of capital value. That being so, he thought this was one of those cases in which the Court was not justified in saying that the plaintiffs should be compelled to give up that part of the value of their property which was represented by the light which would thus be interfered with. He thought all he could do was to take the course of granting the usual injunction in such a case, and of course the defendants must pay the costs of the action.

UNFENCED PONDS.—Important Decision by Judge Parry.—In the Manchester County Court on Monday, Mr. and Mrs. Edwin H. Yates, formerly of Cayton, now living in Broughton, claimed £50 damages from John Harrison, builder and contractor, of Stockport-road, Levenshulme, for alleged negligence which they said caused the death of their infant child Alice. It was alleged that on some unfenced, open, and waste land belonging to the defendant, opposite plaintiffs' house, there was a large pond, 6ft. deep, in which the child Alice, aged three years, was found dead. Judge Parry said Lord Atkinson had held that if vehicles or machines were left in any place rightfully frequented by children, unattended and unguarded, and calculated to attract or allure the children, the owners were liable. Personally, he regarded this deep pond as far more alluring and attractive to children than a vehicle or machine, and in his opinion it was far more negligent to leave it unfenced in a place of resort to children than to leave any machine or vehicle. On these points he found for the plaintiffs. He also found that there was a reasonable expectation of future pecuniary profit to the parents, but it could not be assessed at much in money. He awarded the parents £19, with costs on the B (higher) scale.

THE NEED FOR INSPECTION OF COPINGS. An inquest was held by Mr. G. W. Wyatt at Newington on Monday, on Mrs. Annie Sheahan, aged 37 years, schoolmistress, of Harlescot-road, Nunhead, who lost her life on the previous Thursday, through the fall of a coping on premises at the corner of Great Charlotte-street and Blackfriars-road.—Arthur Meeks, of Union-street, Borough, a labourer, said that on Thursday morning he was crossing the Blackfriars-road towards Great Charlotte-street, when he saw the coping fall from the roof of the Railway Tavern, at the corner of Great Charlotte-street. The coping bulged before it fell. Immediately afterwards the signboards came down. The coping of the coffee-shop next door to the public-house also fell. The wind was blowing very heavily at the time.—Edwin Richard Hewitt, A.R.I.B.A., district surveyor for Southwark, said that he had examined the premises. The thickness of the wall was 9in., and the height of the cornice 42ft. Upon the cornice was a board about a foot high. The thickness of the cornice was from 2ft. 1in. to 2ft. 3in. Below the cornice was a roof-plate 5in. deep and 2½in. wide, which carried the rafters of the roof. He thought a gale of 25lb. pressure would be sufficient to throw down the wall with the board on it. The cornice over the public-house and coffee-shop was in one piece. He knew the place well, and did not consider it dangerous. If the roof had been constructed with proper material instead of roof timber, the board would not have come down, in his opinion.—William Frederick Forster, surveyor to Messrs. Mann's Brewery, said that the signs belonged to the brewery company. The board that was smashed was 24ft. long. The weight of the board would be 10lb. a foot run. Due care was always taken before these boards were placed in position. The witness was on this particular roof in February, 1910. The whole of the roof at that time was being repaired, including this particular parapet. He had no knowledge of the roof-plate, or how it was constructed. The signboard which fell must have been down under five or seven years for painting and varnishing.—Mr. Godfrey (for the London County Council) said that the Council was now endeavouring to promote legislation for the purpose of getting control of boards and projections from buildings.—The Coroner, in summing up, said that there appeared to have been no palpable defect in the wall or board; nothing patent could have been seen before the accident. The jury returned a verdict of "Accidental death," and added a rider to the effect that buildings bearing such boardings above the copings should be periodically surveyed with the view of safeguarding the public.

The partnership between A. R. Groome and E. J. Bettington, architects, Hereford, carried on under the style of Groome and Bettington, has been dissolved.

Mrs. Matilda Collins, widow of Hyman Henry Collins, F.R.I.B.A., the well known City architect, died on Friday at Frankfort House, Randolph-road, Maida Vale, aged 71 years.

WATER SUPPLY AND SANITARY MATTERS.

MANCHESTER.—In and outside of Heaton Park, north of the borough of Manchester, there is now being built for the corporation of that city a new reservoir which will hold five hundred millions of gallons. It was begun in 1907, and is to be finished by the end of 1912. The water is to be taken from Lake Thirlmere, with the water from the Prestwich reservoirs. A [illegible] from the Prestwich [illegible] to be tapped near the P[illegible] and the water will be carried [illegible] Heaton Park and the mains at Bury Old [illegible]. The reservoir which is being built in Heaton Park and Lowes[illegible] will differ from the Prestwich, the [illegible] being at an elevation of 105 above Ordnance datum. The level at Heaton Park is 65ft. above Ordnance datum. The level at Heaton Park is 65ft. above Ordnance datum. The land is undulating ground, in over depression ground which there are [illegible] of varying heights. The [illegible] the reservoir are made by taking out earth from the bottom of the site, where a great deal of peat was found and had to be carried away. The aqueduct to convey the water into and out of the reservoir (which consists of an inflow and outflow pipe of 40 and 36in. diameter) is already finished.

DERWENT VALLEY WATER UNDERTAKING.—The Derwent Valley Water Board's report for the period June 15 to September 15, just issued, states that the estimated quantity of water for the two dams now in course of construction was 1,200,000 tons, but that quantity has been considerably exceeded during the period covered by the report. The total output required has been 1,214,523 tons. The number of workmen engaged on the various works of the Board on September 15 was 1,061, and of these, 973 were in the direct employ of the Board. For the Howden dam the estimates were 250,000 cubic yards of excavation, and 320,000 cubic yards of masonry; up to September 15, 276,968 cubic yards of concrete masonry had been built into the body of the dam. The total excavation for the main trench and the heel trench remained at 258,811 cubic yards, and the total concrete in heel trench at 19,114 cubic yards. As regards the Derwent Dam, 320,000 cubic yards and 360,000 cubic yards were the respective estimated figures for excavation and masonry. The concrete concrete masonry, and stone facing constructed up to September 15 totalled 362,495 cubic yards.

BIRMINGHAM SEWERAGE SCHEME.—Birmingham City Corporation give notice of their intention to carry out a scheme of sewer construction and other works on land between Wood-lane, in Erdington and Bromford-lane, in the parish of Castle Bromwich. These works being without the city boundary, it is necessary under the Public Health Act that when one authority intends to apply to the Local Government Board for a loan in order to lay a sewer in the district of another authority, three months' notice of its intention so to do should be given. The scheme has for its object the draining of low-lying land in the Ward End neighbourhood of the city, and carrying the sewage to the Drainage Board's land at Bromford Bridge. The projected works involve the laying of 18in. cast-iron and stoneware-pipe sewers, the construction of storm-water culverts, and the erection of a pumping-station and tanks. Including surface-water sewers, the cost of the scheme will be approximately £20,000.

No opposition on Standing Orders has been offered in connection with the General Powers Bill and the Bridges Bill, St. Paul's and Southwark, promoted by the City Corporation, and on Wednesday the Examiner ordered both measures for first reading.

At Kettering a new church of All Saints' is to be built, at a cost of £9,000. The church, which is to be of brick, with stone dressings, when complete, will accommodate 764 people. The style is based on the 14th-century Gothic. Mr. J. T. Blackwell the architect, has so designed the church that it may be built in three different sections. It is proposed to build first the portion consisting of a nave, north and south aisles, and transepts, at a cost of £5,000.

The following orders have been made on applications for discharge:—Peter Coyne and John Thomas Whalley carrying on business in partnership as Coyne and Whalley, Blackburn, decorators; discharge suspended for two years, ending Dec. 19, 1912. William Cresswell, Cheltenham, builder, discharge suspended for two years, ending May 6, 1912. Morgan Lewis, Ystalyfera, Glam., builder and contractor; discharge suspended for three years, ending Oct. 22, 1913. George Pittis, Southsea, builder; discharge suspended for two years, ending Dec. 13, 1912.

Our Office Table.

The Nation's Treasures is a useful half-crown's worth, published by Simpkin, Marshall, Hamilton, Kent, and Co., Ltd., and comprising a series, by H. P. Benne and H. P. Shapland, A.R.I.B.A., of measured drawings of old furniture in the Victoria and Albert Museum. There are forty-five plates. The frontispiece is the Louis Seize boudoir in the Museum, of which, as the authors remark, inspection of the room itself can only give an adequate idea of the exquisite colours employed.

The King has lent to the Victoria and Albert Museum from Windsor Castle a finely preserved English embroidered coverlet dating from about 1700, with a design in the Oriental style. It has been placed on exhibition in the large octagonal Loan Court No. 40 on the ground floor of the building, and can be seen there until June 1. The coverlet is of linen, quilted in yellow silk with zig-zag and intersecting diagonal lines, and embroidered with coloured silk and silver-gilt thread. Parts of the gold work are raised by padding. A large medallion in the middle is filled with two flying phœnixes. The surrounding space has stems of flowers, and in each corner is a grotesque rampant monster. The broad border is filled with floral stems diverging from the corners and separated by flying phœnixes. The worn parts of the embroidery, where the black thread has perished, indicate that the design was first outlined in ink on the linen.

Three fresh portraits have been placed on exhibition in the National Portrait Gallery. One is that of William Tyndale (d. 1536), Reformer, martyr, and translator of the New Testament, an oil-painting by an unknown artist, 45in. by 33in. It is a copy, with slight variations, of that in Hertford College, Oxford, the best known; but even that cannot be regarded as contemporary, for the dress and style of the painting alike indicate a date of some fifty years after the Reformer's death. Another addition is a bronze medallion, by C. Prætorius, of Sir Augustus Wollaston Franks, K.C.B., P.S.A. (1826-1897), antiquary and collector; and a third, John Barnet (1802-1890), the composer of "The Mountain Sylph," an oil-painting by Charles Baugniet, 29½in. by 24in.

A John M. Swan Memorial Fund has been raised, through the exertions of Mr. J. C. Drucker, in order to present to various museums and public galleries, national and provincial, representative selections from the drawings of the late distinguished painter, sculptor, and draughtsman, Mr. J. M. Swan, R.A. The latest gift made to the public from this fund has been one to the Trustees of the British Museum of seventeen varied examples expressly chosen as suitable for the Department of Prints and Drawings. There are ten examples of the animal studies in black or coloured chalks, including a black panther walking, in profile, a seated puma, a seated lioness in full face, a design for a picture of a lioness carrying in her mouth a cub to shelter, a coiled boa-constrictor, the head and shoulders of a sea-lion. Besides these, there are several studies from the nude, a sketch in crayons of the Victoria Falls, one in water-colours of a group of modern Egyptian figures, and a Mediæval design for a Christmas-card. These drawings will be on exhibition for a few weeks on one of the screens in the King's Library at the Museum.

By the generosity of an anonymous donor, two important pictures by Gainsborough, which have been a loan for some months, have been added to the permanent collection of the Fitzwilliam Museum at Cambridge. These are the portrait of the artist's friend, John Joshua Kirby, father of Mrs. Trimmer, and an early picture of two children, Heneage Lloyd and his sister, with a landscape background. Other acquisitions since last term are two carved panels of the 16th century, from a piece of furniture of the Lyons School, a carved and painted wooden group of St. Anne, the Virgin and the Infant Christ, brought in Spain; a series of musical autographs, including a letter of Brahms; and a copy of the privately printed catalogue of his collection of early French books. The Friends of the Fitzwilliam Museum have presented a Spanish panel-picture of the Mass of St. Gregory, by an unidentified artist of the end of the 15th century, who is also represented in the Naples Gallery. Three fine old masters have been received on loan—Albert Durer's Salvator Mundi, an Annunciation by Andrea Solario, and St. Catherine by Giov. Antonio Sogliano, who worked with Andrea del Sarto.

Dr. Tempest Anderson, president of the Yorkshire Philosophical Society, has offered to build a new lecture theatre for the society's museum at York. The work will be commenced immediately. The new theatre will be erected on the west side of the present building, space being reserved for a further enlargement, if it is found to be necessary. The basement will be used as a covering for the ruins of the vestibule of St. Mary's Abbey Chapter House, which have been greatly damaged by exposure. The ruins are considerably below the floor level of the theatre, and the basement will be lighted and ventilated, and will provide a hall for the display of the many Mediæval stone remains which now crowd up the Roman antiquities in the lower story of the Hospitium. The proposed theatre will be about 79ft. long and 47ft. wide, and will seat nearly 400 people. Between the higher tiers of the seating and the basement hall a workroom, 39ft. by 26ft., will be provided. The treatment of the interior of the theatre will be in the Ionic style. It is intended to carry out certain alterations also to the existing theatre, the well of which will be boarded over, so that it will become available as a reception-room.

A special meeting of the Lancashire Asylums Board is to be held at Preston on Monday, to consider a recommendation that the scheme for converting Seafield House, Liverpool, into an asylum should be abandoned. Seafield House was taken from the Mersey Docks and Harbour Board in 1908 on a seven years' lease at an annual rent of £600, and in 1909 the finance committee were authorised to proceed with the work of turning it into an asylum. The committee's preliminary plans involved an estimated expenditure of £13,500; but after amendments to meet the requirements of the Lunacy Commissioners, the sum was raised to £14,500. The Asylums Board authorised the committee to proceed with the scheme; but the lowest tender was £1,700 above the estimate, excluding a further estimated cost of £20 per patient for furnishing, which would bring the total up to £25,000, and the medical superintendent of Rainhill Asylum calculated that the cost of maintenance at Seafield House would at least be 1s. 6d. a week more than the cost at Rainhill. The lease will expire in January, 1916, and the Dock Board will not grant a longer lease than 14 years, subject after seven years to two years' notice. The Seafield House Committee think it more advantageous to abandon the scheme, and to provide a temporary building adjacent to one of the existing asylums than to incur increased expenditure.

Within the next two years the City Corporation will, says the *City Press*, have an opportunity of adding to the dignity and appearance of the northern approach to London Bridge. The leases of the large block of premises known as Adelaide-buildings, opposite Fishmongers' Hall, will fall in, and already the plan to be pursued in re-erection is under consideration. Mr. W. D. Caroe, F.S.A., the architect to the Ecclesiastical Commissioners, has prepared a plan for rebuilding, and for dealing with the approach as a whole. The present Fishmongers' Hall would be heightened by an attic, and the building on the site of the demolished Adelaide-buildings would be of such a style as to harmonise with the Classical features of the Guild's home. The roadway would be widened, and the footways placed beneath arcades. The Monument and the Wren church of St. Magnus-the-Martyr would be opened out so as to be seen from both King William-street and Gracechurch-

street. Added to this, a circus would be formed at the junction of the approach with the two Arthur-streets. The present mean and dirty stairways leading down to Upper Thames-street would be rearranged, and made to conform with the whole.

The Arbroath Town Council have had under consideration a scheme by which the Abbot's House, which adjoins the ruins of the Arbroath Abbey, might be taken over by the Office of Works for the sum at which it had been acquired by the town, and on the footing of the town agreeing to allow the whole of the other old properties acquired by the council to be cleared away, and the site laid out as ornamental ground. Mr W. T. Oldrieve, of H.M. Office of Works had suggested that an iron railing should be put round the part of the Abbey ruins popularly known as the Pint Stoup. A plan providing for this being done had been submitted to Mr. Oldrieve, and approved of by him, with a slight modification of the line of the railing. A plan was also submitted to the town council for the carrying out of the complete scheme of improvement, showing the clearing away of the old buildings, and the widening of the road at Abbey Park and at the Abbey parish church to 50ft., as also the enlargement of the Abbey bowling-green, and the probable erection of an improved pavilion. The council were of opinion that the result was satisfactory, and it was agreed to forward the plan to Mr. Oldrieve.

Mr. David G. Hogarth delivered a lecture on "Cretan Discoveries" at the London Institution, Finsbury-circus, on Thursday evening in last week. Crete was geographically well situated for a development of primitive civilisation, for she had insular security, and her mountains and plains gave the early people their chance. It was impossible to say when Cretan civilisation began, but there was evidence of its flourishing about 4000 B.C. At that time the people seemed to have had a taste for luxury, for pottery with incised ornament of that period had been found. Later, they made use of copper, which came from a neighbouring island. The vases which had been unearthed were of wonderful design, and demonstrated the art of the people. The excavations had shown the existence of many little towns at the east end of the island, and, for their size, these towns seemed to have been very prosperous. Two large palaces had been found, and the staircases and walls to a considerable height had been discovered. The paintings which had been preserved left little to be desired in the way of colouration and sense of movement. For many years it was thought that this civilisation was mute; but there had been unearthed a few specimens of remarkable written documents, which showed that the people had a perfect system of writing, and kept their accounts even to fractions.

The trustees of the late Mr. W. R. Sutton are about to apply to the Court, under the direction of which his estate is being administered, for liberty to acquire sites for the erection, under the trusts of his will, of model dwellings for the poor in eight provincial cities and in two districts in London, the sum to be expended being £500,000, and the boroughs of Bermondsey and Deptford have been selected as districts in London for submission to the Court, in one of which a site should be acquired. Application has been made to the Deptford Borough Council by the solicitors to the trustees for an expression of opinion as to whether further housing accommodation for the poor is needed in that borough, and, in that event, to indicate a particular district for housing operations; also, as to whether block dwellings or cottages on the principle of a garden suburb would be the more desirable to meet the requirements of the locality. It was stated by the solicitors, however, that they thought it would be necessary to confine operations in Deptford to dwellings on the block system, limiting the height to three stories. The Housing Committee of the borough council has, through the town clerk, expressed the strong opinion that there was undoubted need for such accommodation, and has indicated a site in the East Ward as being the locality which supplies the best evidence of such need. The suggestion of the trustees as to the form which the buildings should take is acquiesced in.

The Yardley Rural District Council, at their meeting on Monday night, considered the claim of £250 of the late surveyor (Mr. A. W. Smith). The discussion was raised by Mr. J. Gloster (chairman of the sewerage committee), who suggested that the time had come when some official explanation should be given. Some of Mr. Smith's friends seemed to think the council had treated him hardly. Mr. Gloster added that in 1904 an agreement was entered into with Mr. Smith to pay £500 in connection with the sewerage scheme. A sum of £250 was paid at the commencement of the scheme, and the other was due at the completion of the work. Mr Smith argued that the work was complete. The speaker maintained that the scheme was not yet completed, although he thought it might have been if the council had been more industrious. The trouble was, why did they not pay the £250, and why were certain resolutions passed which led to Mr. Smith being asked to resign? Mr. Gloster moved that the further consideration of the matter be deferred until after the receipt of the auditor's accounts. Mr. Holloway moved as an amendment: "That we do not pay Mr. Smith's claim." The amendment that the £250 claim be not paid was carried by twelve votes for and seven against, and was adopted as a substantive resolution. A further claim by Mr. Smith for £92 8s. for extra services over the annexation question was mentioned, but was not entertained, on the ground that it was done during council time.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY TO DAY.—"The Flemish and Dutch Schools of Painting," No. 2, by Beckwith A. Spencer, Leighton House, 12, Holland Park-road, W. 5 p.m.

Institution of Civil Engineers. "The Design and Construction of Reinforced-Concrete Arches," by G. F. Walton, Stud.Inst.C.E. 8 p.m.

Birmingham Architectural Association. Paper by Halsey Ricardo.

Glasgow Architectural Craftsmen's Society. "Geometry in Building Work," by David Skinner. 8 p.m.

Leicester and Leicestershire Society of Architects. Address by the President, W. M. Cowdell, F.R.I.B.A., to be followed by a Musical Evening, arranged by A. H. Hind and W. H. Riley, A.A.R.I.B.A., 5, St. Martin's East. 8 p.m.

SATURDAY (TO MORROW). — Architectural Association. Visit to the Law Courts Extension, Strand. 1.30 p.m.

Builders' Foremen's Association. Seventeenth Annual Dinner. King's Hall, Holborn Restaurant. 6.30 p.m.

MONDAY.—Victoria and Albert Museum. "English Mediæval Towers and Spires" (Lantern Illustrations), by Banister F. Fletcher, F.R.I.B.A. 5 p.m.

Royal Society of Arts. "Etching" (Cantor Lecture, No. 1), by Frederick Wedmore. 8 p.m.

Architectural Association. "Germany and the Germans," by Theodore Fyfe, F.R.I.B.A. 7.30 p.m.

TUESDAY. — British Museum. "Roman Thermæ" (Lantern Illustrations), by Banister F. Fletcher, F.R.I.B.A. 4.30 p.m.

Institute of Sanitary Engineers. "Sanitary Law," by W. H. Prescott. 7 p.m.

WEDNESDAY.—Carpenters' Hall Lecture. "Truth in Craftsmanship," by T. Rattles Davison. 7.45 p.m.

Royal Society of Arts. "Motor Transport in Great Britain and the Colonies," by Horace M. Wyatt. 8 p.m.

Manchester Society of Architects. "The East Anglian Cathedrals: A Study of Romanesque," by J. L. Ball. 16, St. Mary's Parsonage, Manchester.

THURSDAY.—Leeds and Yorkshire Architectural Society. "The Comacine Guild," by J. J. Wood, A.R.I.B.A.

The Local Government Board have sanctioned the borrowing of £17,799 by the Warrington Corporation, in order to carry out extensions to the water undertaking from Winwick to Warrington.

At the expiration of his three-year term on December 31 last, Mr. Arnold W. Brunner, vice-president of the Municipal Art Commission and president of the New York Chapter of the American Institute of Architects, retired from office.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, Effingham House, 1, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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VERITAS.—No.

SILKS.—Yes, if brief.

PUPIL.—You have no claim.

ARNICUS.—Duplicates of letters to other papers are not desired.

G. L.—Probably not, but we hardly see how that affects your position.

KIMBERLEY.—Many thanks; we will bear in mind when the time comes.

STONEMASON.—Very likely, but these occult subjects are a little over our head.

C. S.—We know nothing of the firm. They appear neither in our advt. pages nor in our "Directory," so possibly do not court publicity.

HORACE YOUNG AND OTHER COMPETITORS IN OUR ADVT. DESIGN COMPETITION. Read rules of competition carefully. These state that designs must be suitable for reproduction as a full-page, half, or quarter-page of this journal.

TRADE NOTES.

The Workhouse Infirmary, Bishop Auckland, is being supplied with Shorland's patent Manchester stoves with descending smoke-flues, Manchester grates and ventilators, by Messrs. E. H. Shorland and Brother, Ltd., of Failsworth, Manchester.

The "Boyle" system of natural ventilation, embracing the latest patent "Air-Pump" ventilators and air-inlets, has been applied to Zetland Schools, Redcar-by-the-Sea.

The church at Potters Bar, built in 1835, was destroyed by fire on Friday night. It is supposed that the outbreak originated in a gas-jet in the chancel.

Mr. Charles Ellis, of South Brent, surveyor and sanitary inspector to the Totnes Rural District Council, died late on Saturday night, after a long and painful illness.

Works of main sewerage are about to be carried out for the corporation of Louth, Lincolnshire, at an estimated cost of £20,540. Mr. Baldwin Latham is the engineer.

At St. Mellon's Rural District Council meeting at Newport, Mon., on Friday, it was reported that the Local Government Board had sanctioned the application to borrow £2 900 for sewerage works in the parish of Graig.

The question of the widening of the approach to the Mall at Charing Cross was considered on Wednesday at meetings of the improvements and finance committees of the London County Council. As the result of the meetings a communication has been made to the Office of Works, and it is considered possible that an announcement may be made on the subject almost immediately.

At a meeting of the committee of the Association of Midland local authorities, held in Birmingham on Friday, to consider the proposed new main road from Birmingham to Wolverhampton, a resolution was passed deciding to get out estimates of the cost of the road. A letter was read from the road board, stating that they would be prepared to contribute £30,000 to the cost in the event of the scheme being adopted by all the local authorities.

LATEST PRICES.

IRON.

	Per ton.				Per ton.
Rolled Joists, Plain	£5	7	6	to	£5 12 6
Rolled Joists, Compound	7	5	0	,,	7 15 0
Wrought Iron Girders	7	5	0	,,	7 15 0
Bar Iron	7	15	0	,,	8 10 0
Do., Lowmoor				,,	20 0 0
Do., Welsh				,,	6 17 6
Best Best				,,	8 15 0
Best Best				,,	9 10 0
Hoops				,,	£9
Rivets	£8	5		,,	£8 10 0
Boiler Plates	7	15		,,	8 5 0
Galvanized Sheets, Nos. 22 to 24					15 0 0
6ft. to 8ft.					16 0 0
Angles	£7	15		,,	£8 10 0
Bolts and Nuts	14	0	0	,,	14 0 0
Wire Nails (Soft)					
3in. to 7in.	14	15			B.W.G.
8d. 9d. 10d. 12d. 16d. 20d. 30d. 40d. 50d. 60d.	6	13	6		per cwt.
Cast Iron Columns	£7			to	£8 10 0
Cast Iron Stanchions				,,	8 10 0
Rolled Iron Beams or Girders				,,	8 10 0
Rolled Steel Beams or Girders				,,	8 10 0
Cast Iron Sash Weights	7	15	0	,,	8 5 0
Do. Sash Weights	4	17	0	,,	4 17 0
Fire Bricks	10	5	0	,,	—
Corrugated Iron, 24 gauge	16	0	0	,,	—
Galvanized Wire Strand, 7/16in. 14 B.W.G.	14	5	0	,,	—
B.B. Drawn Telegraph Wire, Galvanized—					
0 to 8	9		11		12 B.W.G.
£10 5 0	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.
Cast Iron Socket Pipes—					
3in. diameter	£6	2	6	to	£6 7 0
4in. to 6in.	6	0	0	,,	6 5 0
7in. to 24in. inclusive	5	7	6	,,	6 0 0
Coated with composition, 5s. 0d. per ton extra; turned and bored joints, 2s. 6d. per ton extra.]					
Pig Iron—					Per ton.
Cold Blast, Lilleshall	110s. 0d.			to	117s. 6d.
Hot Blast, ditto	70s. 0d.			,,	75s. 0d.
Wrought Iron Tubes and Fittings—Discount off Standard List (July, 1908) prices 2½ per cent.] —					
Gas Tubes					75 p.c.
Water Tubes					72½ ,,
Steam Tubes					67½ ,,
Galvanized Gas Tubes					65 ,,
Galvanized Water Tubes					62½ ,,
Galvanized Steam Tubes					57½ ,,

OTHER METALS.

	Per ton.				Per ton.
Spelter, Sides at	£22	17	6	to	£23 2 6
Lead Water Pipe, Town	17	10	0	,,	—
,, ,, ,, Country	17	15	0	,,	—
Lead Barrel Pipe, Town	18	0	0	,,	—
,, ,, ,, Country	18	5	0	,,	—
Lead Pipe, Turned Common, Town	19	0	0	,,	—
,, ,, ,, Country	19	5	0	,,	—
Lead Pipe, Turned Composition and outside Work, Town	21	10	0	,,	—
,, ,, ,, ,, Country	22	0	0	,,	—
Composition Gas Pipe, Town	20	0	0	,,	—
,, ,, ,, Country	20	15	0	,,	—
Lead Soil Pipe, up to 4½in. Town	20	0	0	,,	—
,, ,, ,, Country	20	15	0	,,	—
Over 4½in. £1 per ton extra.]					
Lead Shot, in 28 lb. bags	24	15	0	,,	—
Copper Sheets, Sheathing & Nails	71	0	0	,,	71 10 0
Copper, British Cake and Ingot	69	0	0	,,	70 15 0
Tin, Straits	183	15	0	,,	184 0 0
Do., English Ingots	177	15	0	,,	178 0 0
Do., Australian	179	10	0	,,	180 0 0
Do., Bars	180	0	0	,,	180 15 0
Pig Lead, in lewt. pigs	14	7	6	,,	—
Sheet Lead, Town	16	15	0	,,	—
,, ,, Country	17	5	0	,,	—
Genuine White Lead	21	0	0	,,	—
Refined Red Lead	19	0	0	,,	—
Sheet Zinc	32	5	0	,,	—
Old Lead, against account	12	7	0	,,	—
Tin	16	15	0	,,	—
Cut Nails (per cwt. basis, ordinary brand)	0	10	6	,,	—

TIMBER.

CONVENTIONAL.

Per St. Petersburg Standard (100 12ft. by 11in. by 1½in.) Load.

Yellow Fine Deals, Quebec, 1st quality	£41	0	0	to	£42 0 0
,, ,, ,, 2nd ,,	21	0	0	,,	26 0 0
,, ,, ,, 3rd ,,	15	0	0	,,	18 0 0
St. Pine Deals, St. John's	8	0	0	,,	11 0 0
,, ,, Miramichi	7	5	0	,,	8 10 0
,, Boards, Swag	7	0	0	,,	8 0 0
Red Deals, Archangel 1st quality	20	10	0	,,	21 10 0
,, ,, ,, 2nd ,,	15	0	0	,,	17 0 0
,, ,, ,, 3rd ,,	11	0	0	,,	12 0 0
,, ,, St. Petersburg—					
,, ,, 1st quality	16	0	0	,,	17 0 0
,, ,, 2nd ,,	13	0	0	,,	14 10 0
,, ,, Wyborg & Fleuborg	10	0	0	,,	12 0 0
,, ,, Gefle, Gothenburg, and Stockholm	10	0	0	,,	17 0 0
White Deals, Crown	10	0	0	,,	12 0 0
,, ,, Seconds	9	10	0	,,	10 0 0
Flooring, White and Planed—					
1st and 2nd quality mixed	9	0	0	,,	9 5 0
1st, 2nd, and 3rd quality mixed	8	5	0	,,	8 10 0
Red Planed, 1st quality	11	5	0	,,	11 10 0
Patch Line: Prime Deals and Boards	17	0	0	,,	20 0 0
Lignum Vitæ	5	10	0	,,	12 0 0

Per foot super, as 1in.

Yellow Pine Logs (waney board)	0	0	2	9	,, 0 4 3
Pitch Pine Logs	0	1	6	,,	0 1 10
Canary Whitewood Prime	0	0	3	6	,, 0 3 9
Birch Quebec Logs	0	0	2	0	,, 0 2 6
Oak: Austrian Wainscot	0	0	7	0	,, 0 8 0
Mahogany, Gaboon	0	0	1	1¾	,, 0 6 2¼

TIMBER AND HARDWOODS.

Oak, Baltic, 1st class (150c.ft.)	£20	0	0	to	£21 10 0
,, ,, 2nd ,,	15	0	0	,,	18 0 0
Canada Waney Prime Logs	Per cubic foot.				
Teak, Moulmein	0	3	0	,,	0 3 3
,, Rangoon	0	2	2	,,	0 2 6
Quebec Oak, Waney Logs	0	1	9	,,	0 2 6
,, Logs, 18 ,,					
,, ,, Prime	0	2	4	,,	0 2 9
,, ,, Merchantable	0	1	10	,,	0 2 2
,, ,, Red (Wood)	0	3	0	,,	0 3 6
Dantzic Oak	0	1	8	,,	0 2 2
,, ,, Logs	0	1	0	,,	0 1 2
Canada American Whitewood	0	6	0	,,	0 7 0
West African Mahogany Logs	0	5	0	,,	0 6 0
,, Mahogany	0	3	4	,,	0 3 6
Cuban Mahogany	0	3	6	,,	0 4 6
Central American	0	3	6	,,	0 4 6
Satin Wood Logs, Planks, Boards, &c.	0	2	3	,,	0 2 6
Cuban Logs, Planks, Boards, &c.	0	1	10	,,	0 2 2
Mahogany, St. Domingo, Cuba, and Honduras	Per foot of 1in.				
,, African, Nigerian, &c.	0	0	5½	to	0 0 6
,, Lagos and Benin	0	0	4½	,,	0 0 5
,, Sabicu and Cape Lopez	0	0	3½	,,	0 0 4½
,, Gaboon	0	0	2½	,,	0 0 3½
Satinwood, West Indian	0	0	1½	,,	0 0 2
Rosewood Per ton	0	0	10	,,	0 2 2
Lignum Vitæ ,,	7	0	0	,,	12 0 0

STONE.*

Red Mansfield, in blocks	per foot cube	£0	2	4	
Darley Dale, ditto	,, ...	0	2	3	
Red Corsehill, ditto	,, ...	0	2	2	
Closehill Red Freestone, ditto	,, ...	0	2	0	
Ayrmoor, ditto	,, ...	0	1	10	
Greenshill, ditto	,, ...	0	1	10	
Chilmark, ditto (in truck at Nine Elms)	,, ...	0	1	9	
Beer, ditto	,, ...	0	1	8	
Hard York, ditto	,, ...	0	2	10	
Ditto (if random sawn 12in. sides, and 6ft. random sizes	per foot sup.	0	2	8	
Ditto ditto 3in. scab sawn (two sides, random sizes	,, ...	0	1	3	

* At F.O.R. London.

Bath Stone, delivered on rail at quarry stations	per foot cube	0	1	0	
Delivered on road wagons, Paddington Depot	,, ...	0	1	6½	
Ditto ditto, Nine Elms Depot	,, ...	0	1	8½	
Beer Stone, delivered on rail at Station	,, ...	0	1	0	
Ditto, delivered at Nine Elms Station	,, ...	0	1	6	

Portland Stone, in random blocks of 20ft. average:—

	Brown Whit Bed.			White Base Bed.		
Delivered to railway depot at the quarry per foot cube	£0	1	5¾	£0	1	7¼
Del vered on road wagons at Paddington Depot	0	2	1	0	2	2½
Ditto, Nine Elms Depot						
Ditto, Pimlico Wharf						

BRICKS.

(All prices net.)

Hard Stocks	£1	6	6	per 1,000 alongside, in river	
Rough Stocks and Grizzles	1	6	0	,, ,, ,,	
Picked Stocks for Facings	2	10	0	,, delivered at railway station.	
Flettons	1	6	0	,, ,, ,,	
Pressed Wire Cuts	1	18	0	,, ,, ,,	
Red Wire Cuts	1	14	0	,, ,, ,,	
Best Fareham Red	3	12	0	,, ,, ,,	
Best Red Pressed Ruabon Facings	5	0	0	,, ,, ,,	
Best Blue Pressed Staffordshire	3	15	0	,, ,, ,,	
Ditto Bullnose	4	0	0	,, ,, ,,	
Best Stourbridge Fire Bricks	3	14	0	,, ,, ,,	
2½in. Best Red Accrington Plastic Facing Bricks				Net, delivered in London Docks or Railway Stations.	

GLAZED BRICKS.*

HARD GLAZES. (PER 1,000.)

	White, Ivory, and Best.	Salt Glazed. Seconds.	Buff and Cream.	Best. Other Colours.	Second Colours.
Stretchers—	£10 17 6	£9 7 6	£12 7 6	£16 7 6	£10 17 6
Headers—	10 7 6	8 17 6	11 17 6	15 17 6	10 7 6
Quoins, Bullnose, and 1½in. Flats—	13 17 6	12 17 6	16 7 6	19 17 6	14 7 6
Double Stretchers—	16 7 6	14 17 6	19 7 6	22 17 6	16 7 6
Double Headers—	13 7 6	11 17 6	16 7 6	19 17 6	13 7 6
One side or two ends, square—	17 7 6	15 17 6	20 7 6	24 17 6	17 7 6
Two sides and one end, square—	18 7 6	16 17 6	21 7 6	25 7 6	18 7 6
Splays and Splay Ends—	15 17 6	14 7 6	20 7 6	23 7 6	15 17 6

Plinth and Hollow Bricks. Stretchers and Headers—

3d. each	4d. each	6d. each	6d. each	6d. each	5d. each

Double Cornice, Round Ends, Bullnose Stops, and Bullnose Mitres—

5d. each	6d. each	6d. each	6d. each	6d. each	5d. each

Round Internal Angles—

4d. each	3d. each	5d. each	5d. each	4d. each	

MOULDED BRICKS.

Stretchers and Headers—	8d. each	8d. each	8d. each	8d. each	8d. each
Internal and External Angles—	1 2 each	1 2 each	1 2 each	1 2 each	1 2 each
Cill Bullnose, Stretchers and Headers—	5d. each	4d. each	6d. each	6d. each	5d. each

	Per 1,000.
Majolica or Soft Glazed Stretchers and Headers	£21 17 6
,, ,, ,, Quoins and Bullnose	26 17 6
Compass bricks, circular and arch bricks of same radius £6 per 1,000 over above respective kinds and colours	Not exceed ing 9in. × 4½in. × 2½in.
Cant or arch brick, any kind or colour, 9in. × 4½in. × 2½in.	
Stretchers and Closers and Nicked Double Headers, £5 per 1,000 extra.	

* Prices are carriage paid in full truck loads to London stations.

	s.	d.	
Thames sand Pit Sand	7	0	per yard, delivered.
Thames Ballast	5	6	,, ,,
Best Portland Cement	28	0	per ton, ,,
Best Glenboig Blue Lias Lime	19	0	,, ,,

Extra over if charge for sacks.

Grey Stone Lime	11s. 6d. per yard, delivered
Stourbridge Fireclay	in sacks 27s. 0d. per ton at rly. sta.

SLATES.

	In.	In.	£	s.	d.	
Blue Portmadoc	20 × 10	12	12	6	per 1000 of 1200 at rly. sta.	
,, ,,	16 × 8	6	12	6	,, ,,	,,
Blue Bangor	20 × 10	13	2	6	,, ,,	,,
,, ,,	20 × 12	13	17	6	,, ,,	,,
First quality	20 × 10	13	0	0	,, ,,	,,
,, ,,	20 × 12	13	15	0	,, ,,	,,
,, ,,	16 × 8	7	5	0	,, ,,	,,
Eureka Unfading green		£	s.	d.		
	20 × 10	15	17	6	,, ,,	
,, ,,	20 × 12	18	7	6	,, ,,	,,
,, ,,	18 × 10	13	5	0	,, ,,	,,
,, ,,	16 × 8	10	5	0	,, ,,	,,
Permanent green	20 × 10	11	12	6	,, ,,	,,
,, ,,	18 × 10	9	12	6	,, ,,	,,
,, ,,	16 × 8	6	12	6	,, ,,	,,

TILES.

	s.	d.		Delivered at rly. sta.
Plain red roofing tiles	42	0	per 1000	,, ,,
Hip and Valley tiles	3	7	per doz.	,, ,,
Broseley tiles	50	0	per 1000	,, ,,
Ornamental tiles	52	6	,,	,, ,,
Hip and Valley tiles	4	0	per doz.	,, ,,
Ruabon red, brown, or mixed	57	6	per 1000	,, ,,
do. (Edwards)	60	0	,,	,, ,,
Ornamental do.	4	0	per doz.	,, ,,
Hip tiles	3	0	,,	,, ,,
Valley tiles				
Sanded Hartshill tiles			per 1000	,, ,,
Plain tiles (Perfection)	48	6	,,	,, ,,
Ornamental do.	4	0	per doz.	,, ,,
Hip tiles	3	8	,,	,, ,,
Valley tiles				
"Rosemary" brand tiles	48	0	per 1000	,, ,,
Ornamental tiles	4	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	8	,,	,, ,,
Staffordshire Hanbridge Reds or Brindled tiles	42	6	per 1000	,, ,,
Hand-made sand faced	47	6	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,
"Hartshill" brand pointed tiles, sand-faced	50	0	per 1000	,, ,,
Pressed	47	6	,,	,, ,,
Ornamental do.	50	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,

OILS.

Rapeseed, English pale, per ton	£28	15	0	to	£29 5 0
Do., brown	26	15	0	,,	27 5 0
Cottonseed, refined	29	0	0	,,	30 0 0
Olive, Spanish	39	10	0	,,	40 0 0
Seal, pale	21	0	0	,,	21 10 0
Cocoanut, Cochin	46	0	0	,,	46 10 0
Do., Ceylon	42	10	0	,,	43 0 0
Do., Mauritius	42	10	0	,,	43 0 0
Palm, Lagos	32	5	0	,,	33 5 0
Do., Nut Kernel	35	0	0	,,	35 10 0
Olein	17	5	0	,,	19 5 0
Sperm	30	0	0	,,	31 0 0
Lubricating U.S. per gal.	0	7	0	,,	0 8 0
Petroleum, refined ,,	0	0	6½	,,	0 0 6¾
Tar, Stockholm per barrel	1	6	0	,,	1 10 0
Do., Archangel ,,	0	19	6	,,	1 0 0
Linseed Oil per gal.	0	4	0½	,,	—
Raw Oil ,,	0	4	3	,,	—
Turpentine ,,	0	4	5½	,,	—
Putty (Genuine Linseed Oil) per cwt.	0	11	0	,,	—
,, Pure Linseed Oil, "Stority" Brand ,,	0	10	0	,,	—

VARNISHES, &c.

	Per gal.
Fine Pale Oak Varnish	£0 8 0
Pale Copal Oak	0 10 0
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Carriage Oil	0 10 0
Superfine Hard-drying Oak, for inside work	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 6
Extra Pale Paper	0 12 6
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

GLASS.

English Sheet Glass:	15oz.	21oz.	26oz.	32oz. Nett.
Fourths	1½d.	2½d.	3d.	4½d. ,,
Thirds	2½d.	3d.	4d.	4½d. ,,
Fluted Sheet	3½d.	4½d.	—	— ,,

Hartley's English Rolled Plate: ⅛in. 3/16in. ¼in.
2½d. ... 2½d. ... 2½d.

Figured, Oxford Rolled, & Oceanic Glass: White. Tinted.
3½d. ... 5½d.

Trade News.

WAGES MOVEMENTS.

THE LABOUR MARKET IN DECEMBER.—The monthly memorandum on the state of the labour market prepared by the Labour Department reports that employment in December was, on the whole, about the same as in November. There was a seasonal decline in the building and furnishing trades. As compared with a year ago, an improvement was shown in most of the principal industries except coal-mining, in which there was little change. In the 415 trade unions with a net membership of 700,665 making returns, 34,831 (or 5 per cent.) were reported as unemployed at the end of December, 1910, compared with 4.6 per cent. at the end of November, 1910, and 6.3 per cent. at the end of December, 1909. The total number of workpeople involved in disputes in progress during December, 1910, was 71,614, or 21,317 less than in November, 1910, and 63,692 more than in December, 1909. Definite results were reported in the case of 18 disputes, new and old, directly affecting 31,212 workpeople; of these 18 disputes, four were settled in favour of the workpeople, four in favour of the employers, and ten were compromised. The changes in rates of wages taking effect in December, 1910, affected nearly 345,000 workpeople, all of whom received increases. The computed effect of the changes was an increase of £6,800 per week.

The Liverpool Select Vestry have decided to erect a colony for epileptics at Maghull, the estimated cost being £39,000. The vestry have also agreed to proceed with the proposed alterations to Brownlow Hill Workhouse, for which a tender of £10,133 has been accepted.

PILKINGTON & CO.

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POLONCEAU ASPHALTE

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WHITE SILICA PAVING.

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TELEPHONE NOS.: NEW CROSS 1102 2 Lines).

FOR

Olivers' Seasoned Hardwoods,

APPLY TO—
WM. OLIVER & SONS, Ltd.,
120, Bunhill Row, London, E.C

TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender; it adds to the value of the informal tion.

ARMAGH.—For sewerage works at Charlemont, for the rural district council. Mr. W. Calvert, Workhouse, Armagh, clerk :—

McSorley, P., Charlemont, Moy, Co. Tyrone (accepted)	£33 0 0

AMMANFORD.—For erecting police-court, for the Carmarthenshire County Council. Mr. W. L. Jenkins, Assoc.M.Inst.C.E., P.A.S.I., Shire Hall, Llandilo, county surveyor :—

Davies, D., Penarth-road, Cardiff	£2,473 0 0
Mercer, G., New-road, Llanelly ...	2,390 0 0
Evans, D., and Sons, Glanammar	2,349 0 0
Williams, W., Ammanford .	2,299 10 0
Spencer, Santo, & Co., Earl-street, Westminster	2,175 0 0
John, D. B., and Co., Tirydail, Ammanford	2,141 19 11
Howells, D., and Sons, Llandebie	1,805 0 0
Jones Bros., Tirydail, Ammanford*	1,803 0 0

[* Accepted at £1,855, Forest of Dean stone substituted for Bath stone, as provided in specification.]
County surveyor's estimate, £1,750.

BANGOR.—For alterations and additions to Vicarage House to convert it into a church house, for the Bishop of Bangor. Mr. Harold Hughes, Diocesan Offices, Bangor, architect :—

Jones and Williams	£1,394 0 0
Jones, R. J.	1,370 0 0
Williams, R. and J.	1,342 0 0
Evans, J.	1,295 0 0
Jones, W., and Son	1,282 0 0
Hughes, R. D., and H.	1,276 18 0
Jones, J. M.	1,267 0 0
Parry, W., Bangor (accepted) ..	1,198 0 0

BEDWORTH.—For building a council school at Bedworth, for the Warwickshire Education Committee :—

Lord, A. J. (accepted) ...	£4,247 0 0

BLACK NOTLEY.—For erecting smallpox hospital, for Braintree Joint Hospital Board. Mr. E. H. Bright, Dodds Hill, Braintree, surveyor :—

Shirling, Maldon, Essex	£508 10 0
Brown, A., and Son, Braintree ...	470 0 0
Trudgett, Colchester	469 0 0
Lovelock, Beckenham, Kent ...	439 0 0
Shark, G., Halstead, Essex* ...	377 0 0

* Accepted.

(*Continued on p. XVI.*)

LIST OF COMPETITIONS OPEN.

Budapest—Skating Rink (cost £7,500)	£62, £42, £21	Sekretariate des Budapester (Ofner) Turnvereines, Budapest	Jan. 31
Hull—Guardians' Offices, Margaret-street	£10 10s., £6 6s., £4 4s.	J. H. Wild, Clerk, 12, Harley-street, Hull	Feb. 1
Corbridge—Sewerage and Sewage Disposal Scheme	£15 (merged) and £10	J. H. Nicholson, Clerk, Midland Bank Chambers, Hexham	,, 28
San Thomé, Portuguese West Africa—Laying-out Streets, Sewerage, Water Supply, and Lighting		The President of Municipal Council, San Thomé, Portuguese West Africa	Mar. 27
Gidea Park—Town Plan of Gidea Park (E. G. Dawber, H. V. Lanchester, and M. E. Macartney, Assessors)	£100, £50	The Secretary, Town Planning Exhibition, 33, Henrietta-st., W.C.	,, 31
Manchester—Library and Art Gallery (Prof. Reginald Blomfield, A.R.A., assessor)		Thomas Hudson, Town Clerk, Town Hall, Manchester	,, 31
Coventry—Municipal Buildings and Proposed Town Hall. (E. Guy Dawber, F.R.I.B.A., 22, Buckingham-street, W.C., Assessor.)		Gen. Sutton, Town Clerk, 10, Hay-lane, Coventry	April 1
Aspatria—Sewerage Scheme		F. Richardson, Clerk, Aspatria, Cumberland	June 10
Athens—Court of Justice (cost £160,000)	£800, £320	Comm. Intel. Branch, Board of Trade, 73, Basinghall-street, E.C.	Aug. 8
Glasgow—Alexander Thomson Travelling Studentship	£60, £30	C. J. Maclean, Secretary, 115, St. Vincent-street, Glasgow	Dec. 29
Bristol—Housing and Cottage Exhibition	£50, £50, £50, £10, £10	Frank H. Bromhead, A.R.I.B.A., Hon. Sec., Leaze Cottage, Shirehampton, Bristol	No date
Southampton—Hartley University College (Henry T. Hare, F.R.I.B.A., Assessor)		D. Kibble, Registrar, Hartley University College, Southampton	do.
Penistone—Carnegie Free Library		The Clerk to the District Council, Penistone	do.

LIST OF TENDERS OPEN.

BUILDINGS.

Devonport—Extension of Post Office	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	Jan. 20
Oxenhope—Additions to Manorlands		Moore and Crabtree, Architects, York Chambers, Keighley	,, 20
Brynaerau—School		R. L. Jones, County Architect, 14, Market-street, Carnarvon	,, 21
Gorleston-on-Sea—Institution for Blind and Deaf Children	Governors	John E. Burton, Architect, 57, London-street, Norwich	,, 21
Treherbert—Rebuilding New Inn Hotel	D. John and Co., Ltd.	W. D. Morgan, Architect, 194, Ystrad-road, Pentre, Rhondda	,, 21
Blaenporth, Wales—House		David Kane, 35, Fern-st., Mount Pleasant, Porth, Glam.	,, 21
Fourcrosses—School		R. L. Jones, County Architect, 14, Market-street, Carnarvon	,, 21
Bandon—Forty-two Labourers' Cottages	Rural District Council	A. Haynes, Clerk, Bandon, Ireland	,, 21
Llandilo—Private Boarding House		Arthur S. Williams, M.S.A., Llandilo	,, 21
Blaenporth—House		David Kane, 35, Fern-street, Mount Pleasant, Porth, Glam.	,, 21
Aber, near Bangor—Additions to Taoyfynwent	North Wales University College	Evan Evans, Architect, 8, Castle-street, Carnarvon	,, 21
Cheltenham—Two Workmen's Cottages	Corporation	J. S. Pickering, Borough Engineer, Municipal Offices, Cheltenham	,, 23
Tylorstown—Residence	David Smith	A. O. Evans, Williams, and Evans, Architects, Pontypridd	,, 23
Caterham Valley—Council Offices and Hall	Urban District Council	H. R. Martin, Surveyor, Council Offices, Caterham Valley	,, 23
Tomintoul—Additions to Inchroy Shooting Lodge		James R. Marshall, Estates Offices, Fochabers	,, 23
Slough—Additions to Furniture Depository		John Baker, Architect, 75, High-street, Slough	,, 23
Hellifield—Nine Houses		Wm. Sunderland, Inglewood, Settle	,, 23
Englishcombe—Repairs to Schools	Somerset County Council	W. F. Bird, M.S.A., Architect, Midsomer Norton	,, 23
Clewer—Inspection Chambers, Arthur-road	Windsor Rural District Council	J. E. Gale, Clerk, 3, Sheet-street, Windsor	,, 23
Edgworthstown—Rebuilding Shop		Patrick Menton, Architect, Newtown, Moate, Ireland	,, 24
Haslingden—Extension at Sykeside Mill	Jno. Warburton, Ltd.	Henry Ross, A.R.I.B.A., 15, Cannon-street, Accrington	,, 24
Dorchester—Police Cells, Glydepath-road	Dorset County Council	The County Surveyor, Dorchester	,, 25
Carleton—Cottage Home	Guardians	Garside and Pennington, Architects, Pontefract	,, 25
Pyle—Eighteen Houses at Lower Bridge-street	No. 2 Building Club	Aneurin T. James, Architect, Bisley House, Pyle, near Bridgend	,, 25
Omagh—Additions to Royal Arms Hotel		J. M. Robinson, Architect, 7, Market-bldgs., Strand, Londonderry	,, 25
Llantwit Major—Cottage	Glamorgan County Council	Council Offices, Westgate-street, Cardiff	,, 25
Huddersfield—Detached Residence in Longley-road		Joseph Berry, Architect, 3, Market-place, Huddersfield	,, 25
Bramley—Laundry Extension at Workhouse	Guardians	J. A. Webster, Architect, 24, Basinghall-street, Leeds	,, 25
Blackburn—Additions to County-court	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 26
Llanelly—New Church in Alban-road	Rev. D. Watcyn Morgan	E. M. Bruce Vaughan, F.R.I.B.A., Cardiff	,, 26
Barnoldswick—Seven Houses	Co-operative Industrial Society, Ltd.	The Secretary, 5, Manchester-road, Barnoldswick, Colne	,, 27
Heywood—Heap Bridge School	Town Council	H. Cooper Anderson, A.R.I.B.A., 3, Longford-street, Heywood	,, 27
Oxford—County Offices, New Road	Oxfordshire County Council	Sidney Stallard, County Surveyor, County Hall, Oxford	,, 27
Marsden—Caretaker's Lodge		John Kirk and Sons, Architects, John William-st., Huddersfield	,, 27
Elland—Alterations to Store	Halifax Industrial Society, Ltd.	Williams and Sons, Architects, Commercial-street, Halifax	,, 27
Lydbrook—Additions to Joys Green School	Gloucestershire Education Com.	R. S. Phillips, Architect, Midland Bank Chambers, Gloucester	,, 28
Knottingley—Additions to Church Schools		Tennant and Collins, Architects, Pontefract	,, 28
Charlton Kings—New Cloakrooms at School	Gloucestershire Education Com.	R. S. Phillips, Architect, Midland Bank Chambers, Gloucester	,, 28
Settle—Six Houses, Batty Croft Gardens	W. J. Edmondson	W. K. Martinson, Architect, Aristwick, Lancaster	,, 28

BUILDINGS—*continued.*

Dundalk—Repairing about 120 Labourers' Cottages	Rural District Council	P. R. Finigan, Clerk, Workhouse, Dundalk	Jan. 30
Maidenhead—Administrative & Laundry Bldgs., Isc. Hosp.	Town Council	Percy Johns, Borough Surveyor, Guildhall, Maidenhead	,, 30
Dartford—Repairs, &c., at Infectious Diseases Hospital	Joint Hospital Committee	Robert Marchant, A.R.I.B.A., 28, Theobald's-road, W.C.	,, 30
Margate—Concert Hall at the Fort	Corporation	Ernest A. Borg, Borough Engineer, 13, Grosvenor-place, Margate	,, 30
Harwich—Additions to Schools	Education Committee	G. D. Hugh-Jones, Secretary, Church-street, Harwich	,, 30
Bordesley Birmingham—Reinforced Concrete, Tele. Works	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 31
Aldershot—Secondary School	Urban District Council	Kingham & Kingham, Archts., Bank House, Grosvenor-rd., Ald.	,, 31
Eltham—Gymnasium at Art Room, Avery Hill College	London County Council	G. L. Gomme, Clerk, London County Council, Spring Gardens, S.W.	,, 31
Wavertree, Liverpool—Enlarging Sorting Office	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 31
Doncaster—Trades and Friendly Societies Institute	Committee	F. N. Masters, M.A., Archt., Bank Chmbrs., Scot-lane, Doncaster	Feb. 1
Peterhead—Lifeboat House and Slipway at Lodge-walk	Royal National Lifeboat Institution	W. T. Douglass, M.I.C.E., 15, Victoria-street, Westminster, S.W.	,, 1
Llanybyther—Rebuilding Congregational Chapel		W. Beddoe Rees, Architect, 3, Dumfries-place, Cardiff	,, 1
Machrihanish, Argyllshire—Lifeboat House and Slipway	Royal National Lifeboat Institution	W. T. Douglass, M.I.C.E., 15, Victoria-street, Westminster, S.W.	,, 1
Old Sodbury—Alterations and Enlargement of School		W. C. Wilcox, Old Sodbury House, near Chipping Sodbury	,, 1
Beaumaris, Anglesea—Lifeboat House, Slipway, & Gangway	Royal National Lifeboat Institution	W. T. Douglass, M.I.C.E., 15, Victoria-street, Westminster, S.W.	,, 1
London, S.E.—Extensions, South Eastern District Post Office	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 2
Manchester—Medical Supt.'s House, Baguley Sanatorium	Sanitary Committee	The City Architect, Town Hall, Manchester	,, 4
Longford, Ireland—Store at Station	Midland Gt. West. (Ireland) Rly. Co.	The Chief Engineer, Broadstone Station, Dublin	,, 6
Farnham—Additions to Drill Hall, Bear-lane	Territorial Force Association	Jarvis and Richards, Archts., 10, Queen Anne's-gate, S.W.	,, 6
Merthyr—Infants' School at Lower Pentrebach	Education Committee	The Deputy Surveyor, Town Hall, Merthyr	,, 6
Icketshall St. Lawrence—Enlarging School (50 places)	East Suffolk Education Committee	J. Webb, Building Surveyor, County Hall, Ipswich	,, 6
Brumby—Pair of Cottages		John Potts, 54, Fox-street, Scunthorpe	,, 6
Walsall—Additions to Electricity Generating Station	Electricity Committee	John R. Cooper, Town Clerk, Council House, Walsall	,, 7
Treforest—Eighteen Semi-detached Villas		Gibson, Williams, and Co., Archts., Bank Chmbrs., Pontypridd	,, 7
Watford—Domestic Economy Centre, Grosvenor-road	Hertfordshire County Council	Urban A. Smith, County Surveyor, Hatfield	,, 8
Cudworth—Alterations at Snydale road School	West Riding Education Committee	The Education Architect, County Hall, Wakefield	,, 9
Banbury—Extending Post Office	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 9
Bolton-on-Dearne—Forty-eight Houses, Highgate	Urban District Council	J. W. Wilson, Surveyor, Council Offices, Bolton-on-Dearne	,, 13
Pyfield—Extending Industrial and Tenants' School	West Ham Education Committee	W. Jacques, A.R.I.B.A., 2, Fen-court, E.C.	,, 20
Shepshed—Alterations to Charnwood-rd. Baptist Chapel		Barrowcliff & Allcock, Architects, Town Hall Chmbrs., Shepshed	No date
South Ferriby, Hull—Sunday Schools		J. Dawson, South Ferriby	do.
Pontefract—Washhouse at Cottage Homes	Newcastle-on-Tyne Guardians	Gladstone Walker, Clerk, 127, Pilgrim-street, Newcastle-on-Tyne	do.
Cardiff—Block of Office Buildings, James-street		Henry Budgen, F.R.I.B.A., 95, St. Mary-street, Cardiff	do.
Hoole—Adding Aisle and Vestries to All Saints' Church		Douglas and Walley, Architects, 6, Abbey-square, Chester	do.
Yarmouth, I.W.—Repairs to St. James's Church Tower	Churchwardens	Harry Mills and Sons, Yarmouth, Isle of Wight	do.
Tickhill—Seven Cottages		Mrs. Swindin, Westgate, Tickhill	do.
Rowlands Gill—Two Houses at Highfield	Burnopfield Co-op. Society	A. C. Wood, Architect, Burnopfield	do.
Shipley—Detached Residence, Staveley-road	J. R. Fyfe	W. Wilcock and Son, Architects, 9, Leeds-road, Bradford	do.
Rowlands Gill—Four Cottages at Highfield	Burnopfield Co-op. Society	A. C. Wood, Architect, Burnopfield	do.
Patricroft—Renovating Premises	Mechanic's Perm. Building Soc.	J. Morgan, 16, Gwalia-terrace, Hanley, Staffs.	do.
Leeds—Picture Pavilion, Dewsbury-road		G. F. Bowman, Architect, 5, Greek-street, Leeds	do.
Easington—Business Premises	C. W. Powell	James Garry, F.R.I.B.A., 47, Church-street, West Hartlepool	do.
Buxton—Bungalow, Staden-lane	H. Perks	G. E. Garlick, Architect, Quadrant Chambers, Buxton	do.
Bingley—Detached Residence		Nuuns and Bracewell, Architects, Bank Chambers, Bingley	do.
Adwick-le-Street—Factory Buildings		W. H. Wagstaff, Architect, 4, Priory-place, Doncaster	do.

ELECTRICAL PLANT.

Annfield Plain—Electric Installation at Electric Theatre	R. J. W. Bloom	L. H. Armour, 16, West-street, Gateshead	Jan. 23
Adelaide, Australia—Insulators	Deputy Postmaster-General	The High Commissioner, 72, Victoria-street, S.W.	,, 25
Antwerp—Arc Lamp Carbons	Municipal Authorities	The Burgomaster, Hotel-de-Ville, Antwerp	,, 24
Sydney, N.S.W.—Elevators	N.S.W. State Railways Admin.	The Chief Commissioner, N.S.W. State Railways, Sydney, N.S.W.	,, 30
Sydney—Pole Protectors		The Deputy Postmaster-General, Sydney	Feb. 1
Bacup—Cables	Corporation	Joseph Entwistle, Town Clerk, Bacup	,, 5
Sydney, N.S.W.—Arc Lamp Carbons	Municipal Authorities	The Town Clerk, Town Hall, Sydney, New South Wales	,, 6
Calcutta—Switchboards	Electric Supply Corporation, Ltd.	Francis R. Reeves, Sec., Salisbury House, London Wall, E.C.	,, 6
Melbourne, Australia—Ironclad Indicators (250)		The Deputy Postmaster-General, Melbourne	,, 7
Barnes—Plant	Urban District Council	C. S. Davidson, Engineer, Electricity Works, Mortlake, S.W.	,, 13
Bromley Cross—Overhead Mains	Turton Urban District Council	R. B. Leach, Council Offices, Bromley Cross, near Bolton	,, 20

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Royal Institute of British Architects Tite Prize Competition for a Campo Santo: Selected Design. By Mr. George Herbert Foggitt. ("F. 13.")

Agricultural Buildings, Cambridge University: showing Additions. Mr. Arnold Mitchell, F.R.I.B.A., Architect.

House at Highgate. Mr. Arthur Keen, F.R.I.B.A., Architect.

The Approach to the Mall facing Trafalgar-square. Sir Aston Webb, R.A., Architect. Drawn by Mr. Harold Oakley,

National Competition Prize Designs for Chairs. By Mr. Percy G. Massey.

Stoke-on-Trent Town Hall. Messrs. Wallis and Bowden, Architects.

COMPETITIONS WITH AND WITHOUT PROFESSIONAL ASSESSORS.

"To draw patterns for ruffles, which I had not materials to make up," is the first item in Lady Teazle's account of her evening amusements as a girl; and "to make patterns for buildings to which I had not influence enough to be appointed architect," might be many a young man's account of the way in which his best years glided away, not entirely without satisfaction, though totally without result. The mere making of patterns, the simple drawing of designs, especially when there are rival pattern-makers and designers, has in itself a wonderful power of satisfying the aspirations of the mind, and, here, in fact, those deceptive functions called "competitions" find their origin and their excuse. In reality, if not in form, there are competitions in all the arts, literary as well as other.

> Twice in ten years the greatest living poet.
> Like to the champion in the fisty ring,
> Is called on to renounce his claim or show it,
> Although 'tis an imaginary thing.

So Byron wrote nearly a century ago, and Time would fail us to give even a bare list of the poets who since Byron's era have appeared for a little while, and then vanished away: the Tom Moores and Southeys, the Robert Montgomerys and the Tuppers, and many more men and women "whose names on earth are dark," as well as the smaller nebulæ, like Shelley, Keats, Coleridge, and Wordsworth, who were but misty stars then, and who now shine with steady and unceasing light. In the architectural world it is the same. Pugin and Barry are where they always were. Scott, whom the world ignorantly worshipped, is now better measured, and shows one where he was least estimated, as a man before his age; and where he was most applauded, as a man rather behind it. Burges and Brooks, two able architects who perhaps had the world against them, and who, like Edward Godwin, never had the chance of doing a fraction of what they might have done, did much for their age by their teaching and their example, if not for themselves by their works. And Street and Pearson and Blomfield, to say nothing of those who are still living, are best known to-day, as architects are apt to be, by the bigger works they built much more than by the best ones. The fact is, people grudge the time which architecture needs to produce it. When they get an able man, they cannot find it in their hearts to allow him breathing space enough fairly to bring out the good that is in him. Either he must starve, or he must flood the world with half-perfected ideas, and with thoughts which, if they had been only left to ripen, might have been equal to those of greater artists in the greatest ages of art. We are rarely allowed time enough to produce good work, and when we are allowed time enough, we are not allowed money enough, and so have to turn to all sorts of casual and temporary trades, were it only "to earn the wages of going on."

Our aim to-day, however, is not so much to show what the world wastes by always picking its fruit before it is ripe, and carrying its hay before it is forward enough even for fodder, as to see how some good can be got out of the wretched competition system without much change in present conditions. Architects, as everybody knows, are not satisfied with competitions under the present conditions. Except for very large buildings, indeed, oftenest even for them, *open* competitions are predestined failures. Limited competitions are often limited to the wrong men, and both the open and the limited are too often gained not by the best men, but by the best-befriended ones. It is a burning shame that even before a competition is begun a multitude of people commonly know quite well who is foreordained to win it. This sometimes—it is said often—happens with buildings like churches and chapels and schools—with places which, if any places are, ought to be sacred and set apart to all that is true and honest, righteous and fair. How many of these are only whited sepulchres, clean and spotless to the view, full within of dead men's bones and all uncleanness? Eight or ten architects are invited to compete, for a building whose like, perhaps, only two or three of them ever attempted to design. So five or six of the designs are devoid most likely of all originality, except that hopeless originality which pertains to a person who is dealing with a subject he does not in the least understand. The competition is practically limited, therefore, for all the good that can come out of it, to three or four designs, perhaps to less. If there is no independent assessor, the decision will rest mainly with those members of the Council, or Board, who know, or suppose themselves to know, something about building; the one-eyed men, probably, who have taken upon themselves, for the moment, the duty and dignity of being kings of the blind. So for a while they are high and lifted up. It is theirs, they feel, to set up one competitor and to put down another; and whom should they set up except the local architect who can oftenest invite them to tender? And whom should they put down except the outsider, who may seldom have the opportunity, or even the wish, to play into their hands? So the outsider, good as his scheme may be, finds more help from his practical brother; and the decision comes perhaps in the end rather from the voice of Mr. Consistency than of Mr. Stocks, or, as it sometimes happens, of Mr. Shuffs. Mr. Consistency, like the good man he is, prides himself much on always following the "leadings of Providence," and having noted that the W's and M's on one set of drawings strongly resemble those of that devoted Sunday-school teacher, his good friend, the other local architect, Mr. Brown, decides to vote for him without more ado. Mr. Brown's design may be a poor thing; but it is *not* his own. It is a general mixture of all his stale elevations (for Mr. Brown does not trouble himself much about sections) which have made themselves beloved by the Council or the Board by appearing in all the illustrated papers or Year-books or handbooks from which they got their ideas, since a time before which the memory of man reacheth not. It is, therefore, thoroughly hackneyed and soundly orthodox. Everybody has seen it before, bit by bit, and therefore everybody is content to see it again, all hashed up together;—everybody, that is, in this little clique, which is never so well pleased with itself, and never so sure that it is doing exactly the right thing, as when it is turning out for the hundredth time this soulless selection of sect-sanctified deformities, and forcing the outside world to wonder whether the monotonous series is never to end.

Now, if there had been a competent and independent architectural assessor, none of these things would have come to pass. Nor would he, as the "Browns" and "Shuffses" and "Consistencys" have been warning us of late in their chosen paper, have forced on the Council or the Board or the Committee something that it would not at all answer their purpose to build. For it is not at all the assessor's duty to say, "This is the best design, and you must build it"; but, what is a very different thing—namely, "This architect has sent in the best design, according to your conditions; therefore, in fairness and common honesty, you are bound to employ him." You can get him to alter the work where you think it inconvenient, and to adapt it in all sorts of ways to your requirements; but there really is no reason for cheating him out of it, and giving it by fraud to someone who happens to have religious ideas like your own or what you, perhaps, think more serious just now—political ones. Get a strong assessor, a competent one, and a just one, and give the work to the architect whose design he approves as the best under the

conditions you have laid down. If you are wise, you will select your assessor first, and consult with him before you settle what, exactly, the conditions are to be. Of course, it is a primary condition that in no case shall the assessor himself, or anyone connected with him in business, become the architect [illegible] building in question.

One sometimes sees very rigid rules laid down, for the purpose of shutting out the Council or the Board, or whatever it is that has to appoint the architect, from any possibility of identifying the authorship of the competition designs. There are to be no mottoes, no marks, no handwriting. Descriptions and estimates are to be typed, and sometimes the very drawings must not have mounts or borders. The motive for all these restrictions is usually a good one; and if the Committee and each of its members really don't want to know who's who, they will probably prevent them from accidentally finding it out. But suppose a competitor wants to be recognised, and has a friend on the Board ready to recognise him, there are a thousand ways by which, in spite of all rules, he may make himself known. A blot of ink would do it; a tear or a scratch would do it; the mere sending in of that competitor's plans a day or two before the time would do it. The ways are endless. And suppose, on the other hand, some member of the board were a curious soul, who before he appointed an architect was determined to know what architect he appointed (and such souls abound), how easy for him to look in casually when the drawings are in progress at the office of the architect who chiefly interests him, to see what his design is like, and to know it again when on the walls of the exhibition-room! Cheating in competitions is as easy as cheating at cards, and as disgraceful, and the only known way of preventing it is by appointing a capable and independent assessor, and giving the work to the man whose design he deliberately selects as the best under conditions laid down for competitors to fulfil.

Information about assessors' fees may be obtained from the Secretary to the Royal Institute of British Architects, Conduit-street, Regent-street, W. They depend, to a great extent, on the cost of the building for which an assessor is desired.

THE NATIONAL PORTRAIT SOCIETY.

The inaugural exhibition of this new society at the Grafton Galleries is a fairly promising one the proportion of modern British portraits being respectably adequate, though the chief interest probably centres in the works of foreign and deceased painters. Among the former are J. E. Blanche's "Sir Andrew Noble: Study for a Portrait," P. A. Laszlo's "Mrs. Glasgow," "J. H. Van Loon," and "My Son, Paul," P. Bertieri's "Portrait Study" and "Sam Sothern, Esq.," and the sketches of "Mdlle Dasio" and "De Edelman," by L. Samberger. There are also some characteristic examples of De la Gandara's cleverly painted but somewhat mechanical efforts.

The most noticeable of the portraits by deceased artists are those of "Mrs. E. C. Benides" and "Mrs. M. B. Mannel," by G. F. Watts; the Whistler portrait of Luke Ionides, Esq.," one of that master's earlier performances, and neither particularly interesting nor specially important.

The modern portraits include no exceptionally remarkable works, but the average is decently high. Mr. Sargent is represented by a head of "Lawrence Harrison, Esq.," a pleasant "Portrait of Lady Agnew," and a water-colour sketch, "In a Gondola." Mr. P. W. Steer sends a "Portrait of Mrs. Geoffrey Blackwell," Mr. W. W. Russell two pictures, "Camilla" and "The Book," Mr. William Orpen a full-length "Portrait of a Lady" and a smaller painting of "Master Spottiswoode," and Mr. W. Nicholson a full-length of "The Right Hon. the Earl of Plymouth, P.C.," a painting of a young boy, "Arthur Essex Edgeworth Reale," and a half-length of "The Master of Christ's." Of the rest, we direct attention to "Lady in Black and Silver" and "Miss Lena Ashwell," by Mr. Glyn W. Philpot; "Mrs. H. B. Craig," by Mr. Frank Craig; a portrait of "J. G. Bartholomew, Esq., LL.D.," by Mr. E. A. Walton; a group, "Archibald Benn Duntley Macomochie, with his Mother and Sisters," and a costume study, "Moina, the Moorish Girl," by Mr. Lavery; a "Portrait of Mrs. Emil Mond," by Mr. W. B. E. Rankin; and a couple of pictures of "Miss Molly Tisdall," by Mr. G. Spencer Watson. Mr. W. Strang's "The Red Fez," Mr. Richard Jack's "Brother and Sister," Mr. Harris Brown's "Major-General the Lord Congleton, C.B.," and "Lady Gwendolen Guiness," Mr. Laurence Koe's "Lady in Black," Mr. Harrington Mann's "Kathleen," Mr. W. J. Von Glehn's "Le Dejeuner," and Mr. Grieffenhagen's "Princess Badroulbadour" are all interesting. Mr. Harold Speed's "Mrs. Roland Holloway" is attractive; Mr. George Henry's two portraits and his small picture, "Light," are pleasing; and Mr. Gerald Kelly's "Mrs. A. G. Anderson" is the best of a series of canvases by which he is represented. Of the other things, the best are Mr. Austin Brown's "Harvesters," Mrs. Rackham's "Reflections" and "The Locket," Mr. Dacres Adams's "Mrs. Dacres Adams," and the little half-length of "Mrs. George Alexander," by Mr. W. Graham Robertson. There are good drawings by Mr. Francis Dodd, Mr. Spencer Watson, and Mr. Harold Speed; two little etchings by Mr. Theodore Roussel, and an interesting collection of sculpture by M. Rodin, Mr. Drury, Mr. Derwent Wood, Mr. Stirling Lea, Mr. Basil Gotto, Mr. F. W. Pomeroy, and Mr. Jacob Epstein.

A new electric theatre, accommodating 600 persons, is to be built at the corner of Nicholson-street and Hill-place, Edinburgh, from plans by Mr. Hippolyte J. Blanc, R.S.A., F.R.I.B.A., of that city.

Messrs. Chambers and Fritchley, architects, have prepared plans for the construction of the locomotive offices for the Great Indian Peninsula Railway at Parel, Bombay, and designs for the main building have been got out by the firm.

The partnership hitherto subsisting between Henry Charles Camm, John Matthew Camm, and James Frederick Peach Camm (trading as Camm and Co.), High-street, Smethwick, artists in stained glass and ecclesiastical decoration, has been dissolved.

The opening of St. William's College at York, which has been restored at the cost of the Churchmen of the North, will take place next month. The building, when opened, will provide ample accommodation for the Upper and Lower Houses of Convocation, and for the House of Laymen, each in its separate hall or chamber.

The infirmary at Southport is being extended by the erection of a block facing Curzon-road, at a cost of £5,000. It will consist of four small wards, containing eleven beds. When this work is completed, some of the existing small wards will be converted into dining rooms, nurses' sitting-room, etc. The architect is Mr. F. P. Halsall, A.R.I.B.A., of Southport.

The new Central London Recruiting Station in Old Scotland Yard, Whitehall, will be in occupation in about two months' time. It is a lofty building of purple brick and Portland stone, with warm red-brick facings to the windows. The building includes a covered drill-hall, and separate cubicles for the recruits while they are waiting to be drafted to their various regiments.

STOKE-ON-TRENT TOWN HALL.

During the last twelve months the extension of the town hall at Stoke-upon-Trent has been carried out in reinforced concrete, from the designs of Messrs. Wallis and Bowden, of Queen Anne's Chambers, Westminster, S.W. The building has now become the town hall for the combined municipalities of the Pottery district. The whole site has been covered with a reinforced raft, which is 11in. thick as a rule, though where heavy loads occur and where there are considerable distances between the walls, thus rendering beams a necessity, the slabs between these beams are reduced to 6in. thick. Where these slabs and beams have more than two supports they have been treated as continuous structures. This is the condition of affairs underneath the columns of the gallery of the great King's Hall (with which our illustrations principally deal), which is of a size to seat 3,500 persons, and under which the foundations are designed not merely for present needs, but also to resist injury from possible settlement in case of the ground beneath it being mined at some future date. Thus it will be seen by reference to Fig. 1 that the concrete beams connecting the gallery columns are 21in. by 13in., reinforced on the Kahn system with 1in. straight trussed bar 15ft. long, and four rib bars, respectively ¼in., ⅜in., 1in., and ⅜in. diameter, and 11ft., 4ft. 3in., 10ft., and 4ft. long, bent as shown in the illustration.

This reinforcement is all at the bottom of the beam, which also contains two 1in. trussed bars, 9ft. long, in the upper part of its section, extending to different lengths on either side of the longer columns. The whole beam, it will be noticed, is carefully designed to spread an unequal load evenly over the surface below.

The gallery columns are circular on plan and 13in. in diameter, each being reinforced with six ¼in. rib bars, 17ft. long in the higher columns, and 14ft. 6in. long in the shorter ones which support the lower end of the balconies. These are wired with ⅛in. diameter hooping at 10in. centres, and there are also six ¼in. rib junction bars at the base, hooked in to the concrete of the raft girders, which are each 2ft. 9in. long.

The galleries are carried upon these columns by a complicated and clever system of beams and cantilevers, as will be seen in Fig. 2. The detail section B B indicates that there is a reinforced template 2ft. 9in. long, and 12in. by 12in. in section, containing bent rib and trussed bars, while the general drawing shows that the inner columns carry heavily-trussed girders, with trussed bars both in the top and bottom, the total section of these girders being 26in. by 13in. The bent string girders, made to slope with the gallery, and carrying the gallery steps, are themselves intimately connected with these large reinforced girders, and are designed with varying depths, according to requirements, but always 12in. wide. The reinforcement, too, is exceedingly irregular, made up of trussed and ribbed bars as needed. It is impossible to tabulate or describe how these bars are arranged; but the drawing is explicit and sufficient to indicate what is done to anyone who is accustomed to the calculation of stresses in continuous girders which are carried out beyond the outermost support as cantilevers.

Each riser of the gallery steps has a total depth of 15in., and is designed to act as a girder; it is 4in. thick, and contains one straight ½in. trussed bar and one bent ½in. ribbed bar in the bottom, in addition to one ½in. trussed bar in the top, while hangers are also introduced. The treads, if they may be so called, of the gallery, are 2ft. 6in. long net, having a total length of 2ft. 10in., including the connection with each 4in. riser. These are 3in. thick, and are reinforced with ⅜in. rib bars at 14in. centres, and 2ft. 8in. long.

The gallery front, like the risers, is reinforced, and serves the purpose of a beam carried on the ends of the cantilevers. It has one 1in. trussed bar at the top, and another similar ⅜in. bar at the bottom, connected with another by ¼in. hangers. There are also two ⅜in. rib bars introduced horizontally

STOKE-ON-TRENT TOWN HALL: PORTION OF DETAIL OF MAIN ELEVATION.

at intermediate positions between the top and bottom. Connection is made with the floor slab by ½in. rib bars at 10in. centres.

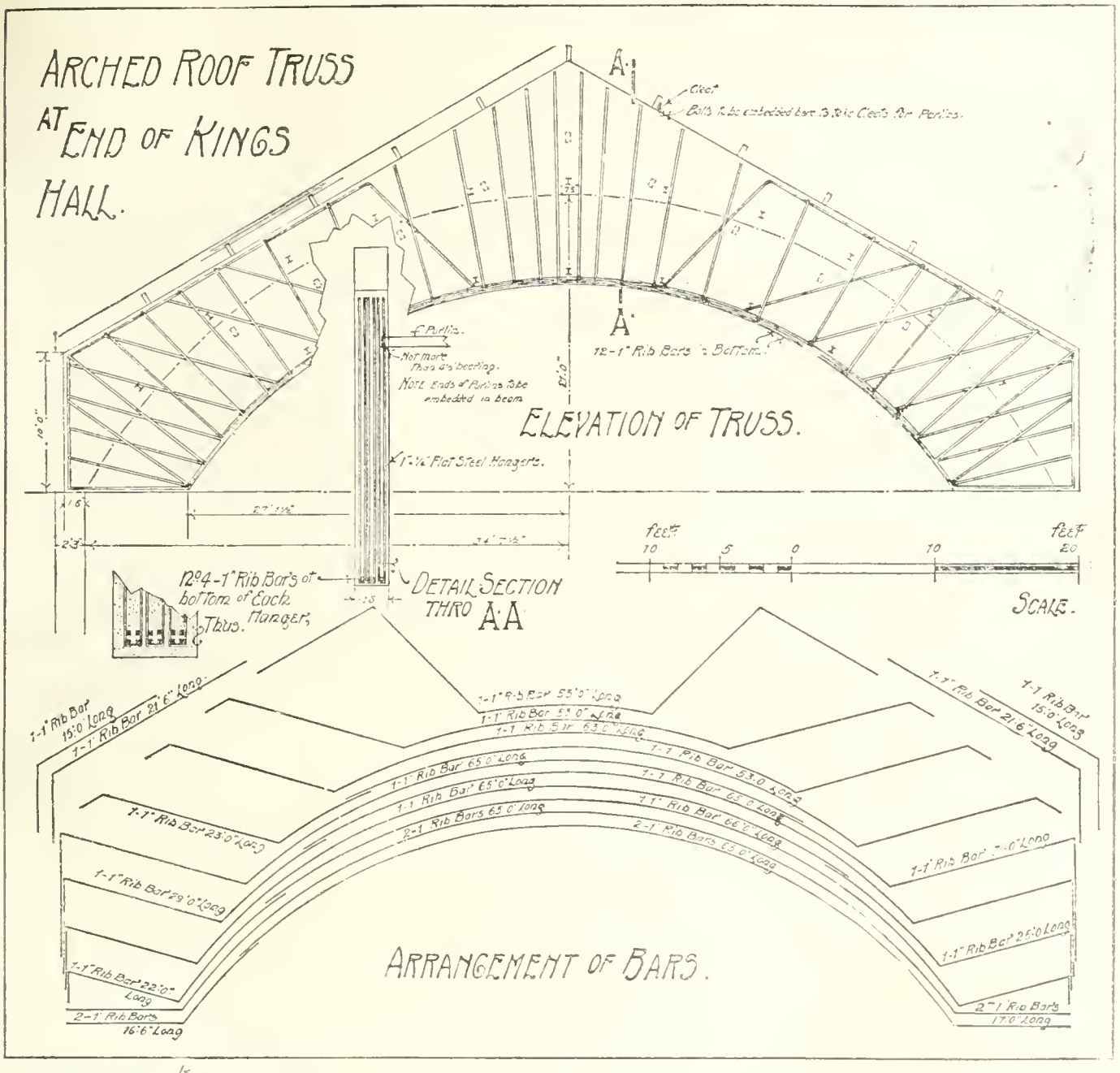
The principal feature of the roof is the truss over the proscenium opening, and a similar truss at the other end, of which careful drawings are given in Fig. 3. This truss is segmental on soffit, and has a wide bearing upon the wing walls, but on the extrados it follows the outline of the roof, after rising vertically for 10ft. The net span between the wings is 27ft. 1½in., and the gross span between the walls 34ft. 7½in. The reinforcement, as indicated both in elevation and in the detailed section through A A and the further enlarged section of its lower portion, is apparently heavy, there being no less than four 1in. rib bars at the bottom of each of three hangers, making up a total of 12 square inches of metal. The method of distribution of this large amount of steel (which is all bent round the arch, and much of it turned in various directions through the concrete up towards the top) is exceedingly clearly shown in the dismembered drawing of the arrangement of bars, which indicates the shape and position of each one. Besides these bars in the bottom, there are also two similar bars in the top, near each abutment, one of these being 15ft. long and the other 21ft. 6in. Ordinary wooden purlins are carried on the beam, in which the ends are embedded, as also are bolts to take cleats for attaching the purlins to.

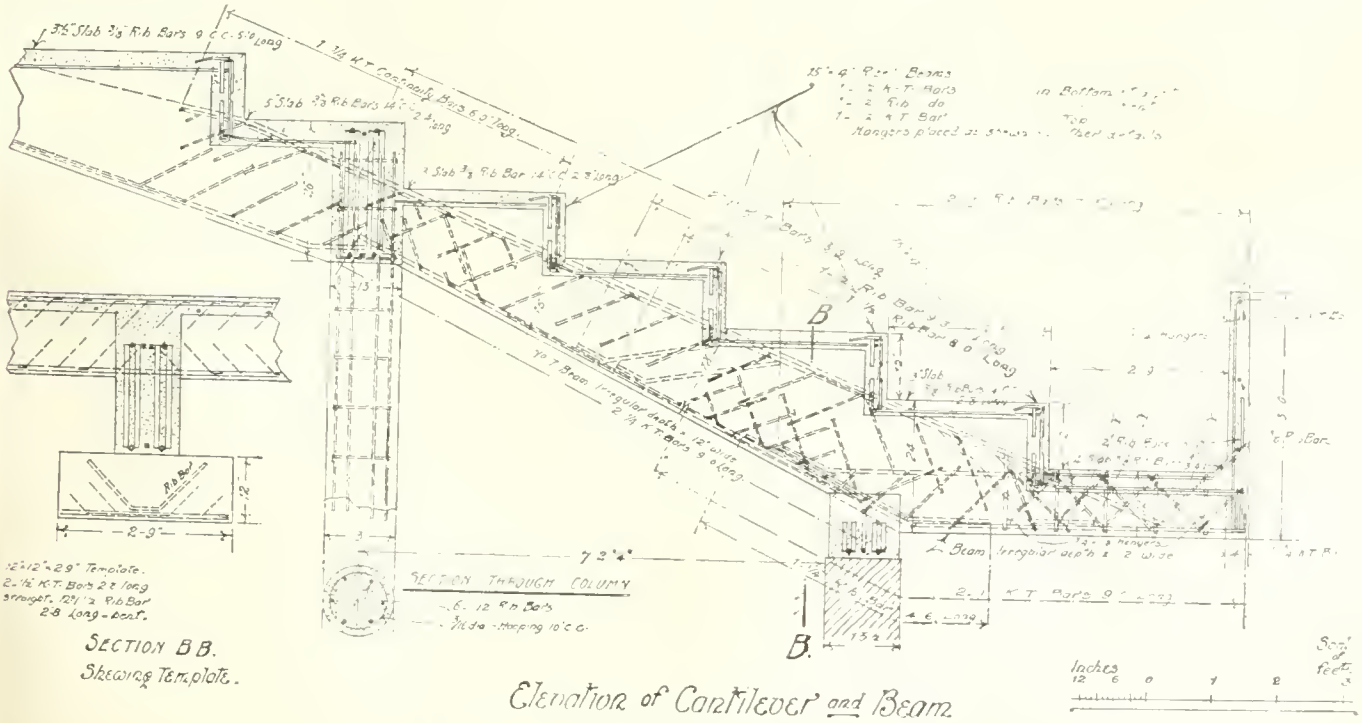
The building is now fairly well advanced, so that photographs can be taken of a considerable amount of the decorative work. Some of these we are publishing in this issue.

GENIUS IN ART.

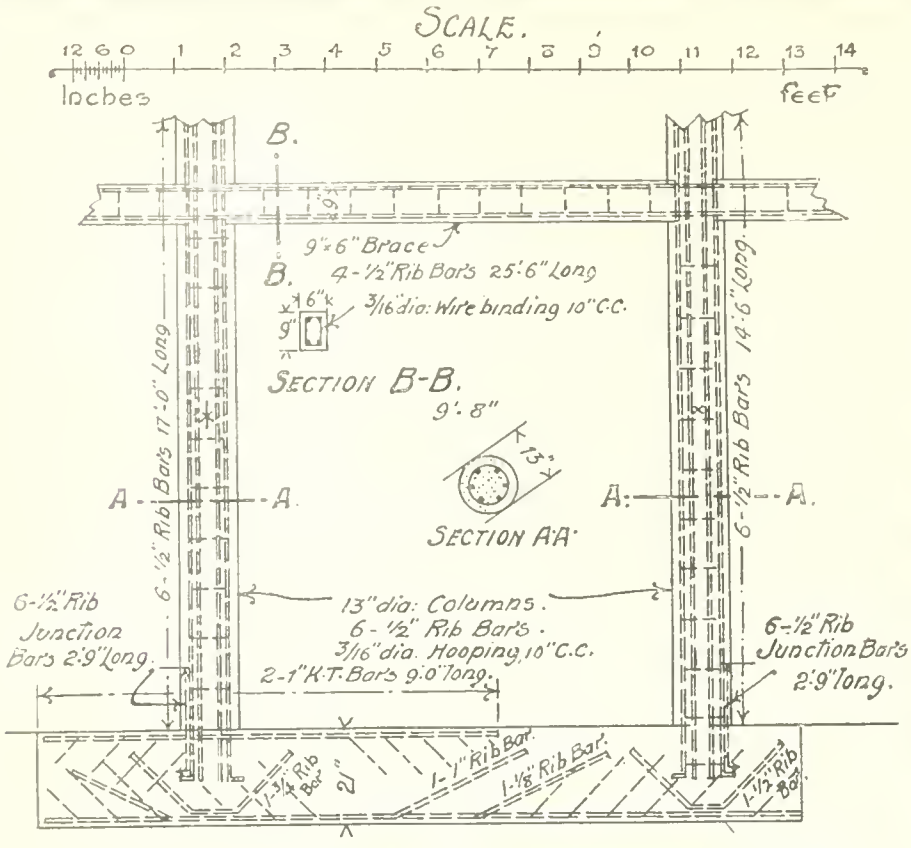
Sir W. B. Richmond, in concluding his series of lectures to the students of the Royal Academy on Friday, said genius had been thought by the Greeks to be a state of extra-

STOKE-ON-TRENT TOWN HALL, SHOWING CONNECTION WITH OLD BUILDING.



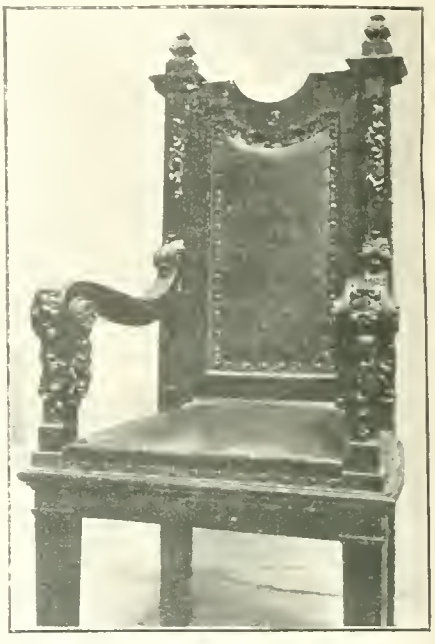


STOKE-ON-TRENT TOWN HALL.



DETAIL OF FOUNDATION TO GALLERY COLUMNS:

STOKE-ON-TRENT TOWN HALL.



ONE OF THE ALDERMEN'S CHAIRS.

story of the human race, which he illustrated in abstract humanity. In all this work there was no splash, no accident, no forcing for effect. The whole was smooth as ivory, delicately elaborated, and would bear the closest inspection. But Michael Angelo's dream was not realised. Whose was? He commended the study of this great artistic genius to his hearers as a means of enforcing the grave responsibility that fell on them; for they should aspire to be not only painters, but teachers and philosophers as well, and should determine that all that was true in them should shine through what they did.

THE ARCHITECTURAL ASSOCIATION.

The forthnightly meeting of the Architectural Association was held at the headquarters, 9a, Tufton street, Westminster, on Monday evening, the chair being occupied by the President, Mr. Arthur Keen, F.R.I.B.A. Messrs. W. J. Allcorn, G. W. Capes, and H. G. Wicks were elected as Members. On the motion of the President, votes of thanks were passed to Mr. Andrew Oliver for presenting to the photographic collection a number of slides and negatives; and to Mr. Ernest Runtz for his donation to the library of thirty two volumes of the "Revue Generale de l'Architecture," by M. Cesar Daly.

THE ATELIER V. THE BUILDERS' YARD.

Mr. Theodore Fyfe, F.R.I.B.A., read a paper on this question. In his introductory remarks the author referred to the papers on the subject read before the Association by Mr. Harry Wilson in 1899, and by Professor Beresford Pite in 1900. A much more recent lecture on the topic was given by Mr. R. W. Schultz before the Birmingham Architectural Association, who asserted that day school or theoretical training was not going to make for good building; in fact, he was not hopeful that a good general type of modern building would be seen until all architects were abolished, swept away, root and branch. And then he went on to say that the craftsman could, and should, be taught to do the architect's work in addition to, or as part of, his own. Further, he pleaded for a practical basis in the training of youths. "Send them first to do work and see work done, and to learn and know about the nature of materials, and their putting together; teach them architecture as engineers are taught. Don't bother too much about design." The first part of this quotation, said Mr. Fyfe, is quite too big a subject to discuss here. I would only ask, What about the interregnum if architects are to be swept away? And, supposing that could be bridged, would we not find that our great modern buildings would, of necessity, fall into the hands of engineers, with craftsmen to work for them merely as superior decorators? I say "of necessity," because it is surely inconceivable that craftsmen could be entrusted to take up the problems of design, in its larger sense, involved in our great modern buildings. They might contrive fine bits here and there, even whole departments of a large building, which, when one thinks of it, is perceptible in a lot of old work; but one could surely get no great building, fine throughout, on such principles? Now, let us turn to Professor Pite's paper. He discusses precisely the same question, a possible revival of the crafts for all practical building needs; but he finds no solution therein. He admits that the minor or "decorative" building crafts are already on a sound footing.

THANKS TO WILLIAM MORRIS CHIEFLY.

"But" there I quote him) "the major crafts of building construction are still outside the pale of their decorative sisters, and, indeed, are dependent on the master architect's training, and upon his paper and pencil, for their usefulness or their beauty. We observe the signs of 'revivification' in subsidiary cases; are there not prospects and hopes for the greater ones?" He sorrowfully admits not, and says later:—"The architect, whether he wills it or would have it otherwise, is compelled back upon himself and upon his own intuition and experience, for all discernment and expression of the material and its craftsmanship. The architect at the present day is indeed the designer and master-craftsman. He goes backward to the status of the actual workman to bring his work forward to the point of true architecture." I think we will all agree there can be no real building without precise and intimate knowledge, and I would further submit there can be no great building, what we call architecture, without a wide knowledge of tradition, and example. The big man is not confused and crowded out in knowing all he can that assists his work, and in seeing all he can that has been done elsewhere. We can have no great national style without first having international experience. The only true receptivity is that of the large, healthy, creative mind. Recognising this, one feels it impossible to tie oneself down to either an atelier or a builder's yard. In the Paris Opera House, certainly one of the greatest buildings of modern times, we see the perfect flower of the system that produced great Prix de Rome men; we see a modern academic design, a design founded on the approved training of the schools in France; but we see much more than this, nothing less than a great building that any builder, properly so-called, who loves his craft, would joyfully participate in; and we see a thing beautiful as an organic whole, within and without, the marvellous creation of a truly great architect. The academic and the practical must co-operate to produce such a building as this. In any consideration of this subject one is bound to come full tilt against old work. Its claims are always sufficiently in evidence, and need no apology. It is right thinking about it in the mind of the student that is essential. On the one hand, he must recognise that we have lost

tradition in the sense that the great Mediæval builders had it. Nothing could have produced

SUCH GREAT WORKS AS THE WEST FRONT OF RHEIMS

except a religion that was childlike in its trust and firm faith—we dare not believe anything else—and an instinctive hold on tradition. Perhaps it is because we have lost both, in the sense of the earlier builders, that we are utterly unable to clearly comprehend how their greatest works were raised, and flounder about between the one-man theory and the theory of the many workers, more or less inspired. We know that we find it supremely difficult, if not impossible, to do similar work that has the same extraordinary homogeneity and singleness of tone. So the student should realise what tradition means, and his own relationship to it. On the other hand, he must recognise that the needs of his time demanded of him a training in the most frankly intelligent criticism of the whole modern outlook, a criticism which leads to the appreciation of what he has been trained to regard as the *best*. He must realise that his achievement is a thing of thought based on a principle of selection as thorough as it is ruthless; thorough, because he must have principles, the more the better; ruthless, because there is a mass of undesirable opinion hanging about the whole game, something which clouds the issue, losing many a man in shallows, uncertainties, and weak work. To say about a method of doing something, "This won't be satisfactory: it was done at So-and-so, and was bad," may sound pedantic, but it is the right spirit. This is the true liberalism of art, which can advance, not because it despises, but because it fears and knows; not contempt, but knowledge, is what we want. The mass of undesirable opinion before referred to hangs particularly about the subject of old work. Those who make a fetish of it, because it is old work, are largely responsible for this. Setting one's face against such an attitude does not necessarily mean that the student is a foolish iconoclast. It is only ignorance that is abusive. But, you will ask, What is the training that will enable the student to appreciate only the best, and of what does the best consist? Now, here, I think, is the value of the atelier; for it is only, it seems to me, by some such system as the atelier that we are able to find an answer to this most important question. It is through lack of real, systematic, profitable training in design that most of the educational systems in this country suffer—not so much in design, perhaps, as in principles that govern design. An architect must most emphatically be trained in certain aspects of the theory of his art, just as certainly as the musician. The two arts run parallel, and are very similar in this respect. The gain to the student is immense when one is able to point out the world that lies before him if he is able to recognise that certain proportions and rules —which are at least as old as the Greeks—are discoverable in all great buildings. To the free and elastic mind this will not become a fetish; far from it: it will recognise the limitations of all rules; but, on the other hand, it will gain immensely in stimulus by adding, bit by bit, and will advance thus by real experience. The old weapon, having served its day, will form part of the armoury if it is sound, and be thrown away if it is bad, and a newer and better one will take its place. Here, again, ought to be progress.

THE STUDY OF STRUCTURE

is something which appears to be more intensely modern than any other aspect of the question; but is it so very modern, after all? Here is our "builder's yard," but much more. On the one hand, it is all that old work can teach us, as material evidenced in architecture; and, on the other, it is the engineer's table, the plumber's shop, the mason's yard, the multitudinous crafts that appear in a really great building. It is just this about the Paris Opera House that fascinates. This is the ideal, but how seldom achieved! And now, when I speak about the "builder's yard," it is perhaps hardly necessary to explain that I mean by it the extreme that it represents—the view that the young architect must learn to handle tools himself before he can build aright; that he must be a plumber, or mason, or carpenter, and, if possible, all of them, in some measure, if he is to have that intimate knowledge of material that alone produces good work. Here I will state my own position. I recognise that the architect needs this intimate knowledge, this subtlety of appreciation in material; the knowledge that can enable one man to build a beautiful gable in brick while another, with exactly the same bricks and exactly even the same form of gable, produces something which is quite ordinary. But where I demur is in believing that architecture is only this, and that there is not another, and larger, side. To do the exponents of the "builder's yard" justice, it is only the narrower among them who really believe the contrary, or act as if they did. It is this pernicious hatred of the Renaissance, and of all that people are pleased to call sham building (which in some form or other is as old as any building that ever was), this one-legged theory that the column and the order are a damned thing, that is responsible for half the mischief. All building is surely part of some great craft, the greatest constructive craft there is, whether it be evidenced in a Surrey cottage or in Westminster Cathedral: the one is but the other in little. Thought, care, selection, and trained experience are requisite for both, though the relationship of parts to the whole is somewhat different in each. It is at this point that we appreciate the fascination of Professor Lethaby's remark. "Design," he says, "is merely contrivance, the doing of work in an ordinary way, just like cooking." On the other hand, has not Professor Lethaby been lately much occupied with the principles that underlie Greek building? But though all architecture, large or small, is one craft, it seems to me we must appreciate that large, formal, ordered buildings demand a more rigid preliminary process in the mind of the architect than smaller work does. We in England have lost a tradition of academic style for large buildings. France has retained such a tradition, or, at least, built up a modern one of its own; but then in England we have a much surer hold on the whole intent and meaning of smaller work, such as domestic and church buildings. Our best work in these directions is not imitative; it is really part of the national life. To design such work there is

MUCH TO BE SAID FOR THE "COOKING" PROCESS;

but though ordinary contrivance, ingenuity, commonsense, are the basis of all design, whether in large buildings or small, for the great buildings of modern times—our lecture theatres, town halls, art galleries, museums, libraries, flats, railway stations, important commercial buildings—all buildings that can be called monumental, we need, it seems to me, a basic principle, or principles, in our design, and the simplest way I can state it is this: In what way do we relate our processes of thought and draughtsmanship to the actual structure in the execution of large, ordered work? Now, if I may state my own answer, here we want the "atelier," but we want more; for the atelier is only a symbol of modified, not comprehensive, power. Nevertheless, we do want the root-principle of it, and that alone which can make draughtsmanship the means that it ought to be. We want to begin with our subject at its beginning, to work from small to large, to visualise our subject as a whole, on paper, and to keep scale, proportion, mass, harmony before us all the time. We want to work this out to its utmost possible achievement on paper before we touch anything to larger scale; and so pass on from this, and by means of this, to larger and yet larger, till we reach the "full size," making innumerable studies — line perspectives, isometrics, diagrams—by the way. Now, this is the true principle and meaning of draughtsmanship in monumental work, and the most certain process for securing good architecture. And the "more" that I have mentioned, what is it? Simply all that we have in our life—the sum of experience to which our character can owe, Having regard to the conditions of

inform our work. We all know how, after seeing a great picture exhibition, entering some rooms simply irritates us, and entering others pleases and rests. That is just illustrative of character in work, the power that can be gained by one man "thinking back," as Professor Pite says, so that he can truly bring forward. And so, recognising that the architect, to be capable of tackling big work must appreciate the big things, as well as all the little things, is it reasonable to expect that he should devote such individual attention to these little things? Here I would not be misunderstood. Far be it from me to suggest that I call anything little, except relatively. The bigger meaning of it all, which is its right relationship to the whole, must all be understood, or at least intelligently grasped; otherwise there could be no Opera House. The multitude of practical details must be studied thoroughly and criticised with that larger view which is only possible to the impartial mind. Such study will become easier as time goes on, and it can be achieved without the drastic method of apprenticing oneself to a mason. Nay, can it even be properly achieved at all by such a method? That, of course, depends upon the man, but should it be necessary to make it a main plank in our platform? Let us take

THREE GREAT BUILDINGS OF THE PAST

at random; but representative of great periods in building—say, the Parthenon at Athens, Sancta Sophia at Constantinople, and the Farnese Palace at Rome. The two first of these, thanks to the immense value of a traditional style, might have been contrived in the sense meant by Professor Lethaby, though each of them is associated with a great master-builder. The Farnese Palace could assuredly not have been so contrived. Begun by Sangallo, it was seized by the giant hand of Michelangelo and reshaped to his embodying. I do not ask you to argue whether or not it has the same intrinsic purity of style that the other examples I have quoted possess. I simply ask you if it is not a noble building? And, since then, has any great building been erected in Europe without one informing mind behind it? This is a lesson that history teaches us, and that we cannot surely ignore? Since then the times have become more and more complex. The days move with breathless haste. Can we afford, as architects, to lose our grasp on the bigger sway? I would not argue for a moment that we should not throw our students as much into the builder's yard as possible. With that part of Mr. Schultz's paper I am entirely in agreement. But does all history, all experience, teach us that harking back to something which has its roots buried in the beginnings of things will be to our advantage? We may bemoan our lack of the sheer wonder in creative building attained by some of the older men; but the remedy must surely be with ourselves, and not with others. There are those among us who are always bewailing the lack of architectural intelligence in the public. To such I would say, "Don't think so much about other people's shortcomings; think more about your own." The public appreciation of architecture is exactly what we architects care to make it. We, and we alone, have to be chiefly responsible for showing the public —whose needs are in the main intelligible, reasonable, and in the majority of cases absolutely practical that the best building it can get is the most artistic building because it is the fittest for its purposes. I believe this can be done if the architect will put his shoulder to the wheel.

The President, in opening the discussion, remarked that Mr. Pite had opened up a subject on broad and comprehensive lines. He had heard his paper read with a good deal of satisfaction, because the method of training that he appeared to advocate was that which was actually in operation in the A.A. schools, and had been proved by its results to be sound, practical, and useful. It had been suggested to him that in some recent discussions there had been a tendency to stray from the point at issue; he took it that what they had to discuss that evening was, Having regard to the conditions of

age, and the demand for soundly constructed, well arranged, and well designed buildings, what was the right method to follow in the training of the young? Should they be taught by academic methods to deal with building through the art of architecture, or should they be led to approach that art through the practice of building?

Mr W Curtis Green said he verified, for the purpose of this discussion, Mr Fyfe's part sanship [illegible] and been more pronounced, that the argument had been less evenly balanced [illegible] back to appeal to us all. Now [illegible] men, an [illegible] architects were going to criticise in the attention that it deserved. It was well to reflect that though the system was much, it was by no means everything. Those who started life from a pedestal did not always build better than those who had to lay the foundation before they could start building themselves. If it was true that architects were born and not made it was equally true that they were not born ready made. Probably clear thinking would evolve in the near future a system of education that would make some regret their own lack of opportunity. But in the end it was the men that mattered more than the system; they needed the system to raise the whole general average of building throughout the country on to a higher plane; often then it was the full man in whom the root of the matter was planted, who would, whatever his initial mistakes and failures, express in architectural terms the virtue of his time. Many failures could be avoided by more prolonged training; architects were in too much hurry to run into active practice either for financial reasons, or because they were afraid that their friends would not wait for them. Should this additional training be in the atelier or in the builder's yard? In practice the architect must have experienced something of both. So far as the two represented two different schools of thought, he was on the side of the builder's yard. The two schools might be fairly described as the real and the ideal; the real standing for the workshop, and the ideal for the studio. He believed that at the present, and for some time to come, their art would be best served from the humbler side. The idealist had the more lofty pretensions, the realist achieved the most elevating results. Architects have to look at things as they were, not through the mists of fancy, nor with the eyes of an age now past. Some architects had yet to learn that half of the charm of the historic architecture of this country lay in the materials used and in the skill with which they were laid down. Academic architecture failed to win affection, although it might and did inspire unstinted admiration and respect. The reason of this was that the tendency in cold academic design was to overlook the human element in the production. The weakness of modern English architecture lay with the producer rather than with the designer. The British working man was the stumbling block in the path of our best architects. Through no fault of his own, his natural taste for sound craftsmanship had been perverted. He had had set before him the false standard of excellence created by machine labour applied to illegitimate ends. He had learned his lesson thoroughly. The subdivisions of his one-time craft evolved in factories and by trade unions had destroyed both the self respect and the pleasure which he once derived from his craft. To those who believed that the standard of craftsmanship was connected with the well being of architecture, the detached and superior attitude of the atelier had little hope of the future. The architecture that affects mankind most strongly for good had the minimum of drudgery, was produced by labour, inspired by a common tradition, emulating that tradition. Let them have a controlling mind. No great performance in architecture was ever without one; but the master workman must have sympathetic tools, keen to respond to his suggestion, not compelled by force or fear. Part of the architect's calling was to master his tools. Could the conditions in which work was carried out be studied in the atelier? Could they influence or direct the man who crystallised an idea until they learned what he had to teach us about the genesis of that idea? Could we design rightly in materials the properties of which we did not understand and could not learn from books? The whole question of the right and the wrong use of mechanical labour was for architects to pronounce on; where could we learn about it but in the builder's yard? We wanted a living traditional school of modern architecture. Our architects must be craftsmen not with their own hands, though a thorough knowledge of the bench or the lathe in their youth will have done wonders for them, but in the sense that they must know that there is a right way of doing a piece of work and a proper use of the materials at hand.

Mr. W H Ward, M A., felt there was much to be said for both methods of training the architectural student. The only way to get into touch with tradition and to utilise its lesson was by the atelier mode of training. On the other hand, everyone realised the advantages derived from having opportunities of getting a little practical instruction in a workshop, although it was obviously impossible to be an expert with every tool in each trade. The academic system of the Ecole des Beaux Arts was successful in training men to carry out great undertakings, but the smaller French houses seemed to him ghastly failures.

Mr W H Seth-Smith, past president, observed that the advantage of a sound general education was that it taught a youth to learn quickly and to think well, while a professional education showed him further how to make the best use of his general knowledge in serving the community. Lacking such education, a man was handicapped, and if he possessed but an ordinary mind was suited only to become an operative. The knowledge of the history of architecture was vitally important to the architect, as it was essential to the formation of theory and the grasp of principles. He insisted on the immense and vital importance to the student of conviction of sound theory. He was delighted to note the great progress that was being made by the Architectural Association schools, as evidenced in the yearly exhibitions of the students' work; it was obvious that the principles of the art had been threshed out by those responsible for its management, and had been laid down with the greatest possible care. Architecture was imagination, purpose, coordination of thought and purpose, and masonry was its technique. The ideals of the architect must be lofty, or there could be no lasting greatness; but they were not necessarily academic. The excellence of our English domestic and church architecture, alike in small as in great buildings, proved that our system of architectural education was the right one. The fact that, as Mr. Ward had said, the smaller buildings of modern France were unsatisfactory was a powerful argument against the Ecole des Beaux Arts system, and, indeed, a condemnation of it. Most of our English minor works would be pronounced by an unbiassed observer to be beautiful. They could see how workshop training would fail to give breadth of thought if they considered for a moment how the man fresh from the builder's yard would set himself to solve a problem in town planning; it would be impossible for the man so trained to master the difficulties it would present. The same thing would apply to a cathedral. It had been felicitously said of Westminster Abbey, If a mason designed it he was virtually the architect, never mind the name by which he was then known; if an architect, he was in truth a majestic mason. Architects should remember that they were master builders: did they ever know an ordinary builder design a really beautiful edifice? And was the technique of an architect planned building defective? The moral of the paper to the student was think, think, think, on the lines of the old story, "Madam How and Mistress Why." The student should set himself to learn all the time, and make use not only of the atelier but of the workshop; he should master the principles of his art and also avail himself of every opportunity to attend demonstrations in builders' yards and the visits to works in progress. The architect was in the position of a musical composer: it was not necessary that he should be a practical master of any one instrument, but he needed to have the knowledge and imagination to bring the utmost harmony out of every instrument in the orchestra; the architect was, in short, an originator, not an executant.

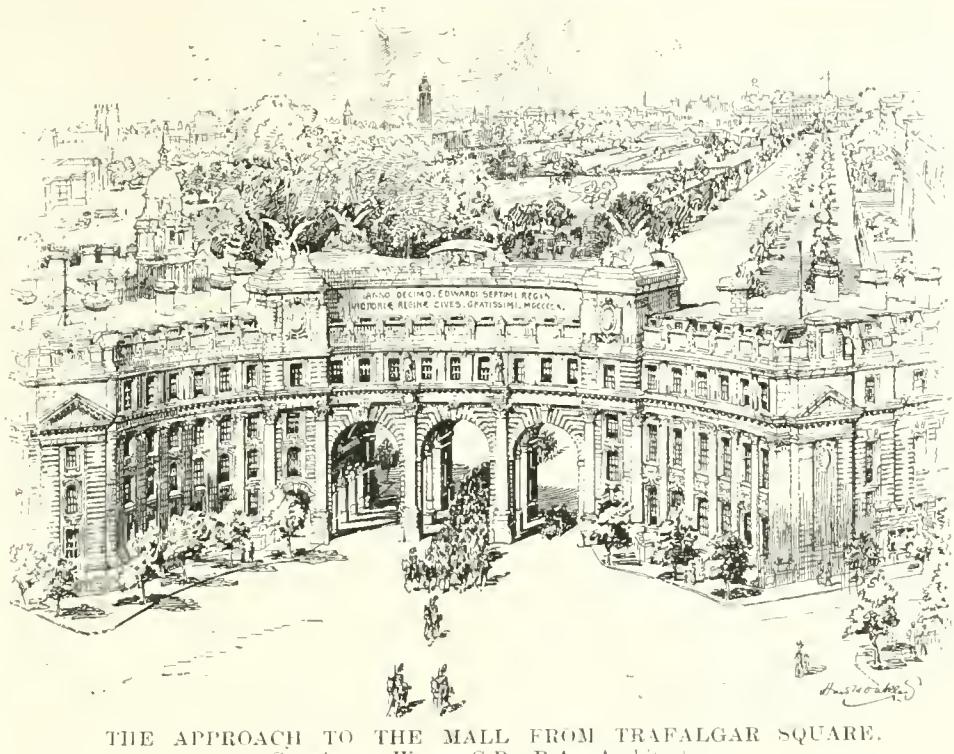
Sir A. Brumwell Thomas said the two points of view presented in the title of the paper were not divergent, but continued would approach an agreement. There was no question in his mind that architectural training must be academic, and it was out of date to put a versus between the study in an atelier and the observation in a builder's yard. Both were desirable, but in the present day more and more scholarship was constantly demanded of the architect. He must admit that most of the seaside houses on the French coast were not successes, architecturally speaking; one noted an exception to the rule near Hardilot, and inquired the name of the architect of so refined and scholarly a residence; "M John Belcher, de Londres," was the reply. In architectural training in France a single and definite method of construction was observed; but in this country a great variety of modes were adopted, and the result was far more satisfactory. In the great buildings the method of the Ecole des Beaux Arts was excellent, because it was soundly scientific, and was continued over a very long term of years.

Mr Louis Jacob said the test of a method of training was in the results produced. They all knew of architects who were fair terrors on works in progress; they would take up the tools of each workman in succession, and show the artisan how he should have wrought. He believed that these architects succeeded in getting buildings soundly constructed and in accordance with the specification; but he had never been impressed with the artistic ability of these craftsmen-architects, as revealed in their buildings.

Mr. G Drysdale said the fault of the French atelier system was that there was too much taste and too little science.

Mr. Walter J N. Millard held that there was no cause to quarrel about either the atelier or the builder's yard as modes of training. A good system of architectural education would seek to utilise the advantages and opportunities of both. The attempt to master the use of all the tools in every trade was too big an order; what was wanted was the architectural student should understand what he was doing—he needed the power to grasp and solve constructional problems, foresight to meet difficulties, insight into requirements, and, above all, that second sight which was but another name for imagination.

Mr. H P. G. Maule thought the title was misleading and likely to produce brain-fog in young men. The architectural student needed training both in design and in practical methods, and every argument was in favour of a combination of the two modes. If they reviewed the most successful works of recently-deceased and living architects, they would find that scarcely one of those who designed these buildings was a skilled craftsman; but in every case they knew their requirements, and were able so to control the trades as to have those requirements met in a satisfactory and scholarly way. Some portion of the training of the student must be severely practical; but there must assuredly be a long education in designing. He claimed that English architects were sanely practical, and that their works would stand comparison with any produced by men exclusively trained either in an atelier or in a builder's yard. From the very first high ideals ought to be held up before the student. He had never found any contradiction between the two modes of training and no difficulty in combining them. They should in teaching avoid such catchwords as academic, but endeavour to establish a broad basis of education from an impartial, human, and English standpoint. The system of secondary



THE APPROACH TO THE MALL FROM TRAFALGAR SQUARE.
SIR ASTON WEBB, C.B., R.A., Architect.

education carried out in this country was, in his judgment, conducted on a wrong principle.

Mr. D. A. Forster referred to the absolute impracticability of learning the use of every tool. After all, the aim of the architect was to evolve a building that met the requirements of his client; all tools, all drawings were but a means to that end.

M. P. Cart de Lafontaine gave some particulars of the French atelier system, which he said was very thorough, severe, and long continued, the period of education extending over the years from sixteen to thirty.

Mr. Gerald C. Horsley observed that several of his contemporaries debated twenty years ago whether they should go into practice on completing their articles or serve time in a builder's yard. Several, like himself, resolved to start as architects, and had no cause to regret it, and of those who determined otherwise, one became a builder pure and simple, and others drifted out of the profession. The student had to look at the question from two sides—that of the interests of his art and that of his own individual interests. He regretted that the document drawn up for the guidance of students by the Architectural Board of Education did not go far enough, and hoped that the new Board would issue a fresh one, suggesting what the student should do after the expiry of his years of training. Young engineers went first into the workshop and then into the drawing-office; but he thought for architectural students this should be reversed, the years of pupilage in an office might well be followed by a period of service under an experienced clerk of works.

Mr. Alan Potter and others having spoken, the President briefly summed up the discussion, remarking that it was not a question which would be put to the vote, as all the speakers had shown that a combination of the atelier and the workshop would be the best method of training. They must not lose sight of the position an architect really held. He had to deal with all sorts of people, to provide a building suitable to the needs of his client and within the means at disposal, to negotiate with solicitors, builders, and neighbouring owners, to comply with local by-laws and regulations, to produce drawings that should clearly indicate the proposals to all the classes of people interested in its erection, and to act throughout as the professional agent of the employer.

Mr. Fyfe briefly replied to some of the points raised, and acknowledged the vote of thanks, which was carried by acclamation.

THE APPROACH TO THE MALL FROM TRAFALGAR SQUARE.

[SIR ASTON WEBB, C.B., R.A., ARCHITECT.]

Whether arrangements will be made between the Government, the L.C.C., and the City of Westminster with regard to the opening up of the approach from Trafalgar-square to the Mall in time for the Coronation Procession next summer, nobody knows.

In our issue of August 19 last, we reproduced Sir Aston Webb's Royal Academy drawing, illustrating the buildings from Charing Cross, and herewith we give a bird's-eye view, showing the façade opened up as it ought to be, with the vista of the Mall behind, for which we are indebted to Mr. Harold Oakley.

It was hoped up till Tuesday that the deadlock between the three authorities concerned had been overcome; but at the meeting of the L.C.C. that day the Improvements Committee reported that the Office of Works declined to accept the offer made, but were willing to contribute £25,000, subject to the Council completing the work. After a long discussion, the County Council declined to take the responsibility of completing the work, but offered to contribute £75,000, subject to the Government accepting all responsibility in the matter.

It will be remembered that on January 20 the Office of Works, while offering, in "the exceptional circumstances which have arisen owing to the approaching Coronation," to contribute £25,000 towards the cost of the Improvement, intimated that if this proposal were rejected, the Government would have no option but to withdraw their offer of any pecuniary contribution, and to take no further part in the matter. Besides the sum of £25,000 the Office of Works proposed to surrender the site of two houses to the north of Drummond's Bank, which were demolished some years ago. The value placed upon this land by the Office of Works was £37,500; but the County Council maintained that the land should be valued, in any apportionment of the cost of the work, at the sum—believed to be between £20,000 and £25,000—which the Government paid for it originally.

At the moment the hitch between the Office of Works and the L.C.C. appears rather to be over "responsibility" than cost. The Office of Works insists that it cannot go outside the boundary of the Park, which is under its control, and that it has no power to acquire property and make streets elsewhere. The Office of Works contends, further, that such work is the duty of the local authorities. The London County Council's position, and probably that of the City of Westminster, is that if they jointly or severally accept responsibility, one or both may be saddled with serious and unknown responsibility in the future in connection with the completion of the National Memorial.

It is no part of our duty to blame anybody with the glibness of some of our daily contemporaries, mostly biassed, as usual, by party feeling. We can only hope somebody may succeed in satisfactorily apportioning the "responsibility" dreaded by each authority, and that the completion of the Memorial may be speedy, adequate, and unspoiled by unwise and niggardly limitation of the suggestions of Sir Aston Webb.

THE CONSERVATION OF OUR NATIONAL WATER RESOURCES.*

By WILLIAM RALPH BALDWIN-WISEMAN, M.Sc., Assoc.M.Inst.C.E., F.G.S., F.R.M.S. (Professional Associate.)

GENERAL INTRODUCTION.

The steady growth of population and the general development of science and industry has given rise to an increasing demand for water, which brings more and more forcibly before all interested parties the urgent need for the formulation of a comprehensive scheme of water conservancy, to replace the present chaotic and piecemeal system of water administration.

As legislative attempts may be made in the immediate future to formulate such a scheme or to afford the machinery for more equitably adjusting the conflicting claims of an increasing population, Mr. Baldwin-Wiseman reviewed at some length past and present attempts at State administration of hydraulic works and the suggestions of advocates of conservancy in this country, concluding with the following

SUGGESTED LINES OF ORGANISATION.

If a central authority is to be constituted to replace the multiplicity of controlling authorities, it is highly desirable that it should comprise within its jurisdiction all matters pertaining to water administration, and not merely those of certain sections; otherwise duplicate administrative machinery may be set up and funds expended without any corresponding economies being effected.

* Read at the Ordinary General Meeting of the Surveyors' Institution, held on Monday, Jan. 23, 1911.

Such an authority should be subjected to the control of a Minister of Water Supply, and should have vested in it not only all the powers now exercised by various Government Departments, but such others as may be found necessary. It should primarily turn its attention to the development of the existing heterogeneous and inadequate administrative machinery by a uniform system of water boards, comprising representatives of local authorities, water supply, navigation, fishery, and other interests, within the administrative area, co-ordinating and controlling all existing hydraulic works. These boards should be classified as main drainage boards, having the general supervision of main drainage areas, containing several river basins, and major and minor river boards in charge of particular basins, the minor basins being those in which, owing to small area or limited interests, there is little or no administrative work. The central authority's legal department should direct its attention to the co-ordination and amendment of existing legislation and submit suggestions to Parliament to that effect; its chemical department should continue the research work on chemical and bacteriological questions of the existing Royal Commission on Sewage Disposal, and assist local authorities on questions of filtration, sterilisation, and standards of purity of effluents; its statistical department should engage in the preparation of comprehensive schemes to collect uniform and continuous data, and construct more or less complete records of the past from such scattered records as are available, such as minutes of evidence and appendices to Reports of Royal Commissions, memoirs of the Geological Survey, papers published in the Transactions and Proceedings of technical institutions and scientific associations, the reports of officials to local authorities, fishery and conservancy boards, waterworks, navigation, and drainage authorities, etc.; and a short Act should be passed compelling all water-supply and sewage-disposal authorities to make annual returns of their operations, so as to afford data as to domestic, trade, and municipal consumption of water, rate of filtration, statistics of waste prevention, and the cost of pumping and purification per one thousand gallons, or other convenient unit; its hydrological survey department should systematically gauge streams and springs, make periodic and systematic observations of subsurface water levels, establish rain-gauge stations in upland areas not now adequately supplied with such gauges, and conduct investigations on a variety of hydrological questions of general interest. The work of the regular officials, each in charge of a specific area, and acting as expert adviser to the local board, could be largely supplemented with data collected by engineers and medical officers to local authorities, and other volunteer assistants, such as the officials of canal and navigation companies, fishery, conservancy, and drainage boards, village schoolmasters, owners of private wells and pumping plant; and these latter would probably gladly co-operate, since the publication of their records in the official return, checked from time to time by the district surveyors, might prove valuable evidence in an arbitration case, lawsuit, or inquiry by a Parliamentary Committee. The central authority should publish an annual report, which for general convenience should be issued in a series of pamphlets, each dealing with some section of the authority's activity; and in addition an annual summary of foreign progress and practice should be published with the report. If Parliament in its wisdom does not hearken with more speed to the recommendations of the most recent Royal Commission, which has suggested the creation of a central authority, than it has done to similar recommendations of earlier commissions, then it is highly desirable that the hydrographic survey should be inaugurated forthwith, as recommended by the Select Committee of both Houses on last Session's Water Supplies Protection Bill, and the suggestion as to compulsory returns also be enacted. Data will thus be steadily accumulated, and will be available for the use and guidance of all who are engaged in the planning, construction, and administration of hydraulic works, and will also serve for the guidance of Parliament when it does take in hand the creation of the central authority. The expenditure would not be excessive, and could doubtless be met at first by a grant under the Development Act, which provides for grants for the reclamation and drainage of land, the improvement of fisheries, and for any other purpose to promote the economic development of the United Kingdom.

FIGURING COST OF CONCRETE CONSTRUCTION.

By Charles L. Shepley.

As practically all concrete bids are now let on a competitive basis, it is highly important for the estimator to approach the problem of cost with a thorough knowledge of the actual mode of construction, and a general knowledge of material and labour costs.

As an average problem, let us assume that the reader wishes to estimate the cost of a reinforced-concrete building, and is well able to estimate carefully the cost of the brickwork, stone work, mill work, glass, and, in fact, everything but the concrete work. The plans show the structural framework of concrete, the thickness of the floor slabs, and the size of the beams and columns, also the number and size of reinforcing rods, so that the amount and size of all the ingredients are clearly laid out, and the problem is to gather together the units in a suitable way, in order to apply the units of cost. The frames which support the concrete work are customarily estimated at a price per square foot of superficial area, varying from 7 to 15 cents per square foot, according to the intricacy or strength of construction. So the reader's first step is to itemise the number of square feet of area under the slabs, and on the sides of the beams and their soffits, upon which we will say a price of 10 cents per square foot of surface, which would ordinarily cover a plain, symmetrically-arranged beam construction.

The square feet of area on the outside of the columns is next itemised, and a unit price applied to this—say, 11 cents per square foot for a square column of ordinary length. The next step is to estimate carefully the cubic yardage of concrete in all slabs, beams, and columns, which is customarily all lumped under one item of cubic yard of concrete, and priced at, say, 7dol. per cubic yard. This, of course, applies only to the raw structural concrete, and not to any cement finish, which is usually priced by the square yard, varying from 30 cents to 1dol. 25 cents per square yard, according to the mixture and thickness of the cement finish specified. For 1in. of cement finish, mixed in the proportion of one part of cement to two parts of sand, a customary price is 60 cents per square yard.

CHEAPER TO DO BENDING AT MILL.

When round columns are used and metal forms are resorted to, these may usually be bought and erected for about 10 cents per square foot of the surface area of the columns. Corrugated-iron forms for the under side of slabs may be placed at a cost of about 3 cents per square foot of area, and when this type of forms is used, the wooden posts and braces supporting the slab may be priced considerably lower, owing to the fact that much less lumber is needed, as the corrugated sheet iron will span a considerable distance between supports, making it unnecessary to have a solid plank floor. Forms of this type may be erected at 8 cents per square foot for large works. The reinforcing used in the concrete is usually priced by adding to its cost delivered to the work a price per ton for its erection. The judgment of the estimator must here be fortified by experience with jobs of a type similar to that proposed, as various works reinforced with round rods will vary in the cost of erection from 4dol. to 20dol. per ton, while patented rods have been used with as great a variance in cost. The amount of bending and tying to be done greatly influences this cost, and many of the modern works are having every unit of the reinforcing delivered to the job bent, ready to be placed. When this is done the bending can usually be done much cheaper at the mill than in the field.

As a specific example of the variance in cost for bending rods, an accurate cost sheet was recently kept on a very large piece of work, and it was developed that the total tonnage of steel bent for the girders above the second floor cost 10dol. 74 cents per ton, while another class of rods bent for girders cost only 5dol. 87 cents for bending. From these facts it will be seen that it is impossible to place a fixed price for bending rods on a tonnage basis. Experience in similar cases of work can be the only guide which will keep the estimator within safe limits. An ordinary job, in which round rods are used in plain work, and where there is a large repetitions of panels of similar size, can be placed at 1dol. per ton, ready for the concrete to be poured. No set price will cover any one type, however, as many conditions govern the cost of the reinforcing, and experience is the only teacher that will make you a good guesser.

KEEP ALL COST DATA.

A common practice now used by many firms which furnish the reinforcing for a job complete, is to deliver all the reinforcing steel to the work, all fabricated and ready for erection. The columns are delivered all built up, with spirals coiled and spaced, the beam rods bent and designed and held in position by spacers, ready to be placed in the beam boxes, and all straight rods cut to exact lengths. When the steel comes in this form the cost of erection is greatly reduced, and it can sometimes be placed as low as 6dol. per ton. Competition has now become so active that the contractor of to-day seldom bothers to estimate carefully the total steel tonnage, but relies largely on bids sent to him giving a lump sum price for all the reinforcing delivered to the work, and it remains only for him to place a price on the erection of the wall.

Owing to many designs proposed for a single work involving various amounts of concrete, steel, and forms, it becomes necessary to summarise the amounts for each design, and price each in accordance with your judgment of the amount of work involved in order to arrive at a conclusion as to which is the cheapest of the proposed schemes. The only safe way to price a reinforced concrete job is from the costs learned in actual work, and it is highly important for the beginner in this field of engineering construction to keep a record of every available scrap of information on reliable cost data, as this habit will place firmly in his mind a remembrance of the cost of similar work previously done along the same lines. It is also advisable to obtain a cubic foot price on various jobs as an aid to giving a prospective buyer a rough approximate cost on certain types of structures. This so called system of cubing is perhaps the most definite and reliable of any method of getting a rough, approximate cost.

ESTIMATE COST BY CUBE SYSTEM.

Several methods are used to determine the cubical units, depending upon the shape and size of the proposed building. One method is to multiply the square feet in the plan of the building by the height from half-way the depth of the foundations below the ground level, half-way to the roof. Another system uses the height from the bottom of the foundations, and another obtains the actual cubical contents. Any of these systems may be used so long as the same one is adhered to in every case. It is advisable for one to obtain the actual cost per cubic foot on every reinforced-concrete building erected by him. It will then be possible for him, guided by his knowledge of the conditions under which each structure was erected, to determine fairly accurately the cost per cubic foot which should be applied to any proposed new structure. Of course, even long experience will afford no safeguard against unusual construction in the interior of a building, so that a cubic foot price can be

applied only to plain buildings of ordinary character, and comparisons are reliable only between buildings of similar description and for similar uses. It is also highly important that one should keep accurate cost data on every piece of work undertaken, as these will serve as guides in pricing other work of a similar nature.

As an example of this, let us cite two or three cost sheets, covering various kinds of work in which cement was used, and see what conclusions may be drawn from the costs obtained upon each piece of work per unit of quantity or area.

For instance, the cost of a retaining wall built during the winter months and under extremely severe conditions of construction appears on the cost sheets as follows:—

Hours.		Dols.
369	Foreman labourer, 35	129.15
197	Labourer, 25	49.25
134	Labourer, 22½	30.15
1,531	Labourer, 20	306.20
11,778	Labourer, 17½	2,061.15
703	Teams, 47½	333.92
84	Blacksmith, 32½	27.30
244	Carpenter, 50	122.00
36	Carpenter, 47½	17.10
1,055	Carpenter, 45	474.75
240	Foreman K.P.G., 15	82.30
339½	Engineer, 40	135.80
		3,779.07
Less received for hauling dirt		10.32
	Do's.	3,768.75
1,114½bbls. cement at 1.15dol.	1,281 39	
121 sacks lost, at .10	12 10	
		1,293.49
952c.yds. crushed rock		1,448.45
43,630lbs. coal	109.08	
3 days train service hauling dirt, 40dol.	120.00	
Switching dirt	21.75	
12 bolts and washers	1.92	
11 rolls tar paper	5.50	
		258.25
Total cost		6,768.94

Total cubic yards, 1,118. 1,118yds. concrete at 6,768.94 dol. = 6.05dol. per c.yd. cost. 1,118yds. concrete at 3,779.07 dol. = 3.38dol. per c.yd. for labour.

It will be seen by the above that the concrete for this particular retaining wall cost exactly 6dol. 5 cents per cubic yard, without the contractor's profit, and we might assume that should a similar piece of work again occur it would be safe for one to place a cost of 6dol. 65 cents per cubic yard upon the new yardage to be estimated.

RECORDS OF PLASTERING COST.

As another example, we take the cost sheet covering the material and labour required in plastering with cement plaster the exterior of a large building, the exterior walls having been constructed of hollow tile, upon which the cement plaster was directly applied.

Actual cost of labour and material:

	Dols.
32 hrs. later, 60	19.20
40bdls. metal lath	22.00
600 hrs. plasterer, 63	378.00
200 sacks Portland cement	110.00
500 hrs. plaster helper, 30	150.00
35bbls. brown lime, 65	22.75
14 single loads sand, 50	7.00
Drayage	25.00
	733.95

1,056.6yds. at 733.95 = 69.4 per sq.yd.

In this work there were 1,056.6 square yards, and the actual cost of 69.4 cents per square yard. The mixture used was: Seven parts sand, 2 parts brown lime, 2 parts Portland cement.

The above cost sheet gives the estimator, figuring upon similar work, accurate data upon which to base the cost of plastering on hollow tile under fairly similar conditions.

It is examples such as the above that are of real service to anyone in the contracting business, and the benefits gained from keeping accurate cost data on each job cannot be valued too highly. There are hundreds of contractors who now operate on large and small scale who do not know the actual cost of an individual piece of work constructed under their care. They know the price at which they are awarded the contract, and they know the cost of the total work; but beyond that they have no knowledge of the actual cost of the various units that go to make up the job. They may price concrete at 7dol. per cubic yard when the actual cost is only 5dol. per cubic yard, and in so doing are estimating a profit which is too large to be warranted under the close competitive figures now taken. If a contractor kept actual cost data he would know before considering work that the concrete would cost only, approximately, 5dol. per cubic yard, and if satisfied with a profit of ten per cent., would price it at 5dol. 50 cents rather than at 7dol., which would on a large piece of work act greatly to his advantage in putting in a competitive bid.

ADAPTABLE TO MANY CONDITIONS.

Not many years ago one would look incredulous if told that some 10,000 cubic yards of stone had been moulded into a mammoth building seating some 15,000 people, and that this work was accomplished in the short period of seventy working days. Yet this feat was undertaken and completed about a year ago in the building of the Minnesota State Fair grandstand. Concrete forges steadily ahead by virtue of its adaptability to so many requirements. In the minds of many engineers, concrete is the logical solution of nearly every problem requiring speedy erection, great strength, durability, and low cost.—*Concrete.*

A SHORT SPECIFICATION.*

Within reasonable compass, intelligible, and founded on an experience probably second to none, this will be found the really most practical help to the young architect that has yet been published. The introduction is worth the whole small sum charged for the book, for Mr. Cubitt's definition of a specification and his condemnation of the too-common tendency nowadays to produce "jumble" specifications, will be, or, at any rate, ought to be, appreciated alike by the building owner, the builder, and the surveyor, to whom the "jumble" is so frequent a nuisance.

But the average specification of to-day is so full of "common forms," stock phrases, and vain repetitions, that any architect who wants to get on with his drawings may well sicken at the time wasted in repeating these phrases over and over again. Yet, of course, a specification is absolutely necessary as a basis of contract, and Mr. Cubitt, of course, does not shirk that fact. What he suggests is a practical and common-sense way of shortening the specification. So, side by side, following on trade by trade, beginning, as usual, with "Preliminary and Sundry," we have in the left-hand column the "Short Specification," and in the right-hand one the "Extended," or full-length one. But the "Short Specification" is all the architect will need to copy out in his first draft, except where any clause has been omitted or varied. An assistant can then do the rest by adding the "Extended Specification," with all such additions and omissions, if any, as the architect has made in it.

Mr. Cubitt's model specification begins, of course, with the Title and General Clause, and follows on, section by section, up to Section 20, dealing with repairs. Each section, of course, includes many clauses which are only required for certain kinds of buildings. These can be left out in the copy or struck through with pencil. We strongly recommend the prompt purchase of the book to every reader.

TESTS OF REINFORCED-CONCRETE COLUMNS.

Extensive tests have been made in the Royal Testing Laboratory at Gross-Lichterfelde on reinforced-concrete columns, in order to determine the influence on the strength of the reinforcement in general, and especially of the kind of cross-reinforcement (bands and hoops). Professor Rudeloff has recently reported on the results of these tests in the fifth volume of the Publications of the German Committee on Reinforced Concrete.

In the following paragraphs is given a brief summary of the results of the tests.

The tests were made in two series. In the first series, thirteen columns of 2m. (78 in.) length were tested. Eleven columns had a 30cm. (12in.) square section, and two columns an octagonal section. The longitudinal reinforcement consisted in all cases of four round steel bars of 16mm. (⅝in.) diameter. The cross-reinforcement was of various types, made with wire 7mm. (about ¼in.) thick. The concrete was ganged with a large percentage of water, so as to obtain a soft consistency.

The tests demonstrated the well-known fact that the influence of the reinforcement is much less than that due to the care in tamping. Besides this fact, the surprising result was found that all columns when tested broke at the end last tamped, whether this end was placed in the top or bottom of the testing machine. Some specimens gave very anomalous results, and these deviations appear to have been caused partly by the columns being made in the open air, partly in moist and partly in dry weather.

On account of this result of Series 1, it was found necessary to undertake further tests—Series 2. The columns for this series were made in a closed room, kept as uniformly warm and moist as possible. Their length was only 90cm. (about 35in.) Of the seven kinds of columns tested, five had square sections with four 16mm. (⅝in.) round longitudinal bars each; two had octagonal sections with eight 8mm. (⅜in.) or 11mm. (⅞in.) longitudinal bars each. The cross-reinforcement of spiral steel bars and partly of rings made with 6mm. (¼in.) rods, whereas the square columns were reinforced with various kinds of bands of 7mm. wire.

The results of the second series show a greater uniformity than those of the first one. For instance, the columns without reinforcement showed by far the greatest increase in cross-section and the least resistance. The two octagonal columns reinforced with steel rings carried the largest loads up to the beginning of the formation of cracks and up to fracture.

As in the first series, it was observed in the second, with nearly all columns, that failure began at the end last tamped. In order to learn the reason for failure at this point, another column was tamped, and immediately after tamping samples of the concrete were taken from various parts of the column and examined for content of water, content of cement, and weight per volume. This examination showed that the content of water, and also of cement, increased from the bottom to the top, although to a slight extent only, but that the weight per volume was without doubt greatest at the bottom and less at the top of the column. The top, which naturally was subjected to less tamping, and was consequently less dense, than the other parts of the columns, showed the least resistance.

The new infants' school building erected at Halfway House, Sheerness East, was formally opened on Saturday. The school is of red brick, and has a large asphalt playground.

The Art Gallery at the City Guildhall has been enriched by eighteen carefully-selected studies of animal life by the late Mr. J. M. Swan, R.A., the famous animal painter.

An electric picture-palace was opened in William-street, Morice Town, Devonport, the other day. It accommodates 400 persons, and has been built from plans by Messrs. Rooke and Barrow.

At the monthly meeting of the Withington Committee of the Manchester Council, held on Jan. 18 at the town hall, West Didsbury, the surveyor reported that 664 dwelling-houses had been certified for habitation during the past twelve months. This is the highest number recorded in the area which formerly constituted the urban district of Withington.

The British Acting Consul-General at Rio de Janeiro reports that the Brazilian Minister of Marine has decided to call for tenders very shortly for the execution of repairs to buildings on the Ilha das Cobras, which were seriously damaged by the recent bombardment in connection with the second naval revolt. Mr. Hambloch understands that the damage amounted to 2,000 contos of reis (about £125,000). The work, adds the Acting Consul-General, might be well worth the consideration of British firms.

* A Short Specification of Materials, Labour, and Goods, for Works connected with Building. By JAMES CUBITT, Architect; Author of "Church Design for Congregations," &c., &c. London: Crosby Lockwood and Son, 7, Stationers' Hall-court, E.C. 5s.

NEW BUILDING AT FULHAM

We notice [illegible] a building of remarkable interest which has been erected in the Fulham road for the Model Dairy Co., Ltd. The site on which the building stands is an island one [illegible] superficial area of 22,000 square feet.

Standing [illegible] opposite a main [illegible] attracted by the [illegible] at style the Burnage Manor [illegible] several colours [illegible] and has to [illegible] Leeds Fireclay Company, Ltd. From the [illegible] to the roof, the [illegible] to preserve an effective and pleasing appearance whilst affording [illegible] protection against the ravages of weather; an additional advantage lies in the fact that it can be washed; thus, periodically, the traces of the sooty atmosphere of the great city can be removed. Special attention has been given to the sanitary work. The sanitary fittings, which are of the highest quality and latest design, are also supplied by the Leeds Fireclay Company. The architect of this imposing and interesting building is Mr. J. Espinasse, Clermont Ferrand, France.

The French *Journal Officiel* of January 10 publishes a decree, issued by the Ministry of the Colonies, authorising the communal authorities of Dakar, West Africa, to contract a loan of 12,500,000 francs (£60,000), of which £16,000 will be used for building a covered market, £15,600 for a town hall, and £27,800 for roads and works.

The Cavendish Rooms, 54-55, Mortimer street, W., are about to be rebuilt from plans by Messrs. Withers and Meredith. It is proposed to reconstruct the premises with concert rooms on the ground floor and at the basement level. It is also intended to erect shops and a hotel occupying most of the frontage to Mortimer street.

The new workmen's institute at Ogmore Vale was opened on Wednesday week. The building cost £9,000 and will accommodate over a thousand people. It is erected on a prominent site at the corner of Commercial street and Nantymoel road. It is of local stone faced on the outside with red brick and cement stucco, with an angle tower. It is heated by a low pressure hot water system, and lighted by electricity. It was erected by Mr. Watkin Williams, builder, Cardiff, from the designs and under the superintendence of the architect, Mr. W. Beddoe Rees, Cardiff.

Pending the erection of a permanent city hall in San Francisco, and to which we referred in a recent issue, the city government, hampered for lack of space to house the city's offices, has decided on the erection of a temporary structure. The idea is to provide a building that, when it has served its purpose, can be readily converted into a hotel. The design of the elevation furnished by the architects, Messrs. Wright, Rushford, and Cahill, shows a façade 200ft. long with a height above the sidewalk of 102ft. The estimated cost is $600,000, and the changes necessary to convert the building into a hotel will be comparatively small.

Among the private Bills affecting London to be presented in the coming Session, which are reported as having complied with standing orders are those authorising the Port of London Authority to acquire compulsorily lands in the City of London for offices and buildings, enabling the Enfield Gas Company to construct works; that of the London Cemetery Company extending the power to acquire land for cemetery purposes; London United Tramways to extend the time limited for the compulsory purchase of lands and the construction of tramways in Richmond, and London, Brighton, and South Coast Railway, for the construction of a railway at Norwood Junction.

The Standing Orders in the case of the following other Bills have been found to have been complied with, and the Bills have been ordered first reading: The London and South-Western Railway Bill, to widen and improve Waterloo Station; the Metropolitan Electric Tramways Bill, to empower the Metropolitan Electric Tramways Company, Ltd., to construct a bridge over the River Lea and widen streets at Tottenham and Walthamstow for tramways purposes; the Central London Railway Bill, to empower the railway company to extend their line from the Wood Lane terminus to join the Ealing and Shepherd's Bush Railway of the Great Western Company; and the London County Council (General Powers) Bill.

OBITUARY

The funeral of the late Mr. Edward Fullilter, C.E., who died at his London residence, Rosslyn Hill, Hampstead, on Thursday in last week, at the age of 85, took place on Monday. Mr. Fullilter for some thirty years was the borough surveyor to the corporation of Leeds before Leeds was created a city, and carried out several important waterworks enterprises, notably the Washburn Valley water supply scheme and subsidiary works, on which he was engaged for about twenty years.

Charles Hilpertshauser, architect, of Sheboygan, Wisconsin, died in the Augustana Hospital in Chicago, Dec. 22, after an operation for cancer of the lip and throat. Mr. Hilpertshauser was born Dec. 21, 1861, his forty-ninth birthday anniversary occurring a day prior to his death. His father had emigrated from Switzerland, and engaged in the contracting and architectural business at Sheboygan. After a practical experience with his father, the son spent five years in architect's offices in Chicago, and then returned to Sheboygan, and soon thereafter established himself in practice. He designed many of the buildings erected in Sheboygan and surrounding towns, and at the time of his death was architect and superintendent many of the buildings erected in Sheboygan of the Jacob J. Vollrath Manufacturing Co.

CHIPS.

Mr. William Martin, master builder, Tunbridge Wells, died last week at his residence in Stanley street, St. John's, Tunbridge Wells, aged 70 years.

A new electric tramway in the Rossendale Valley from Waterfoot to Water, 5½ miles in length, built for the Rawtenstall Corporation at a cost of £30,000, was opened on Saturday.

At the last meeting of the Tyne Commission the engineer reported that the proposed new staith to be erected on the south side of the Tyne at West Dunston would be situated about 1,650ft. east of the mouth of the river Derwent. The staith was to be of open timber work, and was to have a river frontage of about 1,870ft., and a depth alongside of 25ft. at low water.

The London County Council are inviting tenders for the extension of the new southern high-level sewer, now in course of construction between Crossness to Catford, at its western end to Nunhead. The necessary borings along the route, authorised in July last, have been carried out at a cost of £600, and the rough estimate of the outlay on the extension is between £95,000 and £115,000.

A poll of the inhabitants of Southampton is to be taken to-morrow (Saturday) as to the desirability or otherwise of promoting a Bill in Parliament to acquire the South Hants Waterworks undertaking, which supplies part of the town. The estimated compulsory purchase price is between a half and three-quarters of a million, and there is determined opposition to the project.

At the Chester Consistory Court on Friday authority was given to the vicar and the wardens of St. Barnabas's, Crewe, to panel the walls of the church up to the choir-stalls and to erect a new pulpit. The incumbent of Christ Church, Winsford, obtained a faculty to insert stained glass in the east window, to place a cross and two candlesticks on the reredos, and to introduce other improvements.

The Theatres and Music Halls Committee of the London County Council reported on Tuesday that they have considered drawings, submitted by Mr. Bertie Crewe, for the Opera House proposed to be erected in Kingsway. The premises will have accommodation for about 2,850 persons, and the committee state that the arrangements shown on the drawings appear to be satisfactory, subject to certain conditions being complied with. The Opera House was illustrated in our last issue (p. 95).

A verdict of "Accidental death" was returned at an inquest held at Croydon on Friday respecting the death of a builder named Frederick William Reed, a single man. He was found dead in his room on the previous Tuesday, having apparently bled to death after sustaining injuries by falling against a piece of furniture. At the mortuary the attendant discovered, suspended to Reed's neck by a piece of tape, a wallet which contained £1,030 in bank notes. In the safe and clothing in his rooms nearly £200 in notes and cash was found.

PROFESSIONAL AND TRADE SOCIETIES.

ENGINEERING CONTRACTS.—At a meeting of the Birmingham and Midland Centre of the Institute of Sanitary Engineers, held on Tuesday night, at the Exchange Restaurant, Stephenson place, under the presidency of Mr. Robert Green, a paper on "Engineering Contracts" was read by Mr. E. J. Harber. The author described the usual documents prepared for the various forms of contracts entered into for the carrying out of engineering works, and then went on to speak in some detail of difficulties that occasionally presented themselves, and which created a divergence of opinion between the engineer and the contractor. Suggestions were given for so preparing the contract documents as to avoid as far as possible the likelihood of such differences arising. Mr. Harber gave his views of how such difficulties should be dealt with when they occurred, and also described the procedure in arbitrations in case the matters referred to were carried through to that stage.

EXCAVATIONS IN MALTA.—At the meeting of the British Archæological School of Rome, held on the 20th inst., the director, Dr. Thomas Ashby, described the excavations carried on by the Government of Malta under his direction during the month of June last at Mnaidra and Hagiar Kim, the two great megalithic sanctuaries of the island. Pottery had been found in considerable quantities, which belonged to the Neolithic period, as did that found in the hypogæum of Halsafflieni and on the hill of Corradino, where there are other megalithic remains. As a result of the study of these monuments, it was possible to carry out works of conservation, which will tend to the better preservation of the ruins, and will at the same time render their internal arrangements more easily understood. The important elements in the plan are the arrangement of two oval spaces side by side, connected by a passage in a straight line with the entrance, which is in the centre of the long side, and the dolmen-like niches, the coverslabs of which are often supported by round pillars. These Dr. Arthur Evans considers to be representations of the deity worshipped there.

LONDON MASTER BUILDERS' ASSOCIATION.—The usual monthly meeting of the council was held at Koh-i-Noor House, Kingsway, W.C., on Thursday, the 19th instant, under the chairmanship of Mr. Leonard Horner (president). Deep regret was expressed at the death of the late Mr. John Howard Colls, past-president of this association and a prominent supporter of all the building trade organisations. Sincere sympathy was felt for the members of his family. Mr. Wm. Shepherd was elected a trustee for the reserve fund in place of Mr. Colls. It was decided to hold the annual dinner at the Whitehall Rooms, Hotel Metropole, on Thursday, February 23 next, and the annual general meeting at Koh-i-Noor House on Monday, February 27. The draft of the annual report was submitted, amended, and approved.

LEICESTER SOCIETY OF ARCHITECTS.—This society opened its winter session on Friday night, with an address from the president, Mr. W. M. Cowdell, F.R.I.B.A., and a musical evening, in the society's room, St. Martin's East. The president said it had occurred to him to look up the objects for which the society was founded, and to see how they had been fulfilled, and how they were being fulfilled to-day. They still had the original constitution; but what he used to look up to as a very aristocratic society was now a very democratic one, anxious to include every architect and architectural student in the provinces. From the earliest days of the society it had maintained its alliance to the Royal Institute of British Architects. Their second object was "to maintain an acknowledged code of professional charges and prices." Whilst far from suggesting that there was not ample ground for further progress, he thought those who cared to look

back twenty-five years or so could not fail to recognise a very considerable advance in this respect. The stand taken by the council of their society a year or two since, and the high standard of disinterested action taken by one or two of the most respected local members of their profession, though apparently unsuccessful at the time, could not fail in time to have a strong influence in the right direction, both with the general public and also in directing the conduct of any members of the profession who had overlooked the object of their society. The third object was to obtain and consider information respecting competitions and other matters affecting the profession, and to endeavour to insure equitable terms and awards. Perhaps the recollection that a prominent landowner in the town had recently asked for, and received, the co-operation of the council of the society in promoting and carrying out a competition with the object of obtaining better architectural treatment of cottage and small house buildings, and the further facts that from quite another source a suggestion had been made for a competition under the auspices of their society, and that one of their past presidents was an assessor in the competition for the new public hall in Leicester, proved that in this object they were moving in the right direction. He congratulated the successful competitors in the Westcotes Competition on their clever and somewhat original plans. The fourth object was to afford mutual assistance either among members themselves or between them and their employers, and to promote personal good-feeling among members of the society. There were few of them probably who had not benefited by this object. A presentation was then made to the retiring hon. secretary, Mr. W. K. Bedingfield. The president, in handing Mr. Bedingfield a plaster portrait bust of his six-year-old daughter, which had been modelled by Mr. J. Crosland McClure, formerly of the Leicester Art School, referred to the excellent services Mr. Bedingfield had rendered the society during the past six years, and expressed the hope that the memento would remind him of the strenuous days of the society. Mr. E. Turner and Mr. H. H. Thomson also spoke of the services of Mr. Bedingfield, who, in reply, said he looked back upon the time spent on behalf of the society with great pleasure. He hoped the work of the society would increase in usefulness. During the evening a musical programme—arranged by Mr. A. H. Hind and W. Riley—was given by Messrs. Bedingfield, Townsend, F. Rowlett, W. Keites, Riley, and Langford. A vote of thanks was passed to the president for his address, on the proposition of Mr. W. F. Topott, seconded by Mr. C. Kempson.

MANCHESTER SOCIETY OF ARCHITECTS.—On Wednesday, the 25th inst., a lecture was given by Mr. J. L. Ball, Professor of Architecture at the Birmingham University. After a brief introduction, indicating the necessity for the study of ancient architecture, and suggesting some methods of study, Mr. Ball proceeded to give a general account of the three East Anglian cathedrals of Peterborough, Ely, and Norwich, pointing out the close resemblance which originally existed between them, their characteristics as Romanesque minsters, and the changes which have taken place in them in later times. Then, turning aside from questions of archæology, the architecture of the three cathedrals became the subject of discussion, and the opinion was expressed that here, at any rate, the architecture of the 12th century is supreme in all purely architectural qualities, attention being specially directed to the expression in it of the sense of power. Nor is this expression of power merely crude and uncouth, but the work of deliberate and expert artists, marked by maturity of style and refinement of proportion. The nature of proportion in architecture is next discussed at some length, and illustrated from these cathedrals, whose architecture is so sparing of decorative accessories—where we feel, as we seldom can, how little architecture need rely on ornamental details, how much on proportion. Some of these proportions are then noted and compared, particularly the great galleries, the division of the internal height into three nearly equal parts—a notable characteristic of this group of cathedrals, which connects them with Winchester, Cerisy, and l'Abbaye aux Hommes. He then proceeded to a consideration of the exterior architecture of the three cathedrals, noting a certain inferiority to the interior—the difficulty in all architecture—in the grand manner of binding together interior and exterior in organic unity. Nevertheless, certain fine qualities are noted in the exteriors, and it was pointed out that both in the Romanesque and Gothic periods the resources of Mediæval art were concentrated on the west fronts. The only west front of Romanesque work in the three cathedrals is that of Ely, and this was described. Passing on to the west front of Peterborough, the opinion was hazarded that we have here a Romanesque design translated into the new Gothic manner of the 13th century. The essential difference between Romanesque art and Gothic was discussed, and the new spirit introduced into architecture described and illustrated by the fine scenic example of this west front of Peterborough. These west fronts suggest the principle of frontal design—what Professor Loewy calls the "law of frontality"—the law of design by virtue of which an object is always conceived in its broadest and most comprehensive aspect. The lecturer proceeded to consider this law in its relation to architecture, and also the corollary to it, called the "law of approach," showing that in these laws we obtain a glimpse into the method of Romanesque and Later Gothic design. Mr. Ball then analysed the principles of Romanesque design as exemplified in the East Anglian cathedrals, pointing out that the Romanesque architects were essentially arch-builders, using arcading not only for structural reasons, but for the purposes of art. Attention is directed to the æsthetic value of the semicircular arch in the sequence of arcades, to the solution of the problem of stability by massive supports without the aid of buttresses, and to other points in the architectural expression of arched construction suggested by a study of this group of cathedrals. The question was asked whether it is possible to detect the peculiar quality in the work of the 12th century which marks it off from other arched construction, and the answer was found in the expression of flexibility, of the elasticity of structure; and it was shown in what way this expression of flexibility is obtained, the explanation being based on the circumstances under which Romanesque architecture was done, and the conditions of building, wholly unlike those of the present day. Similar reflections on the circumstances of ancient building were next shown to afford some clue to many of the puzzling irregularities in it, and the question of the time actually spent in building a cathedral was fully discussed. The name "Norman" often applied to Romanesque art in England, brings up the whole subject of the local schools of Romanesque — their diversities, and the essential unity of idea which gives to Romanesque architecture everywhere its distinctive character. The paper went on to describe the main purpose of Romanesque from the time when it first emerges from the Roman basilica, its purpose as essentially ecclesiastical art, and as expressing the Catholic ideal. In these cathedrals of the 12th century we see Romanesque architecture in the maturity of its genius, and thus, without any period of decadence, it passed. We have much to learn from these great works, and perhaps the most valuable lesson we can learn from them is not to attempt to reproduce them.

THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.—A special meeting of the council of the above body was held at 31, South Frederick-street, on Monday last. The president, Mr. Albert E. Murray, R.H.A., F.R.I.B.A., was in the chair, and there were also present: Messrs. C. H. Ashworth, W. Kaye-Parry, James H. Webb, C. J. MacCarthy, F. C. Hicks, Lucius O'Callaghan, A. G. C. Millar, Frederick Batchelor, and C. A. Owen, hon. secretary. A large amount of correspondence was dealt with. Matters affecting the leases of the institute's rooms and the position of surveyors under the authorised conditions of contract were referred to Messrs. Hayes and Sons, the institute's solicitors, and to the professional practice committee respectively for report.

THE DESIGN OF INDUSTRIAL WORKS.—At a meeting of the Birmingham Association of Mechanical Engineers in the Grand Hotel, Birmingham, on Friday, a paper on "The Design of Industrial Works" was read by Mr. A. Home-Morton, M.I.C.E. Discussing first of all general considerations, the lecturer said that in drawing up estimates the engineer-designer should first consider not what capital could be secured, but what immediate output could be profitably marketed. Careless estimating ought to be inconsistent with professional honour. It was important, too, that the labour conditions should receive attention equal at least to that bestowed upon plant and equipment. The site and environment of the works should also enter into the calculation, for provision for the health, comfort, content, and even education of workers was a factor which made for efficiency in the international industrial competition of to-day. Speaking of power generation and transmission in industrial works, the lecturer, dealing first with transmission systems, said that where the plant was compact and conveniently arranged within a radius of, say, 100 or 150ft. from the central power plant, mechanical transmission was most economical; while, with an increased radius, gas or electrical transmission had advantages, the former being the most enticing system from the point of view of thermal efficiency, but, meantime, having a more limited application. As to the works structure, the design of industrial works and factories, in all its details, ought to be left to the engineer-designer, with the proviso that he was not at liberty to perpetrate an offence to the public eye. The essential feature of all industrial design should be simplicity, utility, and efficiency, combined with low first cost and durability.

As a result of the operation of the Patents Act, some engineering works at Rochester have been acquired by an Anglo-German company for the manufacture of cement-making machinery of a kind hitherto produced almost exclusively in Germany.

At the last meeting of the Herefordshire County Council, Mr. Alex. Dunn, of Worthing, was appointed architectural and general assistant to Mr. Jack, the county surveyor, at a salary of £150 a year.

The factories and offices of Messrs. Bryant and May, Ltd., in Fairfield-road, Bow, E., are being reconstructed on an enlarged scale. The architects are Messrs. Holman and Goodeham, of 6 King's Bench-walk, Temple, E.C.

Mr. Herbert Lawford, of Camden-road, N.W., of the firm of Messrs. Lawford and Sons, builders' material merchant, who died on November 23, aged 56, left estate of the gross value of £43,132 15s. 7d., of which the net personalty has been sworn at £40,806 10s. 5d.

The contract for the supply of water for the parish of Donington has just been completed for the Donington Water Company by Messrs. F. Smith and Son, of Grimsby. The supply of water is by gravitation, the only works in addition to the bore required being the laying of the distributing mains and service pipes for putting the supply in the houses. The company propose as soon as practicable to extend the water-mains to Gosberton and other parishes in the district.

The jury summoned to assess the amount of compensation to be paid to G. G. Vieweg, owner of an old curiosity shop, in respect of leasehold and trade interests in No. 278 Westminster Bridge-road, which is required in connection with the new County Hall site, has awarded the claimant £1,974. The amount of the claim was £6,617. The amount awarded being below the London County Council's offer under seal, the claimant is required to bear his own costs in the case and half the costs of the sheriff and jury.

Our Illustrations.

ROYAL INSTITUTE OF BRITISH ARCHITECTS SOANE MEDALLION COMPETITION, 1911. DESIGN FOR A CITY GATEWAY AND BRIDGE GATE HOUSE.

(HONOURABLE MENTION DESIGN.)

Last Friday we illustrated the Soane Medallion prize design, by Mr. Prentice Mawson. We now give the design placed second, by Mr. C. Percival Walgate, of the Royal College of Art, who has sent us the following notes as to his scheme: "The subject was a Gateway and Gatehouse, which, as differing from a triumphal arch, seems to suggest a Mediæval conception, and this idea of mine was fostered by the provision that the river flowing by was to be enclosed on the City side by embankment walls, which structures remind one forcibly of the 13th century; and so the thought of a Gothic gateway with great towers, and a fortified bridge, ending in tourelles and a drawbridge, became irresistible. Then the addition of a residence for the keeper of the gate made absolutely necessary the adoption of the lighter and less warlike style of the 15th century, on the sheltered city side of the gateway. The building then lacked only interest of detail, and so the graceful style of François I. was used for various minor parts which took the form of additions and alterations to the earlier structure. The aggressive tourelles and drawbridge gave place to open loggie, and the exterior began to express peace and prosperity, rather than fearful safety. So the conception was completed, having followed in three months the development of knowledge and ideals which, in the course of three hundred years, gave us some of the most charming buildings in the world—the chateaux of France." We shall shortly publish the elevations, plan, and detail of this clever scheme.

PRIZE DESIGN FOR A CAMPO-SANTO ON A ROCKY ISLAND.—R.I.B.A. TITE COMPETITION, 1911.

The subject set this year was considered to be one which called for a simple and dignified treatment, rather than one of a more ornate character. The island is taken as rising from all sides towards the centre, and down the centre of the island is a valley reaching to the bay, in which the landing-stage is arranged. A road runs from the landing-stage, following the contours of the sloping ground, with a gradual rise to the church which stands at the head of the valley, thus giving easier access than would be the case were steps only provided. The church, dominating the island, is cruciform in plan, and would be built of stone quarried on the site. A simple domed treatment was considered as being appropriate to the position and requirements, much ornamentation being out of place in such a church. Doors placed centrally in the walls of the transepts give direct access to the arcaded cloisters which run along the sides of the valley at the same level as the church floor. As the fall of the ground necessitates, two lower tiers of cloisters are terraced in the rock, and the whole is enclosed on its lower side by a cross terrace connecting the two sides at the level of the lower cloisters, and under this terrace is placed centrally the entrance to the enclosure. Diagonal paths and stairways give access to the cloisters and to the terrace in front of the main entrance to the church. The entrance to the enclosure is reached from the landing stage by stairways, as shown on the block plan. The gardeners' cottages are grouped together in three blocks of five cottages each, and a fourth block—the surveyor's house—completes the village, which has its own separate landing-stage and boathouse, the latter being provided hollowed out of the cliffs. A path connects the village with the landing-stage at the other end of the island, and near the landing-stage is provided accommodation for the funeral barge, coach, and horses. It is our intention to give further drawings of this design next week, showing how Mr. G. H. Foggitt, the prize winner, arranged his cloisters on the hillside and made his approach to the church.

AGRICULTURAL BUILDING, CAMBRIDGE UNIVERSITY.

The growing needs of this very modern and active department of university work have compelled an outlay upon bricks and mortar which only a few years ago would have been deemed chimerical. Not only is the present structure built and paid for, but it is already full to overflowing, and, before very long, extensive additions will have to be made. The laboratories are the most complete and up to date of all the Cambridge buildings for scientific research, no pains having been spared to meet every known need of agricultural science. Mr. William Sindall, of Cambridge, is the builder, and to his energy and capacity the warmest tribute is due. The architect is Mr. Arnold Mitchell. The drawing given to-day was hung at the Royal Academy last summer.

HOUSE AT HIGHGATE.

This is a "family" house, containing four sitting-rooms and nine bedrooms, and built on a plot of ground 70ft. wide. It is faced with mottled red bricks, with dressings of a somewhat clearer red, and the roof tiling is done with Burgess Hill tiles. There is a good light corridor hall on each floor. The interior detail is quite simple, and is mostly concentrated on the fireplaces; there are polished floors in the sitting-rooms, and the forecourt is paved with brick and stone. The builder was Mr. Henry Erown, of Paddington. The architect is Mr. Arthur Keen, of Gray's Inn. The illustration is taken from the picture shown at the Royal Academy, 1910.

NATIONAL COMPETITION PRIZE: DESIGN FOR CHAIRS.

Mr. Percy G. Massey, of Levenshulme, near Manchester, won a National Competition prize for measured drawings and designs for Chairs, awarded to him by the Board of Education. We illustrate these designs, which need no description, being self-explanatory.

The large balloon-shed at Farnborough which was erected last year is again in the hands of the builders. The Army Balloon Works authorities have decided to raise the roof by 15ft., and when all the side structure has been prepared the roof will be lifted bodily to the required height.

The new public water supply for the urban district of Newbiggin was formally inaugurated on Friday. The supply is obtained from the Tynemouth Corporation font mains at Ewart Hill, Bedlington, and carried by Stakeford Bridge to Newbiggin. The work of laying the pipe-line has been carried out by Messrs. Blair, contractors, of Glasgow, with Mr. Cuttris as engineer. The cost has been £6,300.

The Woolwich Antiquarian Society are excavating at Lesnes for the complete ground plan of the Abbey, and have practically unearthed the whole of the main building, including the church. They have discovered a wealth of treasure so far—hundreds of patterned tiles, a splendid effigy (with considerable colouring left) of a knight in armour, a number of coffin-slabs and coffins, carved capitals and bases, moulded stones and shafts, a beautiful moulded doorway, and some well-preserved dog-tooth ornament and stained glass. Five hundred pounds is estimated to cover the cost of the complete excavations. About a quarter of that sum has been already received (and mostly spent), and the remainder is urgently required.

At a conference last week between the Institution of Municipal and County Engineers, as representing the road engineers, and the Incorporated Road Improvement Association, as representing the road users, on the question of the gritting of London streets, evidence was given by the road users of the damage caused to rubber tires by the gritting materials at present used. The ways and means of reducing the damaging effect of gritting to a minimum, while maintaining a non-slippery surface for all types of traffic, were fully discussed. Eventually a resolution was passed setting out certain principles for dealing with the difficulty. This will be submitted by the delegates to their respective organisations for confirmation, and a further conference will then be held.

COMPETITIONS.

GIDEA PARK HOUSE AND COTTAGE EXHIBITION, 1911.—We understand from the exhibition committee that the response to this competition for houses and cottages to be erected in Gidea Park this summer has been of a very satisfactory kind. More than three hundred architects submitted designs for houses and cottages, of which about one hundred will be erected. The entries for the competition for a town plan in Gidea Park remain open until March 31. The first prize is £100, the second prize £50, and there is a special prize of £25 for a perspective drawing of part of the proposed lay-out. The area to be planned is approximately 300 acres, intersected by the Romford Golf Course and the Roman road, leading to Romford.

NORTH-WESTERN UNIVERSITY, CHICAGO - EVANSTON, ILL. — The trustees of the North-Western University have appointed a committee with power to procure a general plan for its campus at Evanston, Illinois, and to appoint an architect for buildings now projected at a cost of 350,000dol. This the committee will do through a competition which has been approved by the American Institute of Architects through its Illinois Chapter, and will be conducted by Professor Warren P. Laird, of Pennsylvania University, Philadelphia. It will be restricted to twelve architects, of whom four have been specially invited, while eight will be selected from the open field. To the former, and those three among the latter rated by the jury as best, will be paid each a fee of 500dol. and travelling expenses incurred in an inspection of the site; such fee, in the case of the appointed architect, to apply on account of his fee as architect of the work. The jury will consist of the adviser and two other architects chosen by the competitors from among five or more nominees selected by the adviser. The appointed architect will receive 1,000dol. for the use of his general plan in addition to the fee of six per cent. on the work. The competition will close April 15 next. The official programme was issued on Saturday last, the 20th inst.

PERTH.—A special meeting of Perth School Board was held on Monday night for the purpose of considering the question of the erection of a new academy. The proceedings were of a lively description, and lasted for two hours. It was agreed by 5 votes to 3 that a new academy be erected, while it was also agreed to call in an eminent architect to adjust the building scheme, and afterwards judge the competitive plans which it is proposed should be invited. The outlay indicated for the new building was £24,000.

WASHINGTON, D.C.—The successful competitors for the three buildings the U.S. Government will erect in Washington are as follows:—Building for Department of Commerce and Labour, Messrs. York and Sawyer, New York; building for the State Department, Mr. Arnold W. Brunner, New York; building for the Department of Justice, Mr. Donn Barber, New York.

In connection with the explosives factory which it is proposed to erect near Crombie, at Rosyth Naval Base, forty-three firms have applied for schedules for the work, which is to be of an extensive nature, including a range of buildings, where the staff to be employed in connection with Rosyth will be greatly augmented.

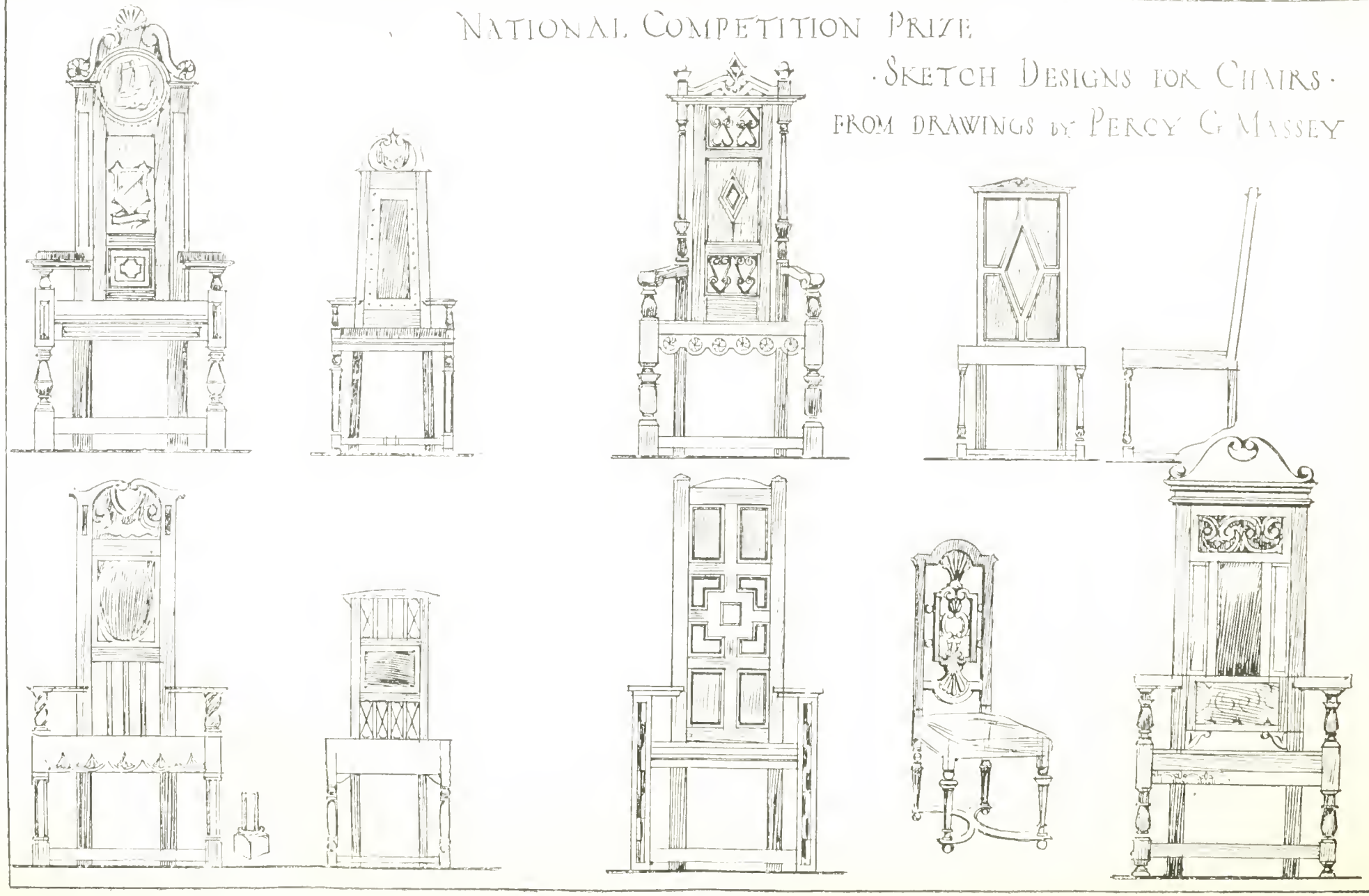
An interesting local work is shortly to be issued from the pen of Sir James Lemon, F.R.I.B.A., who will deal with his reminiscences of public life in Southampton from 1866 to 1900. The book, which will be in two volumes, will deal with every detail of local administration, including the questions of water and gas supply.

The Board of Agriculture have issued a circular to borough councils in England and Wales calling attention to complaints of the alleged pollution of streams and consequent damage to fisheries by washings from newly-tarred roads. Local councils are asked to avoid the excessive use of tar or similar material at a time when heavy rainfall is expected in all cases where there is a possibility of surface drainage from roads finding its way into waters containing fish.

NATIONAL COMPETITION PRIZE

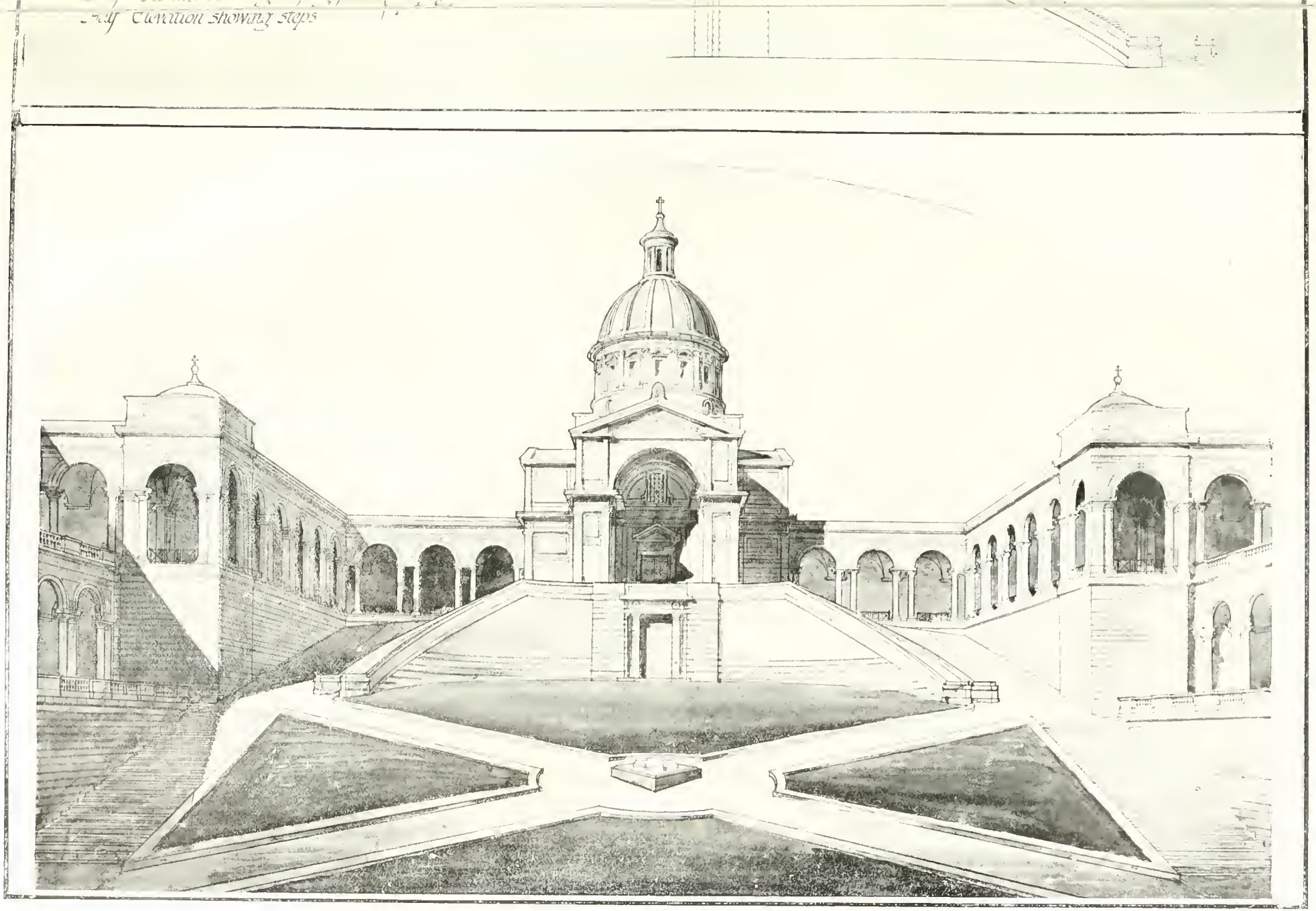
SKETCH DESIGNS FOR CHAIRS

FROM DRAWINGS BY PERCY G. MASSEY



THE TITE COMPETITION — DESIGN FOR A CAMPO SANTO

THE MAIN ELEVATION TOWARDS THE ENTRANCE



A CAMPO-SANTO.—PRIZE DESIGN. By George Herbert Foggitt.

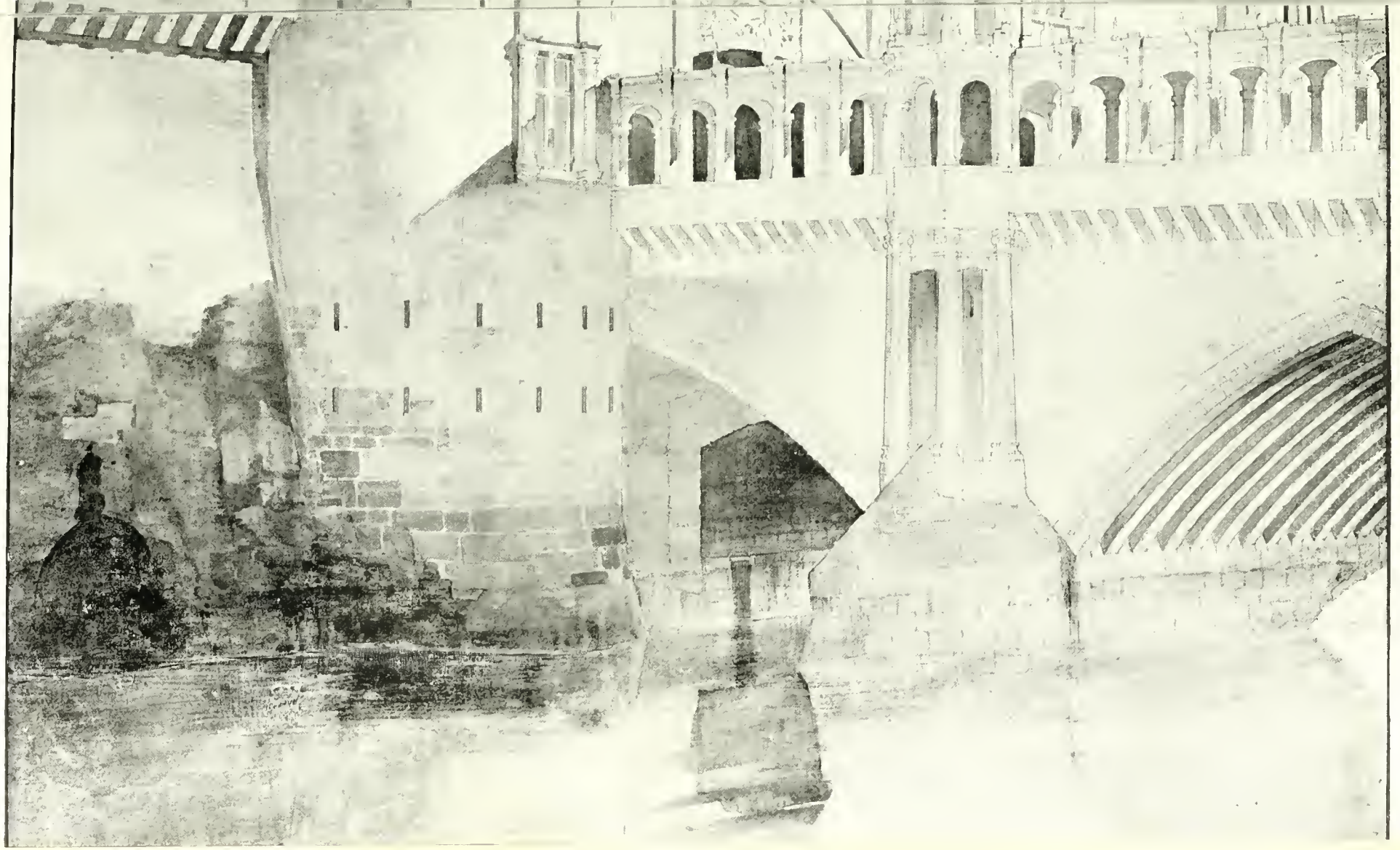
Royal Institute of British Architects. Tite Prize and Travelling Studentship. 1911.

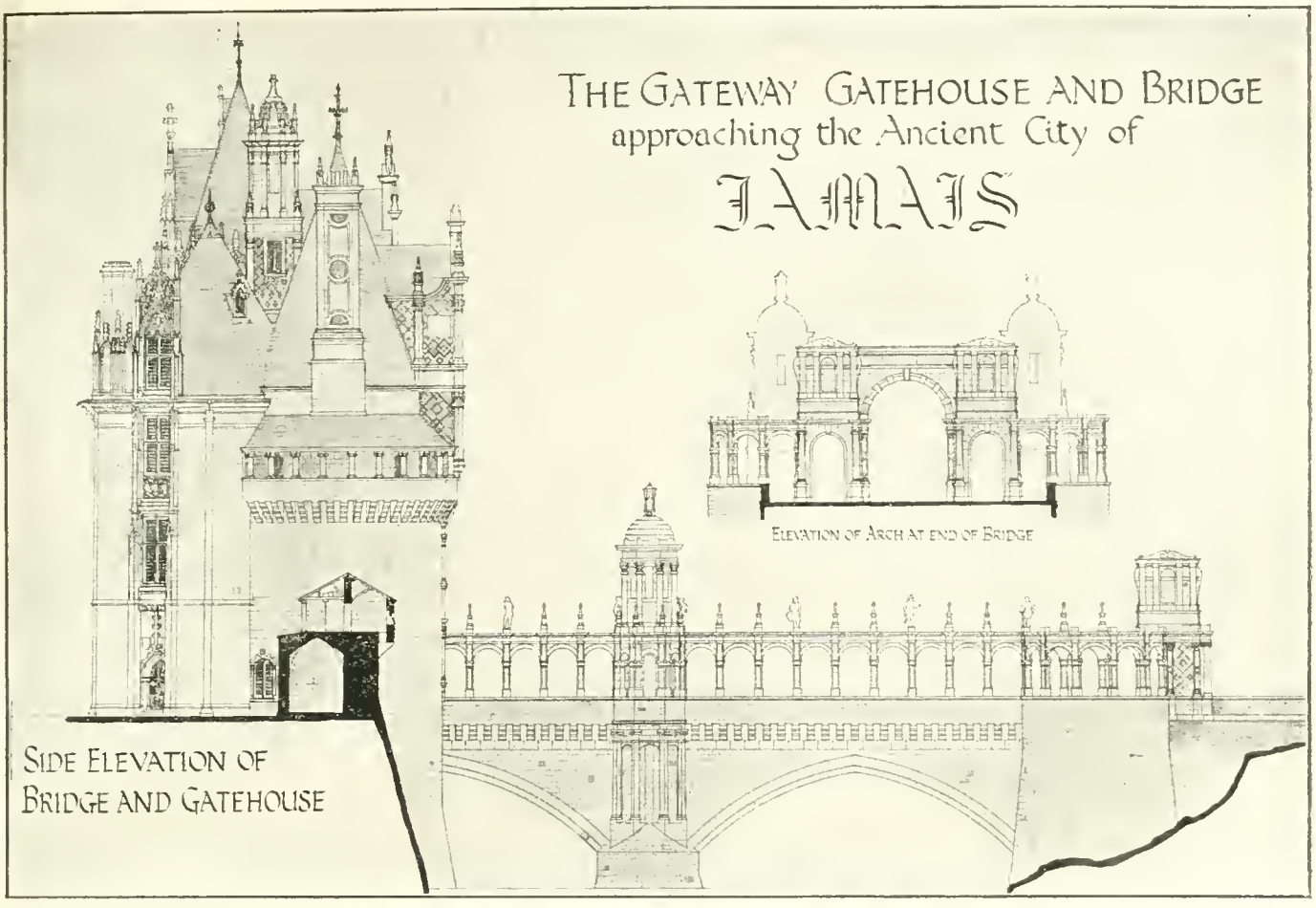
ROYAL ACADEMY EXHIBITION 1910

PHOTO-T.

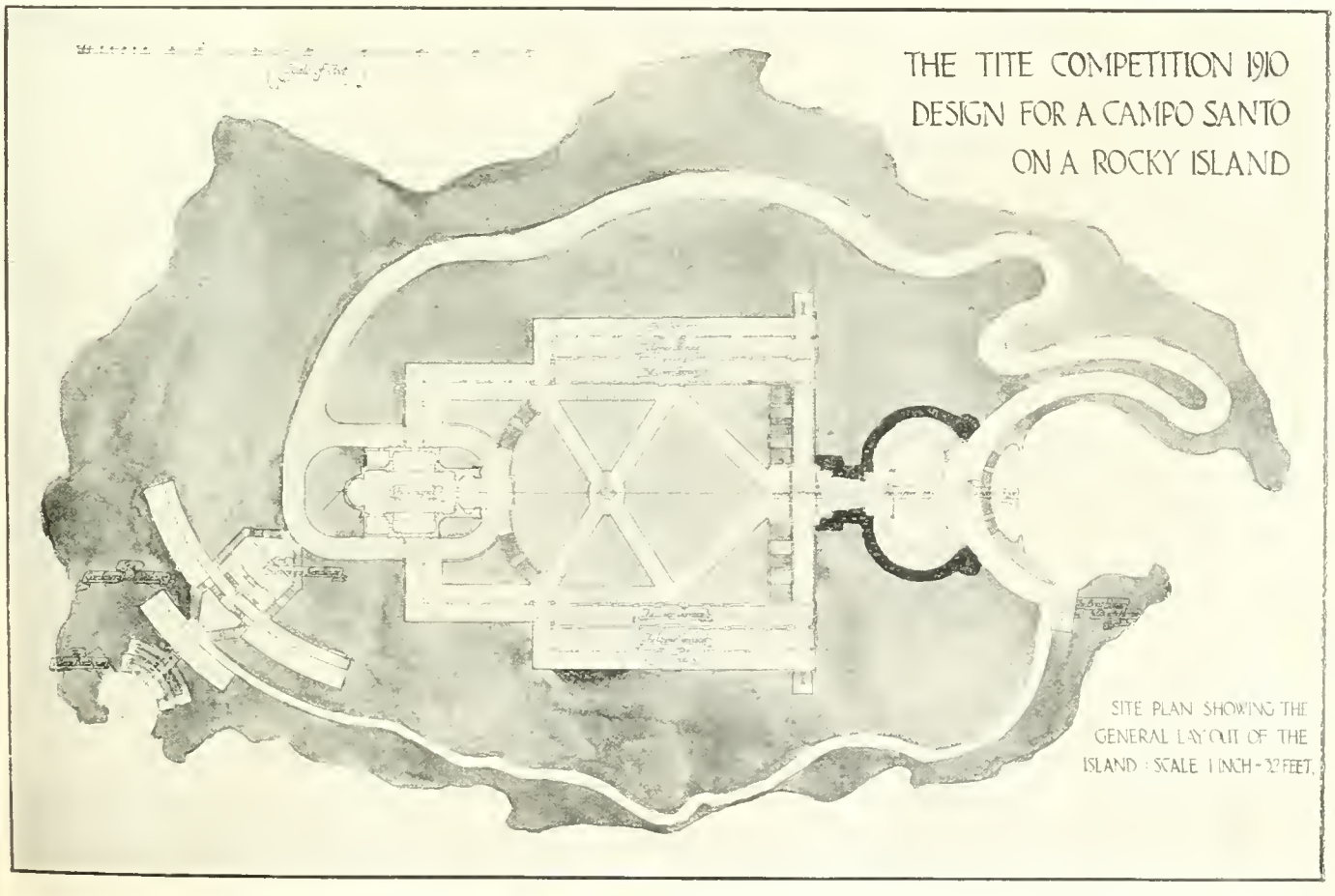
ROYAL ACADEMY EXHIBITION 1910

AGRICULTURAL BUILDINGS CAMBRIDGE UNIVERSITY, SHOWING ADDITIONS. ARNOLD MITCHELL ARCHITECT




THE GATEWAY GATEHOUSE AND BRIDGE
approaching the Ancient City of
JAMAIS
ELEVATION OF ARCH AT END OF BRIDGE
SIDE ELEVATION OF
BRIDGE AND GATEHOUSE

R.I.B.A. SOANE MEDALLION COMPETITION: HON. MENTION DESIGN.—By C. PERCIVAL WALGATE, A.R.C.A.


THE TITE COMPETITION 1910
DESIGN FOR A CAMPO SANTO
ON A ROCKY ISLAND
SITE PLAN SHOWING THE
GENERAL LAY OUT OF THE
ISLAND : SCALE 1 INCH = 32 FEET.

R.I.B.A. TITE COMPETITION: THE PRIZE DESIGN.—By GEORGE HERBERT FOGGITT.

Building Intelligence.

LIPHOOK, HANTS.—The new Roman Catholic church of Our Lady of the Immaculate Conception has been opened. It consists of nave and sanctuary, together 51ft. long by 18ft. wide, and sacristy, 14ft. by 14ft. 6in. It is intended to build a presbytery later, which will adjoin the sacristy. The style is Perpendicular Gothic. At the intersection of the nave and sacristy is an octagonal turret, which contains the staircase to the organ-chamber and a small belfry above with louvred openings. The organ-chamber is placed over the sacristy with arched openings to the nave and sanctuary. The entrance is through a central porch at the west end. The walls are built of local stone, lined with brick. The architects were the Very Rev. A. J. Canon Scoles and Mr. G. Raymond, of Basingstoke, and the contractor was Mr. D. Fry, of Godalming.

SEAFORTH.—The new parochial hall, erected at a cost of about £1,550 on a site adjoining St. Thomas's Church, Seaforth, has been formally opened. The building comprises:—On the ground floor, a hall to accommodate 350 persons, with two classrooms and a kitchen; and clubroom, with lavatory attached. The exterior is faced with grey bricks with grey terracotta dressings, the roof being covered with Welsh slates. The work has been carried out from the designs of Mr. Frank Rimmington, architect, Harrington-chambers, North John-street, Liverpool.

The death is announced of Mr. Edward H. Smales, architect, of Whitley, and vice-chairman of the urban district council of that town.

Mr. John Henry Smith, of 187, Uttoxeter New-road, Derby, clock manufacturer, died on December 6, leaving £34,394, with net personalty £30,080.

The patent water-filters which have been erected, at a cost of £4,000, by Messrs. Bell Brothers, Ravensthorpe, for the burgh of Cowdenbeath, were formally opened on Friday.

The London County Council have decided to construct a new street, 50ft. in width, from the west side of Smith-square to Tufton-street, as part of the Westminster improvements authorised by their Act of 1900.

His Majesty's Coronation having been fixed for June 22 next, the R.I.B.A. Final and Special Examinations, which had been arranged to commence on that date, will be held a week later—viz., from June 29 to July 5.

The annual dinner of the A.A. Camera, Sketch, and Debate Club was held last (Thursday) evening at the Monico Restaurant, Piccadilly-circus. Mr. Stanley G. Hamp, R.I.B.A., the chairman of the club, presided.

At Gainsborough, on Wednesday week, the foundation-stone was laid of the Coupland Hospital, for which some £50,000 was left by the late Mr. John Coupland, of Hemswell. Mr. W. Eyre is the architect, and Mr. B. Pumfrey the contractor.

Professor Giuseppe Tomacsetti, the distinguished historian of the Roman Campagna in the Middle Ages, died in Rome on Monday, in his sixty-second year. Professor Tomassetti devoted twenty-two years to his great work, which is now appearing in its second edition. Since Gregorovius, no such exhaustive treatise on Mediæval Rome has been penned.

Mr. T. G. Jackson, R.A., speaking on Saturday at a gathering at Winchester, referred to the preservation of the cathedral, in which work he is the expert adviser of the Dean and Chapter. He said that the restoration had been undertaken in the nick of time, ere the cathedral became a beautiful ruin. The building had been placed upon a surer foundation than ever before.

The Stretford Urban District Council resolved on Tuesday to accept the offer of the Rylands trustees to sell to the council the Rylands Hall estate for the sum of £14,500 for the purposes of a public park, subject to a poll of the ratepayers and the sanction of the Local Government Board. The estate is 63 acres in extent. The council propose, however, to sell as building plots an area approximating to eleven acres, which it is estimated would largely reduce the cost to the ratepayers.

Correspondence.

R.I.B.A. FELLOWSHIP BY WAY OF THE LICENTIATESHIP.

To the Editor of the BUILDING NEWS.

SIR,—A good deal of dissatisfaction appears just now to exist in some quarters, and some of my professional friends are very exercised because, as architects in established positions, they, wishing to enter the Institute without passing the Associates Examination, are expected to join the Licentiate class, which, of course, is also open to their assistants. Those principals who have written on the subject are, however, in error in thinking that they ought to be, or indeed can, ordinarily speaking, be elected to the Fellowship straight off, as under the old régime in force prior to the Supplemental Charter of 1908, and therefore it occurs to me that some little explanation might be useful, perhaps, to others besides the few correspondents alluded to. The new By-laws rightly provide that Fellows shall be only chosen from the Associates, and possibly from the Licentiates. Candidates must pass the final statutory examination before they become Associates, and Licentiates, *up to March next*, and not after then, may be elected by submitting drawings, with evidence of rectitude and of technical and architectural efficiency. There is nothing in the smallest degree derogatory implied if architects of position, wishing to become members of the Institute, decide to join the Licentiate class. This does not preclude anyone from passing the examination for the Associateship as required by the Charter, and, as a matter of fact, some of the elected Licentiates have already passed the preliminary or intermediate examinations. Architects of recognised position and experience, being admitted to the Licentiate class, can be transferred by the Council to the Fellowship, up to the year 1920, without being subjected to anything approaching a vexatious or unreasonable examination as to artistic or technical qualification, and no architect of position could properly object to inquiries as to bona-fides and good repute. The Council has power to elect and admit as a Fellow any architect who shall have attained the age of thirty years, and shall have been engaged as a principal for at least seven years in the practice of architecture; but this proviso, now in force, is, I take it, intended only to apply to exceptional cases, and it would be unreasonable to expect such-like exceptions to be made on anything approaching a comprehensive scale. On the other hand, while it is desirable to create as many Licentiates as can be properly managed, in the interests of the individuals themselves, as well as for facilitating the passing of a Registration Bill, it would be distinctly unfair to the Associates if the Fellowship should be too freely or readily accorded to the Licentiates. There is no likelihood, so far as I can judge, of that happening. Therefore, no architect of good standing need feel any compunction in coming forward for the initial degree of Licentiate, and he suffers no loss of kudos because, perhaps, his assistant is admitted as such. That is, I think, a fair view of the position.—I am, etc., SEMEL ET SIMUL.

CATHEDRALS OF NORTHERN FRANCE.

SIR,—Your reviewer and Mr. Bumpus are both right. The title of "the Parthenon of French Architecture" has been given both to Rheims (by M. de Caumont), as Mr. Bumpus demonstrates, and to Amiens (by Viollet-le-Duc), as your reviewer said a fortnight ago. I cannot turn up the reference by Viollet-le-Duc at the moment; but Ruskin, at the opening of the fourth chapter of "Our Fathers Have Told Us," says: "The cathedral of Amiens deserves the name given to it by M. Viollet-le-Duc—'the Parthenon of Gothic architecture'—of Gothic, clear of Roman tradition and of Arabian taint; Gothic, pure, authoritative, unsurpassable, and unaccusable; its proper principles of structure being once understood and admitted." See also Pennell's "French Cathedrals," p. 331.—I am, etc.,

EAST ANGLIAN.

CHIPS.

Mr. David Shields, county surveyor of Ayrshire, has been appointed surveyor to the Norfolk County Council.

A conference on the "Smoke Evil" is to be held at the British Institute of Social Service, Tavistock-square, on Monday. Sir William Richmond will preside.

In the Chancery Division on Tuesday Mr. Justice Swinfen Eady adjourned for five weeks a petition for the compulsory winding-up of Messrs. Waring and Gillow, Ltd.

The agreement for the purchase of the site in Marylebone-road for the new town-hall for Marylebone has been sealed, and the borough council decided yesterday (Thursday), to appoint a special committee to supervise all matters connected with the erection of the building.

Mr. Edward Herbert Faraghey, for some years sanitary inspector to Bolton Corporation, has been chosen out of 120 applicants for the position of inspector under the Manx Local Government Board. The successful candidate is a Manxman. His salary commences at £120 a year.

The memorial to the late Dr. J. J. Ridge, founder of the British Medical Temperance Association, was unveiled by the Lord Mayor, Sir H. V. Strong, last Saturday, at Enfield Public Gardens. The memorial consists of a portrait bust in bronze, with pedestal in polyphant, with dedication panel in bronze. It was the work of Mr. J. Nesfield-Forsyth, sculptor.

Dr. Ryle, the retiring Bishop of Winchester, makes a final appeal for £10,000 to complete the works of underpinning and repair which have been carried on at the cathedral for five and a half years past. The Dean and Chapter have already collected and expended £98,000. The only work that remains to be done is the underpinning and strengthening of the south nave aisle.

The *Boletin* of December 13 contains a decree approving the plans, submitted by Messrs Ochoa and Medhurst Thomas, for the erection of a building intended for a customs-house at Rosario. The cost of the undertaking is estimated at 1,551,000 pesos (about £136,000), but the commencement of operations will have to be deferred until Congress has sanctioned the necessary credit.

The London County Council have granted an application from the Paddington Metropolitan Borough Council for sanction to the borrowing of a sum of £5 700, repayable within three years, for creosoted deal wood-paving in place of macadam in Oxford and Cambridge-terrace. The roadway, which is in bad repair, accommodates very heavy traffic to the termini of the Great Central and the Great Western Railways.

The council of the Royal Institute of British Architects, on the recommendation of the Board of Architectural Education, have resolved that applicants for the Probationership R.I.B.A. who have passed the Senior or the Junior School Examination of the University of London, or the Matriculation Examination of the University of London, shall be exempted from sitting for the Preliminary Examination of the Royal Institute.

Mr. James Rushton, senior partner in the firm of Messrs. J. and J. Rushton and Sons, Limited, slaters and contractors, of Bacup and Littleborough, died on Sunday, aged 66, at his residence, Leewood, Bacup. The business was begun by the deceased's father, Mr. John Rushton, in 1860, and on his death it was continued by his sons, Mr. James Rushton, now dead, and Mr. Joseph Rushton. The firm has carried out large contracts in many parts of Lancashire. The deceased devoted himself industriously to business, and had neither political nor public associations.

A meeting of the directors of the Arbroath Infirmary was held on Monday to consider a report by Dr. D. J. Mackintosh, medical superintendent of the Western Infirmary, Glasgow, on the present condition of the Arbroath Infirmary buildings and what improvements, alterations, and additions he considered necessary to modernise the institution. After discussion, it was agreed to appoint an architect to bring up a report, and on a vote being taken, Mr. Hugh Gavin, Arbroath, was appointed. It was further decided to request Mr. Gavin to consider and report as to the cost of carrying out improvements and alterations on the infirmary buildings in accordance with the recommendations of Dr. Mackintosh.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. George Norman, 178, Commercial-road, East.

QUESTIONS.

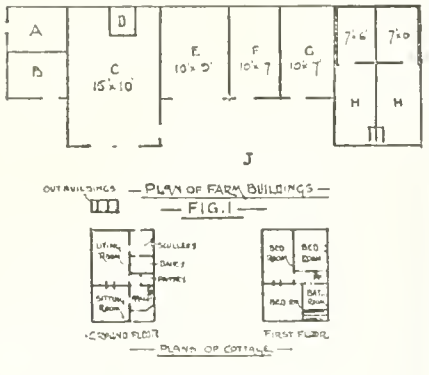
[12998.]—GROUND FLOOR.—I should feel extremely obliged if some of your readers of practical experience in Domestic work would give me what they consider the most satisfactory way in which the ground floor of a house (cost about £750) should be constructed, so that dry-rot and dampness would not be feared to any great extent. The floor line will be 14in. above ground level. —Cardiff.

[12999.]—ORIEL WINDOW.—Would some reader kindly show by sketches the most economical and safe arrangement for the distribution of stonework in an oriel bay window on the first floor of a domestic building 6ft. wide, 3ft. projection, internal dimensions? The building throughout has Corsham Down Bath stone dressings, and it is proposed to construct the window with mullion and transom to match.—G. L. T.

[13000.]—CORRUGATED IRON SHEETING.—What is the life, approximately, of corrugated iron sheeting when used for roofing purposes, and, if painted, how much longer will it last? How long will it last when used as paling (unpainted)? What is the best preventive from rust?—Enquirer.

REPLIES.

[12988.]—SMALL HOLDINGS.—Provision for the respective buildings will depend upon the individual requirements, acreage, and culture taken up by the occupier, while the rent of the farm and the locality govern the quality and finish of the buildings. In laying out small holdings the writer has found the following provisions necessary in the long run and under the general circumstances: (1) barn, (2) cart house, (3) stable, (4) cow byre, (5) calving-box, (6) piggeries. Fig. 1 illustrates a plan of the necessary buildings for three to fifteen acres of land for the working of an average holding, assuming an all-round undertaking, comprising market gardening, small dairy, milk and butter, poultry, fowls, horse for transit of produce, stores and working, pig-keeping, including fruit, bee-keeping, etc. These buildings are placed at the side or rear of the dwelling house, generally with a yard between. By reference to Fig. 1 the respective buildings are: (A) Housing for poultry, (B) fowls, (C) barn for storage, roots, food, mixing, etc., (D) boiler, (E) cart shed and implements, (F) stable, (G) cow-byre and calving-box, (H) piggeries, (J) yard. The buildings are of timber framed, covered with tin tarred weather-boarding, with lapped joints and tiled roofs, resting upon a concrete foundation. The piggeries are built of concrete. The whole of these buildings complete, including fittings, were erected for £81 10s., this gives the cost of such buildings, while the accommodation is shown, together with the sizes of the different departments figured thereon. The plan (Fig. 1) also shows the ground and first floors of the cottage attached to the holding, and costing £200. Fig. 2 shows a plan for a small holding of from 30 to 60 acres, on which milk production and cattle raising are combined. By reference to the diagram the respective buildings include: (A) Cow-byre to take four cows, (B) box, (C) mixing-room, (D) box, (E) food stores, (F) implements and carts, (G) calves, (H) piggeries, (J) loshing house, (K and L) covered yards, (M) water-tanks, (N) steps to store-loft. Such are the buildings required, and either plan can be easily modified to suit any special requirements. Chas. A. Longley, 52, Ivanhoe-road, Denmark Park, London.



[12991.]—SOUND THROUGH WALLS.—The only effective remedy of preventing discordant sounds passing through a party-wall or the transmission of such between the floors and partitions of an adjoining building is to form a screen of a non-conducting material against the party-wall for its entire length, and to pug the existing floors and partitions, including the recesses to chimney breasts upon both the ground, first, and subsequent floors. The writer has successfully prevented sounds penetrating adjoining buildings by this method of sound-proof construction, and in many very bad cases, where considerable and continual annoyance to the occupants was occasioned. The construction consists in covering the party-wall with slagwool sheets ½in. in thickness, fixed to fir battens, which are fixed to the wall, and the whole surface covered in with the ordinary compo-boarding nailed to the slag-wool sheeting. It is essential that the compo-boarding is nailed to the slag-wool sheeting, and that the nails are prevented from penetrating the wall; otherwise, if any such part is in direct contact with the fir framework, wall, or any other members, such as joists, etc., built into the wall, the sounds will be still conducted to certain points. The last point is one of considerable importance, as in one particular instance before the writer's notice, where a party-wall was made sound-proof, yet faint sounds were continually heard in one of the rooms at different times, which, after a long investigation, was found to be entirely due to the skirting fixed on the partition between the two rooms being screwed to the studs, and the latter stub-tenoned into the sill, which was inserted 9in. into the party-wall, and upon which rested a binder carrying the floor of the adjoining building upon which the musical instruments rested; hence the conduction between the two rooms. Slag-wool is one of the best-known non-conducting materials, and is also fireproof, light, and cheap. All the floors should be pugged for a distance of 3ft. from the party-wall by removing the existing flooring and fixing 1½in. by 1in. fillets to the lower ends of the joists to support 1in. boarding filled in between and extending 2ft. Upon this boarding well pug with lime and hair mortar on the ground floor, while on the upper floors use slag-wool, covering the joists with inodorous felt or strips of slag-wool previous to making good the flooring. The spaces behind the skirtings, which are generally hollow, should also be filled in. Another method of rendering party-walls sound-proof is to sheath them with tin or aluminium; but this would be costly in this case. A cheaper but not so effective a remedy is that of covering the party-wall with a double thickness of three-ply Willesden paper, and hang thereto a heavy wallpaper, and generally curtain the rooms throughout.—Chas. A. Longley, 52, Ivanhoe-road, Denmark Park, London.

[12997.]—CLEANING LEADWORK.—I have found the most satisfactory preparation for cleaning leadwork to be soft soap and silversand, used with hot water. Take two parts of soft soap and one part silversand, and work up into a stiff paste. Then take an old "scrub" brush, dip into the hot water and then into the soap-and-sand paste, and apply liberally to the work, brushing well in, afterwards rinse down with cold water. I consider this much better than using acids, and the work is quickly and cheaply done. There are various preparations that could be employed to coat the work and keep it clean for a very considerable time; but these all more or less spoil the natural appearance of the lead.—George Norman, 178, Commercial-road, East.

[12997.]—CLEANING LEADWORK.—Tinned lead work can be cleaned periodically with very little labour, as follows. Take a mixture of silversand and warm water (in equal parts), and add a little washing soda. Scrub the leadwork briskly with a housemaid's scrubbing-brush, using the mixture, and keeping the latter well mixed. Afterwards rinse well with syringe.—L. G. Cathrall, Hope Cottage, 61, Regent-street, Wrexham.

[12997.]—CLEANING LEADWORK.—The accumulations of overlying dirt and soot may be removed by a vigorous scouring with a hot dilute solution of caustic soda or caustic potash. These have a dissolving effect on the surface of the skin, so should be used with care; they have very little effect on the lead or tin, however. If it appears necessary, dilute hydrochloric acid may then be applied. The tin is little affected by it, but all dilute acids act on lead; the lead should, therefore, be well washed afterwards with water, to remove all traces of the acid. The tin may then be polished with a wash-leather and a fine polishing-powder, such as tripoli or rotten-stone finely ground, and made into a paste with olive oil. Rub afterwards with a clean leather or brush, to remove all traces of powder.—S. H. Goodwin, 8, Epsom-road, Croydon, Surrey.

[12997.]—CLEANING LEADWORK.—It is inadvisable to touch the surface of leadwork after it has been fixed on the building, as the atmosphere acts upon it and forms the oxide of lead, which protects the leadwork from further atmospheric action. Each time this coating is cleaned off further action takes place, and gradually thins the metalwork. Should it be absolutely necessary to clean the work, then scrub down with water containing dilute sulphuric acid, to remove the greasy dirt. Hydrochloric acid (spirits of salts) and nitric acid are not to be used, as both act upon metallic tin, and lead is soluble in nitric acid.—Frank Wilson, 225, Nottingham-street, Sheffield.

[12997.]—CLEANING LEADWORK.—The simplest way to clean leadwork, and, at the same time one that will not damage the face, is to scrub it vigorously with an ordinary stiff bristle scrubbing-brush, using benzoline as the liquid, then go over it with a soft brush using paraffin. This clears all the soot off it, and the latter process gives the leadwork a slightly dull polish, making it easier to clear the next time. If "H. B." follows this simple and inexpensive method, he will, I am sure, find it effective. Modern milled lead will go black very quickly, even in a country district. A better method is to try and obtain some old lead that is known to be at least fifty years old (the older the better), then have it melted and cast into sheets with a rough surface. The addition of about 20 per cent. of modern pig-lead will help, if he cannot obtain sufficient old. The old lead has a certain amount of silver in it, and when exposed to the action of the weather, will give you the beautiful white patina you will see on the lead roofs of our cathedrals.—Harold E. Henderson, 62, Ridge-road, Armley, Leeds.

[12997.]—CLEANING LEADWORK.—A solution to remove films of dirt formed upon the surfaces of leal and tin, caused by the substances (sulphor, carbonic, hydrochloric, and traces of nitric acids) absorbed by the moisture in the air, rain, etc., of a manufacturing town, should consist of an alkaline preparation, owing to the reactions of the deleterious substances upon incrustation. This being the composition of the covering film of dirt, the cleansing agent must, therefore, be of a substance to act upon and readily combine with such for its easy removal, so as to minimise labour and the likelihood of destroying the hydrated oxide of lead surface beneath. The best and most effective treatment will, therefore, be to well rub the surface over with crude petroleum, which will thus remove the greasy, black film, owing to its detergent properties, followed by well washing the surface with soft soap and water, where the alkali (potassium hydrate in the form of a strong lye) in the soap will neutralise the greasy film of dirt just worked up—that is, emulsifying the fatty matter, and releasing the foreign matters—resulting in its complete removal by several changes of clean water. This process of periodically cleansing, to obtain the metallic lustre of the tinning, will not act upon, or be detrimental to, the protecting (hydrated oxides) surfaces of the leadwork or tining, but will tend to preserve them generally, besides being simple and cheap.—Chas. A. Longley, 52, Ivanhoe-road, Denmark Park, London.

[12997.]—CLEANING LEADWORK.—Would not "H. B." get over his difficulty by painting his leadwork, and thus leave less "grip" for the smuts and dirt of the atmosphere? If he does this he must take care in the selection of his paint, so as to have enough elasticity for the expansion and contraction of the metal. One method of doing this would be to give the lead, after properly cleansing same, two coats of quick hard-drying paint (not oil), finishing to the required colour with a third, with the usual rubbing down and pumicestoning before the application of same. Another method would be to give two good coats of genuine white-lead and zinc-white in equal parts, having the colour mixed with, and well ground up in, oil, and thinned with turpentine, coach varnish, and boiled linseed oil, using terebine in the proportion of 1oz. to 1lb. of paint as a drier. The second coat should be one of paint to two or three of varnish, well rubbed down with pumicestone when dry, and finished with one or two coats, for preference, of enamel by a well-known and reliable firm. By this means an occasional washing would remove the grime and dirt, and this could easily be accomplished by means of a hose, or even a garden syringe.—K. H. Read, Lecturer on Building Construction, Gloucester Technical Schools.

The death has occurred at St. Andrews, Fife, of Mr. Sidney R. Cadogan, a landscape painter, who for many years was a regular exhibitor at the Royal Academy and the Grosvenor Gallery.

The executive committee appointed to consider a Scottish national memorial to King Edward held a meeting in Edinburgh on Monday, when a motion was carried in favour of the erection of a new gateway in front of Holyrood Palace. It will, if erected, occupy the site of a former gateway, on which some old properties now stand, and the estimated cost is from £50,000 to £60,000.

Mr. William Liversidge, J.P., of Millgate House, Selby, has undertaken to defray the entire cost of the rebuilding, from Mr. J. Oldrid Scott's plans, of the missing limb of Selby Abbey—the south transept, which was destroyed by the falling of the tower in 1690. The reconstruction will be similar in dimensions to the existing north transept, but will have a groined roof of oak instead of the flat ceiling in the north transept. The style is Decorated Gothic, and the south end will contain a 84-light window, 15ft. wide and 26ft. in height, and flanked by square turrets. The adopted plans were prepared by Mr. Scott 16 years ago. Mr. Liversidge has been associated with all the great restoration works at Selby Abbey, and restored the great East Jesse window. The cost of the present scheme is estimated at £8,000. The munificent offer will bring about the completion of the work of restoration.

LEGAL INTELLIGENCE.

DAMAGE BY SUBSIDENCE TO A CHURCH.—In the King's Bench, on Saturday, Mr. Justice A. T. Lawrence delivered his reserved judgment in the case of Browett v. The Summerhill Colliery Company, Ltd., and Others, which his lordship had adjourned to London from the Birmingham Assizes in December. The plaintiff was the Rev. A. E. Browett, vicar of St. John's, Princes End, Tipton, and he sued the defendants, the Summerhill Colliery Company and its directors, for damages in respect of certain injury and "letting down" of the buildings, due, it was alleged, to the workings of the colliery. Plaintiff's case was that the shaft of the colliery on the north side of the church was now only at a distance of some fifty yards, and in consequence of their working the church buildings had and were still subsiding. Plaintiff claimed an injunction to restrain the defendants from working the mines under the church property in such a manner as would deprive him of his right of support from the church land to its buildings. The defendants—the directors of the company, the Messrs. Marsh—said they were not personally responsible for the working of the colliery. It was worked by the company, and they said they were not responsible. The colliery company denied the damage as alleged. They denied that the mine had been worked subjacent to the church property, and it was suggested that possibly the cause of complaint had arisen by the withdrawal of water, which, whilst it was untapped, formed a support to the property. His Lordship, in giving judgment, said the schools had been damaged and were now closed. The buildings had been damaged before mining operations were commenced by the colliery company; but compensation had already been paid in respect of that. In 1906 defendants commenced to work coal on the north, east, and west sides of the plaintiff's property. His Lordship was of opinion that the directors of the company, Messrs. Marsh, were not personally liable for any damage done or caused by the mining operations. The damage to the buildings commenced in October, 1907, and continued till a recent date, as consequent upon the operations of the colliery company. The colliery company were working two seams, some forty and eighty yards below the surface. His Lordship had no doubt the damage was caused by the operations of the defendant company. Defendants had failed to prove that the coal under the plaintiff's property had ever been worked. Taking into consideration the whole of the evidence, his Lordship thought that the colliery company were liable for the damage sustained by the plaintiff. That damage he assessed at £525, and he gave judgment for the plaintiff against the defendant company for £525 and costs. He refused to grant an injunction. He gave judgment for the Marsh's, but without costs. He granted a stay of execution pending an appeal on the usual terms.

THE CLERGYMAN AND HIS COTTAGES.—At Samford Petty Sessions, on Tuesday, the Rev. Dennis Coyle, clerk in Holy Orders, was summoned for erecting a new building without securing sufficient ventilation of the drains at Holton St. Mary, on October 15; also with constructing a water-closet without furnishing it with a suitable apparatus for flushing, on October 15. The case first came up for hearing a month ago, and was adjourned. Defendant did not appear. Mr. A. J. Haward, clerk to the Samford Rural District Council, stated that he had received a letter from defendant, dated January 11, which undertook to carry out the specifications of the surveyor, Mr. Wright, without any unnecessary delay, putting the work in hand forthwith. Mr. Haward explained that so far back as July 29 he wrote to defendant and desired him to carry out the requirements under the by-laws. The surveyor and medical officer also called upon him and tried to persuade him to carry out the alterations; but he did nothing. The work had not been started even now. The magistrates fined defendant £5 for breach of the by-laws, and £1 11s. 4d. costs, the defendant being required to carry out the alterations forthwith.

CORPORATION'S POWER TO ENFORCE SANITARY REQUIREMENTS.—A case in which Dr. J. E. Gould, medical officer of health, had proceeded against Mr. W. H. Marsden, before the Bolton borough bench, came on Tuesday before a Divisional Court. Mr. Gordon Hewart appeared for the Bolton Corporation, and Mr. C. A. Russell, K.C., and Mr. Disturnal for Mr. Marsden. Mr. Marsden, as the owner of eleven houses in South-street, Bolton, had been called upon by the corporation to provide "properly-constructed and convenient water-closets and ash-pits." The medical officer was said to hold the opinion that the fresh-water arrangement was the only one which should be allowed in any civilised town. Mr. Marsden offered, without prejudice, to adopt the latest plan, by which waste water would be used, but the committee refused to agree to his proposal. Mr. Hewart, appearing for the corporation, now said the corporation never refused to sanction a waste-water arrangement; they merely refused, in this case, to sanction it in advance, for they did not know what it would be like. The magistrates held that the corporation had no power to enforce a particular system of water-carriage, and dismissed a summons against Mr. Marsden, but agreed to state a case for the opinion of the High Court. The Lord Chief Justice said there seemed to be a misunderstanding as to the facts. It appeared to him that there was no ground for saying that the corporation insisted upon a particular system. Moreover, it was said on one side that conditions were attached to Mr. Marsden's offer, and on the other that there were no conditions. The case must go back to the justices to be restated.

The Dumbarton School Board have agreed to accept tenders in connection with the building of the new academy, or higher-grade school, at Braehead, to the amount of £26 267 3s. 11d.

One of the passengers injured in the fatal collision near Pontypridd on Monday was Mr. Gwynn Morris, assistant to Messrs. A. O. Evans, Williams, and Evans, architects, Pontypridd.

Lord Aberdeen will be patron of the twenty-sixth annual congress of the Royal Sanitary Institute, to be held at Belfast from July 24 to July 29. Lord Dunleath will be the President of the congress.

During the progress of the work at Winchester Cathedral another stone coffin has been brought to light. It was found near the eastern end of the slype, about 2ft. under the ground. The coffin is some 7ft. 9in. long and 2ft. 6in. wide, and was partly covered over by a stone slab.

The funeral took place at Brighton on Friday of Mr. George de Paris, who was well known for his drawings and water-colours of Sussex churches and the cathedrals of England. Mr. de Paris, who for some years was chairman of the Brighton Fine Arts Committee, was 82 years of age.

Following the example of the States of Illinois, New Jersey, California, Colorado, and Louisiana, the State of Indiana will, during the coming Session of its Legislature, take up the question of a proposed law "providing for the appointment of a State Board of Architects for the licensing of architects and the regulation of the practice of architecture." The proposed Bill has been drafted by the Committee on Legislation of the Indiana Chapter of the Institute of Architects of America.

A return has just been made to the London County Council showing the value of furniture and joiners' work purchased each year from firms in the county of London and in the provinces since July 1, 1905. The report states that to March 31, 1906, £18,000 was expended on desks and other furniture purchased from London firms, and £8 207 on those from provincial firms, and that the figures for the following years were: 1907, £11,911 and £7,828 respectively; 1908, £6,904 and £17,009; 1909, £13 615 and £16,523; and 1910, £5,278 and £10 329

The pictorial collection of the Surrey Photographic Survey and Record, stored at the Croydon Public Library, has received a valuable addition in some two hundred views of Surrey churches as they appeared between the years 1793 and 1810. These are photographic copies of the original coloured sketches (now in the possession of Mr. E. Sharpe, of Reigate) made by Mr. John Petrie, F.S.A., in his time a well-known Surrey antiquary. A conspicuous feature of his work is the close attention paid to architectural detail. The Croydon Libraries Committee are hoping to arrange for a public exhibition of the original prints at an early date.

The opening, on Monday, of the Royal mausoleum at Frogmore revealed to the public for the first time the decorations which have been carried out by command of the late King Edward. The upper portion of the dome has been decorated with a prevailing tint of light blue, the dividing panels being filled with gilt figures of angels, some holding wreaths, and others imperial crowns. The Royal tomb has further been beautified by the addition of six stained-glass windows, also designed and executed by Mr. Ian Pace, three on either side. Brass tablets record the fact that they have been placed there by "Edward R. and I." There have also been erected at the entrance to the mausoleum two lamps of Byzantine pattern.

Our Office Table.

Mr. Frederick Wedmore gave on Monday night, before the Royal Society of Arts, the first of two Cantor lectures on "The Masters of Etching." The principal subjects were the great Dutch etchers of the 17th century—Rembrandt, Ostade, and Bega—and Claude; but the Italians of the 18th century—Canaletto, Tiepolo, and Piranesi—were also referred to. Rembrandt himself, said Mr. Wedmore, marked not so much the end of one period as the beginning of another; for in the "Landscape with the Ruined Tower" modern art said its first word. In the admiration bestowed upon the neatness, dexterity of touch, and skilful and deliberate composition of Ostade, the merits of a brilliant contemporary, Bega, had been a little overlooked. Bega's range of mere subject was less great. He dealt with scenes of drinking and gross love with freshness, breadth, and vividness, and the unsurpassable chiaroscuro of a sketch. The work of Claude was recovering the reputation which it had partly lost in England in Ruskinian days. Claude was more than a "master" of style; he was the very type and standard of style, which was not artificiality. Hence the etchings of "Le Bouvier" and of the "Cattle Going Home in Stormy Weather" were among the treasures of the world. Valuable, no doubt, but of less capital importance, were the Italians of the eighteenth century. Tiepolo had impulse and imagination; Canaletto was correct, agreeable, and restrained—he never succumbed to the etcher's temptation to obtain mystery cheaply by excessive use of printer's ink. Piranesi's great architectural plates, rightly admired for many of their qualities, were in manner a little too uniform.

At a general assembly of Academicians and Associates held last evening, Frank Short, A.R.A., was elected an Academician Engraver; and Mark Fisher and C. H. Shannon were elected Associates of the Royal Academy. The elevation of Mr. Short to full Academic rank, which had been generally expected and will be widely approved, makes him the seventh Academician-Engraver since the foundation of the Royal Academy in 1786, and the first since 1881. Mr. Short, who is in his 54th year, and was elected an Associate in 1906, is our only English mezzotint engraver. His greatest work is the thirty-six plates for Turner's "Liber Studiorum," begun in 1885. He learned drawing at the Stourbridge School of Art, but he was trained to be a civil engineer, becoming an A.M.Inst.C.E. in 1883. He was elected a member of the Royal Society of Painter-Etchers in 1885, and President in succession to Sir F. Seymour Haden. He is also Director of the Etching and Engraving School at the Royal College of Art, and a Past Master of the Art Workers' Guild. Mr. Mark Fisher, like his fellow-Academicians, John S. Sargent, E. A. Abbey, and J. J. Shannon, is an American by birth, his native city being Boston, Mass. His first work was confined to portraits and figures, but love of outdoor life led him to paint landscape, pastoral scenery, and animal subjects. Since 1872 he has contributed regularly to the Royal Academy. Mr. Charles Haslewood Shannon, who follows the traditions of the Venetian School, is chiefly known by his portraits of ladies. His only contributions to the Academy were in 1885, "Parable of the Disobedient Servant," "Moses and the Magicians Before Pharaoh." His identity must not be confounded with that of Mr. J. J. Shannon, R.A.

The University picture galleries at Oxford were formally reopened on Saturday, after having been closed for several months for reconstruction and rearrangements, carried out under the supervision of Mr. T. C. F. Bell, the Keeper. The Raphael Room, the first of the principal galleries, was till recently divided into three or four, lighted from the top, and hung with a selection from the famous drawings by the greatest masters, while the larger room, or long gallery, contained the pictures of all schools. Three

large [illegible] of the east side of the long [illegible] Gallery [illegible] backed by [illegible] Mr. Beck [illegible] opened [illegible] for screens [illegible] Regency Room has been [illegible] redecorated [illegible] the Italian [illegible] pictures; [illegible] Venetian [illegible] Comble [illegible] remain [illegible] with the [illegible] opwich [illegible] old drawings [illegible] hanged [illegible] several rare Dutch [illegible] Etching sketches by Rubens and Vandyck recently removed from a lumber room) and one good Dutch picture by less known masters; interesting examples of the Early Italian masters, two first-rate works of Sir Joshua Reynolds, and minor examples of Hogarth, Gainsborough, and Constable. The drawings by Old Masters constitute the best known part of the collections; they were purchased by subscription for £7,500 from the executors of Sir Thomas Lawrence.

The Glasgow City Council discussed at great length at their last meeting a scheme of enlargement of the building in Sauchiehall street, in which has been housed for over fifty years the works of art of the Royal Glasgow Institute of Fine Arts, to be undertaken at the expiry of the lease of the present tenants, at Whitsunday, 1913. The estimated cost of the proposed reconstruction was £20,000, and it was further recommended that thereafter the rent be £1,050. Treasurer Graham, in moving the recommendation, commented upon the importance of the subject, and reviewed the history of the institute, which, he contended, was largely responsible for the cultivation of art in the city. He admitted that, but it was not a business transaction, but a transaction in the interest of art, and, by bringing people into the town, in the interest of the city. Unfortunately, the arguments of the utilitarians and economists prevailed, and an amendment remitting the motion back to the committee was passed by the narrow majority of a single vote—36 to 35.

During the recent excavations at the village of Corstopitum, near Corbridge, large quantities of the bones of animals have been unearthed, and are to be made the subject of a treatise dealing with animal life on Tyneside in Roman days. The skeletons of 180 head of cattle have been dug up and examined, with the result that identity has been established with some living types, while others are extinct. One of the most interesting discoveries is that of the bones of cattle identical with the famous white cattle of Chillingham. The work of unearthing the Roman town of Corstopitum has gone on for the past four years, at a cost of some £500 per annum.

At the meeting on Thursday of the Staffordshire County Council, the general purposes committee recommended that the county surveyor should be allowed £200 a year for the services of a competent engineer to act as assistant bridge master, with £60 travelling expenses, and that, in the event of Handsworth being severed from the administrative county, the whole question of the supervision and repair of county bridges should be reconsidered. Mr. Powell moved as an amendment a recommendation of the main roads and bridges committee that the assistant road surveyors be appointed to supervise the county bridges and report to the county surveyor the repairs necessary, and that they each be allowed a sum of £10 a year for the extra duties. A long discussion ensued, and on a division the amendment was lost by 19 votes to 16. Sir Reginald Hardy, in proposing the consideration of the report of the main roads and bridges committee, stated that instructions had been given to the county surveyor to treat the roads so as to reduce the dust nuisance, and that, in consequence, the expenditure would be increased by probably £1,000.

A diagram has been prepared showing the area and relative size of the principal garden city, garden villa, and garden suburb schemes in England. The acreages are given as follows: Letchworth garden city, 3,818 acres; Northwood and Ruislip garden suburb, 1,300 acres; Kenilworth garden village, 1,000 acres; Bournville garden village, 525 acres; East Hyde garden suburb, 500 acres; Romford garden suburb, 500 acres; Fallings Park garden suburb, 400 acres; Port Sunlight garden village, 350 acres; Glyn Cory garden suburb, Cardiff, 300 acres; Hampstead garden suburb, 240 acres; Liverpool garden suburb, Wavertree, 180 acres; Woodlands garden village, 127 acres; Earswick garden village, 120 acres; Hull garden village, 90 acres; Anchor Tenants garden suburb, Leicester, 60½ acres; Ealing garden suburb, 60½ acres; Harbourne garden suburb, 53 acres; total acreage, 9,577.

Representatives of the health committee of the Liverpool Corporation and of the City Guild have conferred with the representatives of the Allerton, Much Woolton, and Little Woolton Urban District Councils on the subject of town planning, with especial reference to district roads and better communication with the city. A fair mutual understanding has been arrived at, and the town clerk is communicating formally with the urban district councils and the guild in order to facilitate the drafting of a comprehensive scheme by which the approaches to Liverpool through the respective districts named will be greatly improved, and the way opened for tramway extension. As Allerton already contains two important estates of the corporation—namely, Calderstones and the new cemetery—it is contemplated to seek the inclusion of Allerton within the city boundary. Any movement for the inclusion of Woolton, however, would probably have to be preceded by a measure of rehousing in regard to some sections of the working classes in the detached parts of the district.

A White paper was issued on Friday giving returns in respect of tramways and light railways in the United Kingdom for 1909-10. Since 1878 the route length of the line owned by local bodies and companies opened for traffic in the United Kingdom has increased from 269 miles to 2,562 miles; the capital expenditure from £4,207,350 to £73,941,659; the number of passengers carried from 146 millions to 2,743 millions; and the net receipts from £230,956 to £4,945,787. The number of passengers carried in the year 1909-10 is equal to about sixty-two times the estimated population of the United Kingdom. Of the total of 1,710 miles of line owned by local authorities, 1,503 miles are worked by these authorities themselves or (in a few cases) by other local authorities leasing from them, and the remaining 207 miles by leasing companies. In 1908-9 the route mileage open of electric line was 2,360 miles out of a total of 2,526. In the year 1909-10 it was 2,429 miles out of 2,562. The mileage worked otherwise than by electric traction has thus further diminished from 166 miles to 133 miles.

In the New Year's number of the BUILDING NEWS (a copy of which has been graciously accepted by His Majesty) there is, says the *London Journal*, a reference to a monument to be erected to the memory of the men and officers of the 93rd Sutherland Highlanders who fell in the Indian Mutiny. It is a far cry to those days; but one of the names inscribed on the monument is that of Adrian Hope, and our thoughts go back to his daring exploits at Lucknow, his friendship with Sir W. H. Russell, the famous war correspondent of the *Times*, and the sorrowing tribute to his memory, through which is perceptible an undercurrent of indignant protest. The *London Journal* reproduces the record of Adrian Hope's death from Sir W. H. Russell's Diary, and much other interesting matter.

"The Plumbing, Heating, and Lighting Annual for 1911" (Scott, Greenwood, and Son, 8, Broadway, Ludgate Hill, London, E.C.; 3s.), also contains a complete translation of Rechnagel's "Handbook for Heating, Ventilating, and Domestic Engineers." This work has not appeared before in the English language, and has been thoroughly revised and adapted to British practice by a heating engineer. There is much other useful matter in the Annual, which is, besides, an excellent diary and desk companion.

Spon's "Architects' and Builders' Price Book" is issued this year for the first time in ten sections, owing to the growth of new matter. The addition of a diary to the Prices section is no doubt a useful one, but the necessity for dividing a reference book of this character is, perhaps, to be regretted.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY (To-day).—Royal Institution. "Radiography as a Kinetic Theory of a Fourth State of Matter," by Prof. W. H. Bragg. 9 p.m.

MONDAY.—Victoria and Albert Museum. "English Mediæval Sculpture and Ornament" (Lantern Illustrations), by Banister F. Fletcher, F.R.I.B.A. 5 p.m.

Royal Institute of British Architects. President's Address to Students; Presentation of prizes. 8 p.m.

Royal Society of Arts. "Etching" (Cantor Lecture, No. 2), by Frederick Wedmore. 8 p.m.

British Institute of Social Service, Tavistock square. Conference on the "Smoke Evil."

TUESDAY.—British Museum. "Roman Theatres and Amphitheatres" (Lantern Illustrations), by Banister F. Fletcher, F.R.I.B.A. 4.30 p.m.

Royal Society of Arts. "The Tin Resources of the Empire," by F. Douglas Osborne. 4.30 p.m.

Institute of Sanitary Engineers. "Lighting," by R. Horton. 7 p.m.

Institution of Civil Engineers. Discussion on "Sand-Movements at Newcastle Entrance, N.S.W.", "Fremantle Harbour-Works, Western Australia"; and "The Bar Harbours of New South Wales." 8 p.m.

Illuminating Engineering Society. Adjourned Discussion on "Library Lighting." Royal Society of Arts, John-street, Adelphi, W.C. 8 p.m.

WEDNESDAY.—Carpenters' Hall Lecture. "The Art of the Woodworker," by Henry Tanner, jun., F.R.I.B.A. 7.45 p.m.

Royal Society of Arts. "Examinations and their Bearing on National Efficiency," by Philip J. Hartog, M.A., B.Sc. 8 p.m.

FRIDAY.—Royal Sanitary Institute. Provincial Sessional Meeting at Bradford. Discussion on "School Clinics," to be opened by Dr. L. A. Williams.

Institution of Civil Engineers. "Rivers and Estuaries," by W. Henry Hunter, M.Inst.C.E. Vernon Harcourt Lecture No. I. 8 p.m.

Leicester and Leicestershire Society of Architects. "The Town Estate," by Alderman A. E. Sawday, J.P., F.R.I.B.A. 5, St. Martin's East. 8 p.m.

Birmingham Architectural Association. "Notes on Irish Architecture," by R. M. Butler, of Dublin.

Glasgow Architectural Craftsmen's Society. "Some Buildings of Paris," by Vernon Constable, A.R.I.B.A. 8 p.m.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

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VENTNOR.—No.

D. R. S.—Please send.

H. D.—We know nothing of them.

TURNER.—See our "Directory" pages.

BROAD.—We believe the firm still exists, but we have no time to hunt up addresses.

O'BRIEN.—"This is not a comic paper." Our first impression was that it was a design for a reinforced-concrete mousetrap!

CONTRACTOR.—Our impression is that the quantity surveyor is right; but we really cannot undertake to check the items.

BUILDER.—If you want the best information about steam-heating—especially for small houses—we have any knowledge of, it is to be found in three excellent articles by Mr. David J. Smith, M.I.C.E., in our other paper, the *English Mechanic*, of Jan. 6, 13, and 27 this year. We can send you the three numbers, post free, for 7½d.

LATEST PRICES.

IRON.

	Per ton.			Per ton.
Rolled-Iron Joists, Belgian	£5 7 6	to	£5 12 6	
Rolled-Steel Joists, English	7 5 0	,,	7 15 0	
Wrought-Iron Girder Plates	7 0 0	,,	7 5 0	
Bar Iron, good Staffs	8 5 0	,,	8 10 0	
Do., Lowmoor, Flat, Round, or Square	20 0 0	,,	20 0 0	
Do., Welsh	5 15 0	,,	5 17 0	
Boiler Plates, Iron—				
South Staffs	8 0 0	,,	8 15 0	
Best Snedshill	9 0 0	,,	9 10 0	

Angles 10s., Tees 20s. per ton extra.
Builders' Hoop Iron, for bonding, &c., £8 15s. to £9.
Builders' Hoop Iron, galvanised, £14 to £15 10s. per ton
Galvanised Corrugated Sheet Iron—

	No. 18 to 20.		No. 22 to 24.
6ft. to 8ft. long, inclusive gauge	Per ton. £13 0 0	...	Per ton. £13 10 0
Best ditto	13 0 0	...	14 0 0

Wire Nails (Points de Paris)—

3 to 7	8	9	10	11	12	13	14	15	B.W.G.
8/3	8/9	9/3	9/9	10/3	11/-	11/9	12/6	13/6	per cwt.

	Per ton.			Per ton.
Cast-Iron Columns	£6 10 0	to	£6 10 0	
Cast-Iron Stanchions	6 10 0	,,	6 10 0	
Rolled-Iron Fencing Wire	8 5 0	,,	8 10 0	
Rolled-Steel Fencing Wire	6 5 0	,,	6 10 0	
,, ,, ,, Galvanised	7 15 0	,,	8 5 0	
Cast-Iron Sash Weights	4 17 0	,,	4 17 0	
Cut Floor Brads	10 5 0	,,	—	
Corrugated Iron, 24 gauge	16 0 0	,,	—	
Galvanised Wire Strand, 7 ply, 14 B.W.G.	14 5 0	,,	—	

B.B. Drawn Telegraph Wire, Galvanised—

0 to 6	9	10	11	12	B.W.G.
£10 5 0.	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.

Cast-Iron Socket Pipes—

3in. diameter	£6	2 6	to	£6 7	0
4in. to 6in.	6	0 0	,,	6 5	0
7in. to 24in. (all sizes)	5	7 6	,,	6 0	0

[Coated with composition, 5s. 0d. per ton extra; turned and bored joints, 5s. 0d. per ton extra.]

Pig Iron—	Per ton.		
Cold Blast, Lilleshall	110s. 0d.	to	117s. 6d.
Hot Blast, ditto	70s. 0d.	,,	75s. 0d.

Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.) :—

Gas-Tubes	75	p.c.
Water-Tubes	72½	,,
Steam-Tubes	67½	,,
Galvanised Gas-Tubes	65	,,
Galvanised Water-Tubes	62½	,,
Galvanised Steam-Tubes	57½	,,

OTHER METALS.

	Per ton.			Per ton.
Spelter, Silesian	£23 17 6	to	£24 0 0	
Lead Water Pipe, Town	16 17 6	,,	—	
,, ,, ,, Country	17 12 6	,,	—	
Lead Barrel Pipe, Town	17 17 6	,,	—	
,, ,, ,, Country	18 12 6	,,	—	
Lead Pipe, Tinned inside, Town	18 17 6	,,	—	
,, ,, ,, ,, Country	19 12 6	,,	—	
Lead Pipe, Tinned inside and outside ..... Town	21 7 6	,,	—	
,, ,, ,, ,, Country	22 2 6	,,	—	
Composition Gas-Pipe, Town	19 17 6	,,	—	
,, ,, Country	20 12 6	,,	—	
Lead Soil-pipe (up to 4½in.) Town	19 17 6	,,	—	
,, ,, ,, Country	20 12 6	,,	—	
[Over 4½in. £1 per ton extra.]				
Lead Shot, in 28lb. bags	24 15 0	,,	—	
Copper Sheets, sheathing & rods	71 0 0	,,	71 10 0	
Copper, British Cake and Ingot	58 15 0	,,	59 5 0	
Tin, Straits	189 0 0	,,	189 10 0	
Do., English Ingots	189 0 0	,,	189 10 0	
Do., Australian	189 0 0	,,	189 10 0	
Do., Bars	190 0 0	,,	190 10 0	
Pig Lead, in 1cwt. pigs	14 5 0	,,	—	
Sheet Lead, Town	16 7 6	,,	—	
,, ,, Country	17 2 6	,,	—	
Genuine White Lead	21 0 0	,,	—	
Refined Red Lead	19 0 0	,,	—	
Sheet Zinc	32 5 0	,,	—	
Old Lead, against account	12 2 6	,,	—	
Tin ..... per cwt.	10 10 0	,,	—	
Cut Nails (per cwt. basis, ordinary brand)	0 10 6	,,	—	

TIMBER.

CONSTRUCTIONAL.

Per St. Petersburg Standard (100—12ft. by 11in. by 11in.)

Yellow Pine Deals, Quebec, 1st quality	£31 0 0	to	£42 0 0		
,, ,, ,, 2nd ,,	21 0 0	,,	28 0 0		
,, ,, ,, 3rd ,,	15 0 0	,,	18 0 0		
Spruce Deals: St. Johns	8 0 0	,,	11 0 0		
,, ,, Miramichi	7 5 0	,,	8 10 0		
,, Boards: Swag	7 0 0	,,	8 0 0		
Red Deals: Archangel 1st quality	20 10 0	,,	21 10 0		
,, ,, ,, 2nd ,,	15 0 0	,,	17 0 0		
,, ,, ,, 3rd ,,	11 0 0	,,	12 0 0		
,, ,, St. Petersburg—					
,, 1st quality	16 0 0	,,	17 0 0		
,, 2nd ,,	13 0 0	,,	14 10 0		
,, ,, Wyburg & Uleaborg	10 0 0	,,	12 0 0		
,, ,, Gefle, Gothenburg, and Stockholm	10 0 0	,,	17 0 0		
White Deals: Crown	10 0 0	,,	12 0 0		
,, ,, Seconds	9 10 0	,,	10 0 0		
Flooring: White and Planed—					
1st and 2nd quality mixed	9 0 0	,,	9 5 0		
1st, 2nd, and 3rd quality mixed	6 5 0	,,	6 10 0		
Red Planed, 1st quality	11 5 0	,,	11 10 0		
Pitch Pine: Prime Deals and Boards	17 0 0	,,	20 0 0		
Lignum Vitæ	5 10 0	,,	12 0 0		

Per foot super, as 1in.

Yellow Pine Logs (waney board)	0 2 9	,,	0 4 3	
Pitch Pine Logs	0 1 8	,,	0 1 10	
Canary Whitewood: Prime	0 3 6	,,	0 3 9	
Birch: Quebec Logs	0 2 0	,,	0 2 6	
Oak: Austrian Wainscot	0 7 0	,,	0 8 0	
Mahogany: Gaboon	0 0 1½	,,	0 6 2½	

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (50c.ft.)	£20 0 0	to	£21 10 0		
,, Java ,, ,,	15 0 0	,,	16 0 0		
Canary Whitewood: Prime bds.	Per cubic foot.				
14in. average	0 3 0	,,	0 3 3		
Canary Whitewood: Medium bds. 11in. average	0 2 2	,,	0 2 6		
Oak Planks: U.S.A., imported	0 1 2	,,	0 2 6		
,, Boards ,, ,, Prm.	0 2 4	,,	0 2 9		
,, ,, ,, ,, Mdm.	0 1 10	,,	0 2 2		
Sequoia (Californian Redwood)	0 3 0	,,	0 3 6		
Birch: Quebec logs	0 1 8	,,	0 2 2		
,, ,, sawn planks	0 1 0	,,	0 1 2		
Oak: Austrian Wainscot	0 6 0	,,	0 7 0		
Walnut: Prime boards & planks	0 5 0	,,	0 6 0		
,, Mdm. ,, ,,	0 3 4	,,	0 3 6		
Greenheart: Hewn logs	0 3 6	,,	0 4 6		
Cedar: Cigar box	0 3 6	,,	0 4 8		
Satin Walnut: Imp. sawn boards, prime	0 2 3	,,	0 2 6		
Orham: Imp. sawn boards, prime	0 1 10	,,	0 2 2		
Mahogany: St. Domingo, Cuba, and Honduras	Per foot of 1in. 0 0 5½	to	0 0 8		
,, African, Assinee, &c.	0 0 4½	,,	0 0 9		
,, Lagos and Benin	0 0 3½	,,	0 0 4½		
,, Sekondi and Cape Lopez	0 0 2½	,,	0 0 3½		
,, Gaboon	0 0 1½	,,	0 0 0		
Satinwood: West Indian	0 0 10	,,	0 2 2		
Rosewood ..... Per ton	7 0 0	,,	12 0 0		
Lignum Vitæ ,,	4 0 0	,,	11 10 6		

STONE.*

Red Mansfield, in blocks ..... per foot cube	£0	2	4	
Darley Dale, ditto	,, ...	0	2	3
Red Corsehill, ditto	,, ...	0	2	2
Closeburn Red Freestone, ditto	,, ...	0	2	0
Ancaster, ditto	,, ...	0	1	10
Greenshill, ditto	,, ...	0	1	10
Chilmark, ditto (in truck at Nine Elms)	,, ...	0	1	9
Beer, ditto	,, ...	0	1	6
Hard York, ditto	,, ...	0	2	10
Ditto ditto 6in. sawn both sides, landings, random sizes ..... per foot sup.	0	2	8	
Ditto ditto 3in. slab sawn two sides, random sizes	,, ...	0	1	3

* All F.O.R. London.

Bath Stone, delivered on rail at quarry stations ..... per foot cube	0	1	0	
Delivered on road waggons, Paddington Depot	,, ...	0	1	6½
Ditto ditto, Nine Elms Depot	,, ...	0	1	8½
Beer Stone, delivered on rail at Seaton Station	,, ...	0	1	0
Ditto, delivered at Nine Elms Station	,, ...	0	1	6

Portland Stone, in random blocks of 20ft. average :—

	Brown Bed.			White Bed.		
Delivered to railway depot at the quarry ..... per foot cube	£0 1 5¾	...	£0 1 7½			
Delivered on road waggons Paddington Depot ...	,, ... 0 2 1	...	0 2 2½			
Ditto, Nine Elms Depot ...						
Ditto, Pimlico Wharf						

BRICKS.

(All prices net.)

Hard Stocks	£1 6 6	per 1,000 alongside, in river		
Rough Stocks and Grizzles	1 8 0	,, ,, ,,		
Picked Stocks for Facings	2 10 0	,, delivered at railway station.		
Flettons	1 8 0	,, ,, ,,		
Pressed Wire Cuts	1 18 0	,, ,, ,,		
Red Wire Cuts	1 14 0	,, ,, ,,		
Best Fareham Red	3 12 0	,, ,, ,,		
Best Red Pressed Ruabon Facing..	5 0 0	,, ,, ,,		
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Best Stourbridge Fire Bricks	3 14 0	,, ,, ,,		
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GLAZED BRICKS.*

HARD GLAZES. (PER 1,000.)

White, Ivory, and Salt Glazed. Best.	Best. Buff and Cream.	Other Colours.	Second Colours.
Stretchers—			
£10 17 6	£9 7 6	£12 7 6	£16 7 6	£10 17 6
Headers—			
10 7 6	8 17 6	11 17 6	15 17 6	10 7 6
Quoins, Bullnose, and 4½in. Flats—			
13 17 6	12 17 6	16 7 6	19 17 6	14 7 6
Double Stretchers—			
16 7 6	14 17 6	19 7 6	22 17 6	16 7 6
Double Headers—			
13 7 6	11 17 6	16 7 6	19 17 6	13 7 6
One side and two ends, square—			
17 7 6	15 17 6	20 7 6	24 17 6	17 7 6
Two sides and one end, square—			
18 7 6	16 17 6	21 7 6	25 7 6	18 7 6
Splays and Squints—			
15 17 6	14 7 6	20 7 6	23 7 6	15 17 6

Plinth and Hollow Bricks. Stretchers and Headers—
5d. each 4d. each 6d. each 6d. each 5d. each
Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres—
5d. each 4d. each 6d. each 6d. each 5d. each
Rounded Internal Angles—
4d. each 3d. each 5d. each 5d. each 4d. each

MOULDED BRICKS.

Stretchers and Headers—
8d. each 6d. each 8d. each 6d. each 8d. each
Internal and External Angles—
1/2 each 1/2 each 1/2 each 1/2 each 1/2 each
Cill Bullnose, Stretchers and Headers—
5d. each 4d. each 6d. each 6d. each 5d. each

	Per 1,000		
Majolica or Soft Glazed Stretchers and Headers	£21 17 6		
,, ,, ,, Quoins and Bullnose ...	28 17 6		
Compass bricks, circular and arch bricks of single radius £6 per 1,000 over above list for their respective kinds and colours	Not exceeding 9in. × 4½in. × 2½in.		
Camber arch brick, any kind or colour, 1s. 2d. each			

Stretchers cut for Closers and Nicked Double Headers, £1 per 1,000 extra.

* These prices are carriage paid in full truck loads to London stations.

	s.	d.		
Thames and Pit Sand	7	0	per yard, delivered	
Thames Ballast	5	6	,,	,,
Best Portland Cement	28	0	per ton,	,,
Best Ground Blue Lias Lime	19	0	,,	,,

Exclusive of charge for sacks.

Grey Stone Lime	11s. 6d.	per yard, delivered
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. stn.		

SLATES.

	In.	In.	£	s.	d.	
Blue Portmadoc	20 × 10	..12	12	8	per 1000 of 1200 at r.stn.	
,, ,,	16 × 8	.. 8	6	12	6	,, ,, ,,
Blue Bangor	20 × 10	...13	2	8	,, ,, ,,	
,, ,,	20 × 12	..13	17	6	,, ,, ,,	
First quality	20 × 10	...13	0	0	,, ,, ,,	
,, ,,	20 × 12	..13	15	0	,, ,, ,,	
,, ,,	16 × 8	... 7	5	0	,, ,, ,,	

Eureka unfading	£	s.	d.	
green	20 × 10	..15	17	6	,, ,,
,, ,,	20 × 12	..18	7	6	,, ,, ,,
,, ,,	18 × 10	...13	5	0	,, ,, ,,
,, ,,	16 × 8	...10	5	0	,, ,, ,,
Permanent green	20 × 10	...11	12	6	,, ,, ,,
,, ,,	18 × 10	... 9	12	6	,, ,, ,,
,, ,,	16 × 8	... 8	12	6	,, ,, ,,

TILES.

	s.	d.		Delivered
Plain red roofing tiles	42	0	per 1000	at rly. stn.
Hip and Valley tiles	3	7	per doz.	,, ,,
Broseley tiles	50	0	per 1000	,, ,,
Ornamental tiles	52	6	,,	,, ,,
Hip and Valley tiles	4	0	per doz.	,, ,,
Ruabon red, brown, or brindled do. (Edwards)	57	6	per 1000	,, ,,
Ornamental do.	60	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	0	,,	,, ,,
Selected "Perfecta" roofing tiles :—Plain tiles (Peake's)	46	0	per 1000	,, ,,
Ornamental do.	48	6	,,	,, ,,
Hip tiles	3	10½	per doz.	,, ,,
Valley tiles	3	4½	,,	,, ,,
"Rosemary" brand plain tilee	48	0	per 1000	,, ,,
Ornamental tiles	50	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,
Staffordshire (Hauley) Reds or Brindled tiles	42	6	per 1000	,, ,,
Hand-made sand-faced	45	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,
"Hartshill" brand plain tiles, sand-faced	50	0	per 1000	,, ,,
Pressed	47	6	,,	,, ,,
Ornamental do.	50	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,

OILS.

Rapeseed, English pale, per tun	£28	15	0 to	£29	5 0
Do., brown	,, ...	26	15 0 ,,	27	5 0
Cottonseed, refined	,, ...	29	0 0 ,,	30	0 0
Olive, Spanish	,, ...	39	10 0 ,,	40	0 0
Seal, pale	,, ...	21	0 0 ,,	21	10 0
Cocoanut, Cochin	,, ...	48	0 0 ,,	48	10 0
Do., Ceylon	,, ...	42	10 0 ,,	43	0 0
Do., Mauritius	,, ...	42	10 0 ,,	43	0 0
Palm, Lagos	,, ...	32	5 0 ,,	33	5 0
Do., Nut Kernel	,, ...	35	0 0 ,,	35	10 0
Oleine	,, ...	17	5 0 ,,	19	5 0
Sperm	,, ...	30	0 0 ,,	31	0 0
Lubricating U.S. ..... per gal.		0	7 0 ,,	0	8 0
Petroleum, refined	,,	0	0 6½ ,,	0	0 8½
Tar, Stockholm ..... per barrel		1	6 0 ,,	1	10 6
Do., Archangel ..... ,,		0	19 6 ,,	1	0 0
Linseed Oil ..... per gal.		0	4 1½ ,,	—	
Baltic Oil ..... ,,		0	4 4 ,,	—	
Turpentine ..... ,,		0	4 8½ ,,	—	
Putty (Genuine Linseed Oil) ..... per cwt.		0	11 0 ,,	—	
,, Pure Linseed Oil, "Stority" Brand ,,		0	10 0 ,,	—	

VARNISHES, &c.

	Per gallon.
Fine Pale Oak Varnish	£0 8 0
Pale Copal Oak	0 10 0
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 16 0
White Copal Enamel	1 4 6
Extra Pale Paper	0 12 6
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

GLASS.

	15oz.	21oz.	26oz.	32oz. Net.
Fourths	1½d. ...	2½d. ...	3d. ...	4½d. ,,
Thirds	2½d. ...	3d. ...	4d. ...	4½d. ,,
Flated Sheet	3½d. ...	4½d. ...	— ...	— ,,

Hartley's English Rolled Plate :	⅛in.	3/16in.	¼in.
	2½d. ...	2½d. ...	2½d.
Figured, Oxford Rolled, & Oceanic Glass :	White.	Tinted.	
	3½d. ...	5½d.	

TRADE NOTES.

Messrs. Doulton and Co., Ltd., of the Royal Doulton Potteries, Lambeth, S.E., have been appointed potters to his Majesty King George V.

The Electric Theatre, Folkestone, is being supplied with Sherlands patent Exhaust Roof Ventilators, by Messrs. E. H. Sherland and Brother, Ltd., of Farnworth, Manchester.

The Boyle system of ventilation (naturally), embracing the latest patent "Air pump" ventilators and air inlets, has been applied to St. Luke's Parish Church, Prestonville, Brighton.

The National Radiator Company, Ltd., send us their 1911 catalogue, giving particulars of "Ideal" radiators, boilers, and heating specialties. This list took effect on the 19th inst., and cancels all previous editions, which it is requested may be destroyed, to avoid confusion and misunderstanding. Discounts applying to the new catalogue are enclosed. Considerable reductions in the prices of "Ideal" boilers have been made, and orders received on and after the 19th inst. will be invoiced in accordance with the new quotation. Special attention is drawn to the "Ideal" domestic boilers, which are now supplied (without extra charge) with flanged covers instead of plugs on all clean-out openings larger than 2in. All boiler fittings will in future be charged at the reduced prices shown, whether supplied with a boiler or ordered separately. "C" series water-boilers and other types not listed in this catalogue will only be quoted for on application, previous lists and discounts no longer remaining in force. On pages 126, 127, 134 and 135 will be found particulars of several new patterns of valves, which require about half the number of turns to secure full opening as compared with earlier models, and their construction makes it possible to combine neatness with maximum strength. In compiling the data and tables it has been the aim of the company to give such information regarding their products as will enable an engineer to properly apportion heating surface and boiler capacity to meet varying conditions.

The new secondary school at Pudsey was formally opened on Saturday. It provides accommodation for 320 pupils, and has cost, with the site, £23,000. The architect is Mr. Charles Kendal.

The corner-stone of a new Sunday-school and church-hall in connection with Holy Trinity Church, Fernilee, was laid on Saturday. The building, which has been designed by Mr. Currey, of Derby, the diocesan architect, will cost £1,000.

The thirty-third annual exhibition of ecclesiastical and educational art will be held at the Stoke-on-Trent Church Congress this year under the management of Mr. John Hart. The loan collection will be under the direction of the Rev. Dr. Hermitage Day.

An out-patients' department is about to be built in connection with the Hampstead General Hospital on a site in Camden Town having frontages to Bayham-street, Hamilton-street, and Greenland-place. The architects are Messrs. Young and Hall.

New National schools in Lindsey road, Drumcondra, near Dublin, were opened last week by Mr. Justice Dodd. They accommodate 240 children, and have cost £2,000. Mr. Andrew Robinson, of Dublin, was the architect, and Mr. Thomas Farquharson the contractor.

A new screen has just been completed in the church of St. John the Baptist, Elms-road, Newport, Mon. It is of British oak, and is 29ft. in height and 22ft. in length. It has been designed by Mr. Frederick R. Kempson, F.R.I.B.A., diocesan architect, of Cardiff, and carried out by Messrs. Harry Hems and Sons, ecclesiastical art workers, of Exeter.

Telephone DALSTON 1388

OGILVIE & CO. Many years connected with the late firm of W. B. LASCELLES & Co., Ltd., of Bunhill Row.

Amhurst Works, **DALSTON LANE, N.E.**

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TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender; it adds to the value of the information.

Bradfield.—For removing bridge over abandoned railway cutting, for the Tendring Rural District Council. Mr. A. J. H. Ward, 42, Church-street, Harwich, engineer —

Rose, H. L., Mistley (accepted) ... £169 0 0

Bridport.—For the erection of eight workmen's dwellings in East-road, and seven in North Allington, for the town council:—

	A.	B.
Cooper, W. J., Fulbrooks, Bridport	£2,020 0 0	£1,788 0 0
Abbott, G. & Son, Bridport	1,646 0 0	*1,483 0 0
Francis, J., Bournemouth	1,612 0 0*	1,494 0 0
Patten, T., Bridport	1,888 0 0	1,715 0 0

For both sets of houses —

Pittard, H., and Son, Langport	£4,190 0 0
Butt and Clarke, Winton, Bournemouth	3,300 0 0

* Accepted. A.—East-road block. B.—North Allington.

Cantlop, Shrewsbury.—For erecting small holdings homesteads, for the Salop County Council. Mr. W. T. Hall, College Hill, Shrewsbury:—

Complete tenders for eight sections —

Price, J., Bayston Hill	£2,518 0 0
Edwards, G. and W.	2,493 0 0
Morris, T., and Sons	2,432 0 0
Thomas, W. H., Oswestry*	2,281 0 0

Incomplete tenders:—

Walker, T. H. (sections 1, 2, 3, & 6)	1,915 0 0
Bowdler, W., and Co. (sections 1, 2, and 3)	1,015 0 0

(Rest of Shrewsbury.)

* Accepted.

Clacton-on-Sea.—For the construction of sea-wall on West Beach, for the urban district council. Mr. D. J. Bowe, Town Hall, Clacton-on-Sea, architect —

Pedrette, T. W., Queen Anne's-chambers, Enfield, N. (accepted) £3,575 17 8

(For portions "A" and "B" on plan.)

Clacton-on-Sea.—For painting-work at the police-station —

Ellis, W., and Co.	£129 10 0
Church and Richardson	111 6 0
Canler, A. R.	110 0 0
Bray, W. H.	107 1 0
Bailey, S. F.	104 15 6
Taylor, F.	104 6 7
Trudgett, J.W., Lexden, Colchester	99 7 0
Rogers, W., Colchester	98 10 9
Eaves, W. H.*	98 10 0

(Architect's approximate estimate, £95 10s.)

* Recommended for acceptance. Rest of Clacton.

Denmark Hill, S.E.—For the erection of a bandstand at Ruskin Park, with exposed woodwork in (A) oak or (B) painted pitch-pine, for the London County Council:—

	A.	B.
Pike, F., High-st., Ponders End	£569 0 0	£519 0 0
Harding, R., and Son, Arodene-road, Brixton	524 0 0	474 0 0
Lowe, R. A., and Co., Chislehurst, Kent	487 0 0	457 0 0
Jackson, E., White Horse-lane E.	470 13 0	453 17 0
Foster, F. and G., Camden Works, Norwood Junction	467 0 0	444 0 0
Bowyer, J. & C., Ltd., Upper Norwood	467 0 0	432 0 0
Bickerton, W., Lower Winchester-road, Catford	425 0 0	410 0 0
Barker, J., & Co., Kensington High-street, W.*	385 0 0	360 0 0

Architect's estimate for the erection of the bandstand, with exposed woodwork in oak, £452.

* Recommended for acceptance.

East Ham.—For supplying plant, for the corporation. Mr. W. C. Ullman, Nelson-street, East Ham, architect. Accepted tenders:—

For 1,000kw. steam generating set:—

British Westinghouse Electric and Manufacturing Co., Ltd., Norfolk-street, W.C.	£5,540 0 0

For evaporative condenser for 40,000lb. steam, with air pumps, piping, and auxiliaries —

Dean and Beale, Ltd., Old Kent-road, S.E.	5,490 0 6

Homerton, N.E.—For installing telephones at infirmary, High-street, for the Hackney Union Guardians. Mr. Frank R. Coles, Sidney-road, Homerton, N.E., clerk —

Lawrance, E., and Sons, Ltd., Wharf-road, E.C.	£109 0 0
Miskin & Rice, St. Martin's-lane, W.C.	105 0 0
British Home & Office Telephone Co., City-road, E.C.	103 4 0
Johnson & Phillips, Ltd., Charlton	98 10 0
Electrical Installations, Ltd., Martin's-lane, E.C.	93 0 0
Gilkens, A. V., and Co., Victoria-street, S.W.	88 10 0
Bryden, J., and Sons, South Kensington	85 10 0
Durell and Co., Fenchurch-street, E.C.	77 0 0
Electrical Contracts and Maintenance Co., Westminster	71 0 0
Telephone Instalment System Co., Ltd., High Holborn, W.C.	70 10 0
Edmundson's Electricity Corporation, Ltd., Tothill-street, S.W.	64 10 0
Tilley Bros., Kingsland-road, N.E.	62 0 0
Private Telephone Co., Ltd., 27, Chancery-lane, W.C., (accepted)	57 15 0

Harpenden.—For the erection of an electric theatre in Chequer-street:—

Redhouse, S., and Son (accepted).

Grantham.—For rebuilding the Spotted Cow Hotel, London-road, for Messrs. Warwicks and Richardsons, Ltd., Newark. Messrs. Sheppard and Lockton, Newark, architects and surveyors:—

Rodd, and Son, Ltd., Grantham	£1,738 0 0
Hockley and Co., Grantham	1,716 13 3
Read, F., Grantham	1,596 0 0
Wright, J., and Co., Newark	1,595 0 0
Smith, W., Newark	1,497 0 0
Brown, G., and Sons, Newark*	1,480 0 0

* Accepted.

Kempston.—For carrying out sewerage works, for the urban district council:—

Cottle, A. J., Hucknall (accepted) £14,000 0 0

Lambeth, S.E. For the supply of wiring material for the electric lighting of No. 23, Belvedere-road, for the London County Council:—

General Electric Co., Ltd., Queen Victoria-street, E.C.	£396 0 3
Edison and Swan United Electric Light Co., Queen-street, E.C.*	385 15 5
Vernys, Ltd., King-street, W.C.†	301 4 1

Estimate of chief officer of tramways, £410.

* Recommended for acceptance, less 2½ per cent. discount.

† Incomplete tender.

Lambeth, S.E.—For the provision of electric motors and a 25k.w. motor generator required at No. 23, Belvedere-road, by the London County Council:—

A.	B.	C.
British Westinghouse Electric and Manufacturing Co., Ltd., Manchester:—		
£419 18 0 ...	—	... —
Dick, Kerr, and Co., Ltd., Alchurch-yard, E.C.:—		
564 15 0	£223 5 0	... £788 0 0
Electric Construction Co., Ltd., Wolverhampton:—		
531 0 0 ...	207 10 0	... 741 10 0
British Thomson-Houston Co., Ltd., Cannon-st., E.C.:—		
429 12 6 ...	173 0 0	... 602 12 6
Ditto (alternative):—		
—	175 5 0	—
Lancashire Dynamo Co., Ltd., Manchester:—		
413 10 0 ...	168 0 0	... *581 0 0

Estimate of chief officer of tramways, £600.

* Recommended for acceptance. A.—Motors. B.—Motor generator. C.—Total.

Llandudno.—For supplying induced-draught plant, for the urban district council. Mr. Alfred Conolly, Town Hall, Llandudno, architect:—

Davidson & Co., Ltd., Manchester £278 0 0

(Accepted.)

Mablethorpe, Lincs.—For executing private street works in George-street and Knowle-street, for the urban district council:—

Foster, G. (accepted) £194 16 4

Pitsea.—For erection of new council school, for the Essex Education Committee. Mr. Frank Whitmore, Chelmsford, architect:—

Milton Bros., Gravesend	£4,121 8 11½
Woollaston, R., and Co., Limehouse, E.	3,995 0 0
Gayford, A., Ipswich	3,955 0 0
Tong, A. E., Gravesend	3,911 0 0
Kidman Bros., Cambridge	3,909 0 0
Dowsing and Davis, Romford	3,865 0 0
Nightingale, B. E., London	3,844 0 0
Paul, P. R., Waltham Abbey	3,838 0 0
Whiter, J. E., and Co., London, S.E.	3,833 0 0
Patrick, J. and M., London	3,808 0 0
Vail and Shore, St. Albans	3,792 10 6
Davey, E. and B. H., Southend	3,780 0 0
Davey, F. and E., Southend	3,683 0 0
Pavitt, E., and Sons, Aveley	3,670 11 7
Willmot, F., Ilford	3,637 0 0
Brown, G., Grays	3,630 1 6
Jarvis, S. W., Brentwood	3,612 0 0
Strong, J., and Son, London	3,608 19 0
Potter, H., and Son, Chelmsford	3,583 2 6
Burtwell, F. W., Brentwood	3,547 0 9
Bailey, T. J., Chelmsford	3,547 0 0
Fryd, A. H., Southend	3,537 0 0
Hammond and Son, Romford	3,491 0 0
Brown Bros., Grays*	3,422 2 0

Architect's estimate, £3,589.

* Recommended for acceptance.

Reading.—For erection of a temporary building at the Whitley special schools, for accommodating a class of children suffering from phthisis, for the education committee:—

Abdey, Hasserodt, and Co., Queen-street, London £2 6 0 0

* Recommended for acceptance.

Shanklin.—For laying mains, for the urban district council. Mr. J. Marsh, Council-chambers, Shanklin, I.W., architect:—

Globe Foundry, Ltd., Battersea Park-road, London, S.W.	£976 11 0
Brebner, R. C., & Co., St. Andrew-square, Edinburgh	745 0 0
Elliott, H., and Co., The Mall, Ealing, London, W.	695 0 0
Ashley, H., Bentinck-chambers, Mansfield	683 0 0
Ball, A. H. & Co., Ltd., Farnham, Surrey	587 14 2
Streeter, A., and Co., Shalford, Guildford	583 7 0

* Accepted.

Shoreditch, E.C.—For supply of 830 yards of unclimbable wrought-iron railings, for the borough council:—

Potter, F. W., and Co., Phipp st.	£251 16 10
Miller and Sons, Wolverhampton	235 14 2
Palmer, J. W., and Co., Merton	226 0 0
Payliss, Jones, and Bayliss, Ltd., Cannon-street	223 9 6
Baybould, Ltd., Workington	221 18 10
Hill and Smith, Ltd., Brierley Hill	209 13 8
Elwell, J., Ltd., Birmingham*	198 1 8

* Recommended for acceptance.

(*Continued on p. XVI.*)

February 3, 1911. Volume C.—No. 2926

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House, Strand, W.C.

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Royal Institute of British Architects Tite Competition for a Campo Santo Chapel and Cloisters. Hon. Mention Certificate Design ("Ek Thanaton Nikos"): Plans, Elevations, and Sections. By Mr. W. G. Newton.

"Auchenross," Combrie, Perthshire, N.B. Messrs. Foster, Lovell, and Lodge, Architects.

Building News Designing Club. Designs for a Cinema Photograph Theatre.

Art in Northern Italy.

Section of Ground Floor—Oriel Window.

THE MAKERS OF THE VILLAGE.

The making of a village, like the growing of a lawn—such a lawn as that at Magdalen College, Oxford—seems to be almost a lost art. The bloated manufacturer of to-day, on retiring from business, may wish for both; but unless he buys them ready-made, he seldom succeeds in obtaining either. For they are both alike the work of many generations, and even in this age of hustle and bustle are not to be produced at a moment's notice, for any cheque, however large. Villages have histories: they were built to live in, as well as to look at, and in this they differ from suburbs, which are seldom very good either for the one use or the other. What sort of men were they, in age after age, who built the village and made it what it was?

Their later descendants have scarcely left us yet. People still living can remember the old Georgian builder, whose acts and all that he did belonged rather to the reign of George III. and George IV. than that of his present Majesty, King George V. He believed in Peter Nicholson, in lead flats, and in Roman cement. Shams of all kinds were his native element; sham cornices of papier-mâché; sham ventilators, which appealed to the mind, and not to the senses; sham marble, made of enamelled slate; sham chimneypieces, of the same material; sham mahogany, made of yellow deal; sham doors, and sham windows, of which the plate-glass alone was real, and of which the lace curtains you admired from the outside were a poorer sham than all the rest, were only a few of his favourite unrealities. And yet this man was the lineal successor of the truest and most thorough craftsmen who ever lived—"Whose life was work, whose language rife With rugged maxims hewn from life"—the builders of the castles and palaces, the churches and cathedrals, of the Middle Ages. But at the moment it is not with them that we have to do. It is rather with the man who, in out-of-the-way villages, is still called a "mason," though he is really little more than a rubble-waller, who can do a bit of mason's work at a pinch, and chamfer off an arris or splay off a sill without calling in a workman of better training to help him. The interesting part of an English village, omitting the church and the "great house," dates most often from the fourteenth to the seventeenth centuries. Before the fourteenth the work worth looking at, if there is any, mostly owes more to the great companies of "freestone masons" who went from place to place erecting, finishing, or repairing important structures, than to the humbler village "mason." It was after the Black Death in the fourteenth century, when the old guilds of workmen half-perished, when wages rose never to fall so low again, and when modern conditions were first beginning, that the builder of our villages came into notice. The village "mason" can adapt the local stone to such purposes as cottages and small farmhouses require. He built them, and he "built them better than he knew." But the building of a church or a mansion he would leave to others. It was his to deal with the prose of the craft, and very good prose he made it.

Of the world outside the village, he chiefly heard through two very different people: the parson, and Autolycus, with all his tribe. Chaucer, who had little love for monks and friars, had the highest esteem for the parish priest. "Gladly wold he learn, and gladly teach." "The love of Christ and His apostles twelve, He taught and eke he practised it himselve." And in the counties of Northampton and Rutland especially, villages were so near together, and churches often so large, that clergy must, in Catholic times, have been very numerous. Miracle plays and "moralities," which in France are said to have turned the churches for a long period into theatres, did not quite go to the same extreme in England; but in 1391 the London parish clerks performed a play (doubtless religious) at Skinners' Well, near Smithfield, in presence of the king, queen, and nobles. Such performances were in favour during Lent, as well as at Whitsuntide and at other festivals of the church. In this country the clergy seem to have taken part in them, though on the Continent they were soon "left to jugglers, minstrels, and buffoons." Our village "mason" may at times have joined in them—perhaps, like Absolon in "The Miller's Tale," "He played Herod on a scaffold hie." The stage for the miracle plays or moralities was generally a scaffold; in its perfect form a scaffold three stories high. In the lowest story the performers dressed themselves for their parts, and in the upper ones the performance was carried on. Some of these scaffolds were on wheels, and for some "mysteries" or "miracle plays" as many as three scaffolds seem to have been necessary. These performances were first begun, it is said, to give the common people some knowledge of Scripture history, though it seems to have been taught with little more regard to the actual order of events than in the commoner Sunday-schools of our own day; for instance, in the Chester plays, Balaam and his ass come directly before the Salutation and the Nativity. Autolycus with his ballads, which were in print by Shakespeare's time, and all the better for it—for then, as Mopsa says, "we are sure they are true"—these, in the main, must have been, with the dramatic spectacles just named, the village mason's amusements. But amusements do not make up life; they only shed a little brightness on its dull days here and there.

The early village builder's life, when there were no railways, no coaches, no telegrams, no books, no newspapers, no hurry, and therefore practically no waste, may seem to us a quiet and uninteresting one. It consisted mainly in understanding his work more and more, and consequently in doing it better and better. There was no architect to take all, or even half, the blame for the local man's lapses; the idea that the man who did the work was not the man responsible for it had not yet dawned on a bewildered world. For him, as Emerson says, every day was a day of judgment. He went to work soon after sunrise, and continued at it probably till near sunset, and it must be to him that we owe such adages as "Early to bed, and early to rise, Makes a man healthy, and wealthy, and wise." This may have been true when the curfew bell first rang from Carnarvon tower; it is not so now, though the bell is still to be heard at eight o'clock every evening. Gaslights, petroleum lights, and electric lights have taken the heart out of this old adage, as out of many more. But whether we, with late hours and free libraries, really spend our time better than the fifteenth-century mason did, or leave the world richer or better for our life's work, is a question not easily answered one way or the other. The modern mason "knocks off" his work faster—a happy phrase; and though he is not always long-lived, he often lives long enough to see it perish. The mason of old times had a conscience, though he does not seem to have talked much about it. He lived amongst his neighbours, who knew what he had built, and when. If a stone he had set began to perish because it was edge-bedded, most people knew who had set it so, and did not spare to tell him. If a weathering he had worked proved too flat, and let the wet through, he soon heard of it in like manner. So it was if he set his stringcourses without a proper throating, or failed to bond his quoins sufficiently into the wall, so that they began to draw out, from the wear and tear of the doors or casements which hung on them. He could not have laid the blame on those workmen from a distance, who were here to-day and gone to-morrow, because, in the days before MacAdam, the badness of the roads made workmen from a distance rare indeed. The village mason,

Fig. 1.—The Procession in the Piazza of St. Mark, by Gentile Bellini.

Fig. 2.—San Zeno, Verona.

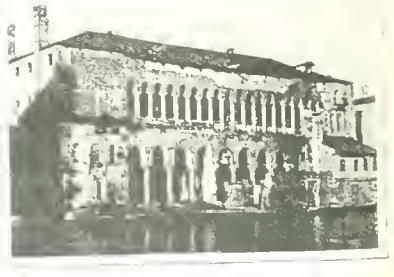


Fig. 3.—Campanile Dei Torchi, Venice restored.

know. At its best it may sometimes have been as solid as the "temporary" church of Greensted, near Ongar, built to receive for a few weeks or months the body of St. Edmund, King and Martyr, on its way to a more permanent resting-place in what is now Bury St. Edmunds. The cottages a little later were half timbered; the spaces between the timbering filled in, perhaps, with rough concrete of lime and gravel; perhaps with bricks, Roman or local; perhaps with rough flints; and by the 15th century with these or other materials plastered over. Then came the fashion of plastering over the timbers themselves, as well as the intervals between timber and timber; and after that the fashion of plastering the cottage all over on the outside except the roof. This, being the least troublesome and cheapest way of finishing it, soon became the common one. But even then and down almost to the present day the outside plaster was relieved in places by "pargetting," or some texture was given to its surface by stamping it while soft with the ends of small twigs tied up in a bundle. Oak was cheap and durable, and when plastering concealed it as a main feature in cottage design, it still held its ground not only in doors and frames, but in casements and in shingled roofs and spires. Oaken bell-towers were common in the Essex Forest, sometimes shored up by oaken buttresses. A little good oak tracery still remains at the church of Stock, near Chelmsford, a church of which Cowper's friend Unwin was the rector till his death, and about which that poet wrote some verses describing "Tithing time at Stock." These verses seem to have been written before 1780, and it is since then that many of the Forest cottages have discarded their outer robe of plaster and assumed one of brick. Bricks are cheap; and cheap bricks, alas! seem to be covered so cheaply with ready-made ornament; and "ornament is the first want of the barbarous mind everywhere," and still more one might add of the semi-barbarous mind—the man who has caught a glimpse of civilisation and wants in a moment to be smart and "up to date." But the attraction of the village is that it is neither smart nor up to date. It takes us into the past, away from ships and railroads, factory and picture-palace, and thus when we know for a moment that we are such stuff as dreams are made of, and our little life is rounded with a sleep.

ART IN NORTHERN ITALY

The handsome and profusely illustrated small octavo before us is the record of a series of fifteen or sixteen dealing with the general history of art in all countries to be published simultaneously in London, New York, Paris, Stuttgart, Bergamo and Madrid. We noticed the first volume on "Art in Great Britain and Ireland," by Sir Walter Armstrong, in our issue of September 24, 1909 (p. 416, Vol. XCVII.). The one now issued is by Corrado Ricci, the accomplished and erudite Director-General of Fine Arts and Antiquities of Italy, and is, as might be anticipated, authoritative and reliable. In a series of five-and-twenty chapters, Signor Ricci deals in a concise and encyclopædic style with the architecture, painting, and sculpture of Ravenna, Venice, Padua, Mantua, Verona, Milan and Lombardy, Piedmont, Liguria, and the vast but ill-defined district which, for convenience sake, we know as Emilia. An exceedingly valuable bibliography is appended to each chapter. It is to be regretted that the author did not give us an additional section by way of comprehensive introduction, showing how the art of these provinces and cities of Northern Italy were interrelated, and the general characteristics of the whole upon a portion of the peninsula. A key map showing the outlines of the provinces and the relative position of the cities referred to would have added greatly to the interest and usefulness of the volume.

One of the most interesting chapters is that devoted to the city of Ravenna, where are preserved the most beautiful, most complete, and the most unimpaired monuments of so-called Byzantine art. As to

Art in Northern Italy. By Corrado Ricci. Crown 8vo, cloth, gilt tops, 372pp., four full-page coloured plates, 200 other illustrations in text. 6s. net. London: William Heinemann, 21, Bedford-street, W.C.

Fig. 4.—Sculpture by Wiligelmo, Modena Cathedral.

the origin of this local type of art, the author recognises a strong Oriental influence, but also perceives the continuity of Classical types and designs. That the early mosaicists at Ravenna worked under Roman influence is, to Signor Ricci, a matter of absolute certainty, and this Roman tradition is revealed, he says, alike in design, technique, and sentiment. After the reconquest of Ravenna by the generals of Justinian, the mosaic decoration of buildings reveals an absolutely different

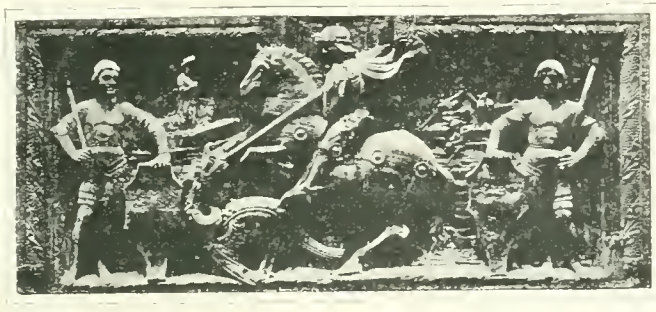


Fig. 5.—St. George and the Dragon: Palazzo in Vico Mele, Genoa.

sentiment and technique; in these later works all desire for the expression of form appears to be subordinate to the decorative effect. As to the buildings of the city, the author goes in direct contradiction to received opinion, and contends that the campanile and crypts of the churches are additions to the original structure of the fifth and sixth centuries, and belong, he holds, to the period comprised between the eighth and the twelfth centuries. Nor can, he thinks, the magnificent ruins that

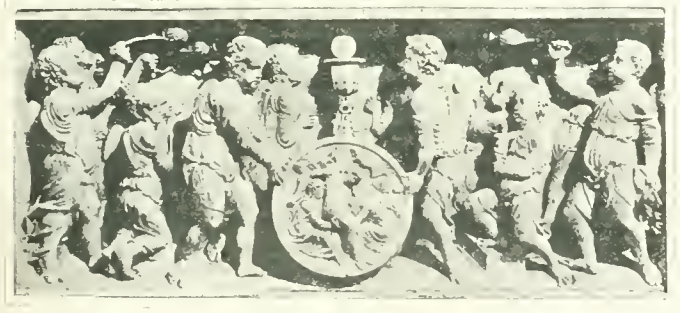


Fig. 6.—Fontana's Sculptures: Altar-frieze at the Certosa, Pavia.

still survive under the title of the Palace of Theodoric be of an earlier date than the eighth century, for the details show evidence of Romanesque treatment.

In succeeding chapters the writer shows how the heritage of Ravenna, a town already on the decline in the seventh century, was gradually garnered by Venice and Bologna. The construction of Venice was not the outcome of a gradual transformation in the course of time, as was the case with Rome and other great cities of Italy. The rapid evolution of Venice was controlled by magistrates and municipal officers of experience, who saw that the canals, the bridges, and the approaches to them, were laid out with regularity, that the unhealthy, muddy creeks were cleansed, that the canal banks, the meadows, and the houses were rendered secure, and that the city was enlivened with trees and green open spaces. The true monumental and artistic glory of Venice was initiated, he considers, just before and after the year 1000. From that period till 1300 the various styles of architecture that prevailed—Byzantine, Classic, Lombardian, and Saracenic—were gradually fused into one, which, issuing in fresh form, displayed an individual character, and took its place as Venetian. The author suggests how the development of the Gothic style brought about a great and far-reaching modification of the architecture and sculpture of Venice, more apparent in the civil than in the ecclesiastical buildings. The Renaissance, again, in this exceptional way assumed a characteristic aspect, due to topographical exigencies and to the spirit of the Venetians. While in Rome everything had an air of grandeur, and in Florence an accent of grace, so in Venice everything inclined to magnificence. In the Baroque period, here the very summer of art, every part that in the fifteenth century had been soberly handled now became exaggerated: of the architects of this period the author ranks Baldasarre Longhena, the designer of the Church of the Salute and of the Municipio and Minerbi (originally the Pesaro and the Rezzonico) Palaces, as the highest.

In Verona, the art that had the most vigorous development was that of painting, and in an interesting chapter the progress of this art there and in the neighbouring cities nestling at the foot of the Alps, of Vicenza, Brescia, and Bergamo is traced in detail. Passing on to Milan, the author shows that one of the most important examples of Lombardic architecture of the Romanesque period is the remarkable church of S. Ambrogio, in that city. The fourteenth-century Cathedral exhibits, he admits, grave defects, both in style and in structure, but it has picturesque merits of its own. Unlike the cathedrals of other cities, its type is not repeated in the lesser churches of the district. From the period of the Renaissance onwards, Milan had possessed a greater number of talented sculptors than any other city, except perhaps Rome. In the decoration of the Cathedral, from its structural completion to the present day, more than a thousand sculptors are said to have collaborated; of these more than two hundred are recorded to have worked in the sixteenth century, about a hundred in the seventeenth, some sixty or so in the eighteenth, about one hundred and ninety in the nineteenth, and already some twenty in the present century.

A distinctly Lombardic character may be traced in the arts that flourished in the important group of cities and small towns scattered over the more southerly and western parts of the vast plain comprised between the Alps, the Ticino, the Po, and the Mincio—in such places as Monza, Crema, Como, Lodi, Cremona, and Pavia.

The author regrets the comparative neglect which has befallen the art of Piedmont and Liguria, although he admits that these provinces do not figure in artistic history so prominently as the other regions of Upper and Central Italy. There is in Piedmont a great wealth of Roman buildings, which makes the absence of Byzantine and Romanesque edifices appear the more singular and, indeed, inexplicable. There is little to be found bridging the gulf between Roman remains and the churches and civic buildings of the thirteenth century, and in these latter and subsequent structures the influence of French architecture is very apparent. The fair province of Liguria is, he shows, a very home of art, though it is not indigenous, but to a great extent imported, and foreign influences of various types are evident on every hand.

The district known as Emilia (excluding its notable city, that of Ravenna) is extremely rich in Roman remains, but contains, except in that city, few buildings from the period of the Empire down to the twelfth century, but these few are of great value and importance. In the buildings of this province we find little evidence of Oriental or other foreign influence; nearly everything seems to be a growth from early native types, more especially those of Ravenna. It is this continuity of development that saved the country from sudden and incongruous changes, and favoured a gradual evolution of architectural forms. During the whole of this long period of the Renaissance, there was no region of Italy which comprised so many independent centres, each a home of culture, as did Emilia.

Signor Ricci writes with a clear pen, and possesses the art of masterly compression so as to indicate the leading facts in vivid style. The translation has been excellently done, and technical terms are well rendered. There is a copious index; but this would have gained in usefulness had

it been divided into two one part dealing with the letterpress, and the other with the very numerous illustrations, now only distinguished in the list by asterisks. As to these illustrations, it seems a pity that the scope of the series of volumes was not enlarged so as to permit of the reproductions of these delightful pictures, sculptures, and buildings to a larger scale. It will be seen from those we reproduce by Mr. Hemmann's courtesy that they are often too minute to do justice to the subjects. We regret to appear to be owing to some reduction in the number of engravings at the eleventh hour, due probably to difficulties in the make-up a number of the figures are incorrectly referred to in the text. The figures numbered 177 to 182, on pages 110 to 113, are severally alluded to in the letterpress by a higher numeral, showing that a block has been dropped out in the final make-up of the formes. Occasionally there is no reference to the illustration in the reading matter, the charming little half-tone being left to tell its own story without comment.

"The Procession in the Piazza of St. Mark" (Fig. 1), now in the Second New Gallery of the Accademia at Venice, is an interesting example of the work of Gentile Bellini (1429-1507), the chronicler of Venice and the creator of vast crowds of people, each endowed with individual action, with a bodyguard of imposing character. This "Procession," painted in 1496, is, says the author, of "all his great works the one that best exemplifies the master's quality. A merchant from Brescia, one Jacopo de Salis, at the moment when, in Venice, he is taking part in the procession in the Piazza of St. Mark, hears the sad news that his son has fallen and is mortally wounded. He falls straightway on his knees, praying to St. Mark for his recovery. Such is the subject of a work which is further remarkable for the careful rendering of costumes and buildings." Burkhardt, on the other hand, condemns this canvas as depicting "a crowd of figures of a certain doll-like sharpness, indifferently collected together." It will be noted that on artistic grounds the campanile which would have hidden the angle of the Doge's Palace has been deliberately omitted from the scene.

Fig. 2 is the chief façade of the Romanesque church of San Zeno at Verona. The edifice was reconstructed in 1138-78 on the site of a 9th century church. The main front is of marble; its only features are the richly sculptured 12th century portal and the early example of a wheel of fortune window. This window was executed by Brioloins (or Briolatus), who also built the adjoining baptistery. To the right (south-east) of the church is the slender isolated campanile, begun for Abbot Albericus in 1045, but not completed till 1178. Constructed of alternate courses of marble and brickwork, it is capped by a two storied belfry stage and a short conical spire.

Fig. 3 shows the Fondaco dei Turchi on the Grand Canal at Venice before its restoration. This was one of the factories or warehouses erected for the merchants of various nations, where business could be safely conducted and their goods housed. This Factory of the Turks is said to date from the 11th century, and formerly belonged to the d'Este family, from whom it passed into the possession of the Republic to serve as a factory for the Ottoman merchants. It afterwards became the Government tobacco warehouse.

On the chief façade of the Romanesque Cathedral at Modena (1099-1184) are sculptures by Wiligelmo (or Guilelmus) (Fig. 4), who about 1100, more than seventy years before the time of Benedetto Antelami, eager to make an advance from the past, attained to a certain decorative grandeur that places him on a higher level than Niccolio, his fellow-workman. The subjects are scenes in the life of St. Geminiano, the patron of Modena.

Fig. 7. Military School Modena.

A group in high relief in the door-head of the Palazzo in Vico Mele at Genoa gives a very usual subject in these architraves in Ligurian buildings, the combat of St. George with the Dragon (Fig. 5). The work is usually ascribed to Giovanni di Beltrami, known as Bissone, who died after 1506. Fig. 6 represents a fragment of the altar frieze at the world-famed Carthusian church of the Certosa, near Pavia, sculptured putti in high relief, supporting a medallion on which is portrayed a Pietà, the work of Fontana. Our last illustration (Fig. 7) is the stately Ducal Palace, now the Military School, at Modena, designed for Francis I. in 1634 by the Roman architect Bartolomeo Avanzini, to whom we are also indebted for the Collegio di San Carlo, 1661.

The book is, it will be seen, replete with information on all the various periods and phases of art which flourished in Northern Italy, and will be invaluable to the student and scholar. We look forward with interest to the future volumes of the series dealing with art in other European countries, and especially to those devoted to French and Flemish art, which are in active preparation.

A public hall is about to be built at Taunton from plans by Mr H. S. W. Stone A.R.I.B.A. of Hammet street, Taunton.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The new Great Gallery, at 9, Conduit-street, W., was crowded on Monday evening by an eager and enthusiastic body of members and students, and their friends, on the occasion of the Annual Presidential Address to students, the criticism of the competitive designs for the various prizes, and the distribution of awards. The chair was occupied by the President, Mr. Leonard Stokes.

The Hon. Secretary, Mr. H. T. Hare, announced the deaths of three Fellows: Mr. Andrew Murray, the late City Surveyor; Mr. Alexander Cunningham Forrester, of Old Queen-street, Westminster; and Mr. Edward Skinner, of Colombo, Ceylon.

THE ROYAL GOLD MEDALLIST FOR 1911.

The President announced that the Council proposed to submit to his Majesty the King, as a fit recipient of the Royal Gold Medal for the present year, the name of Dr. William Dorpfeld, of Athens, honorary corresponding member.

THE SOANE COMPETITION.

The round of applause with which the name of the distinguished German savant, archæologist, and explorer of Greek buildings was universally greeted as the suggested recipient of the blue riband of the architectural profession, was followed by gloomy silence when the President again rose and stated that the author of the design marked with the motto "Civitas," to whom the Council had proposed to award the Soane Medallion and £100, having failed to comply with the conditions, it had been decided to withdraw the award for this year.

Continuing, the President said he was pleased to announce further that the Council had resolved to award an extra Godwin Bursary to Cecil Brewer. (Renewed applause.)

The President then proceeded to deliver the

ANNUAL ADDRESS TO STUDENTS,

which proved to be fresh in treatment, characterised by much dry humour, and unwontedly brief. The salient points were received with cheering or hearty laughter, and the closing words were followed by long-continued applause.

One of the most exciting duties that falls to your President's lot to perform is this address to students, and if only he will rise to the occasion, or at least attempt to, there is ample opportunity for him to give himself away most completely. Perennial platitudes in, perhaps, fresh disguises, are his usual stock-in-trade, and you will have many a hardy annual to put up with to-night; but I can think of nothing more entraneing than to be able to deliver a really fine address to students, the most critical and exacting of all audiences, though without doubt the most appreciative. In my opinion, however, a student alone can rouse a student. Of course, I know we are all students—(platitude No. 1)—but a student with the fire of youth running in his veins is the student that you would love to listen to, and not to such a one as I, trammelled with the chains of office, and hampered by the dignity of the Chair, afraid lest I should say too much, and yet ashamed to hold my tongue. You know that even the youngest of us may make mistakes, but such mistakes are simple little howlers, which often set one thinking, and not the dull and heavy article produced by a President well over fifty. For this reason, therefore, I have a proposal to make to you, and it is that next year, if I am still in the Chair, the student under thirty years of age who can write the best address to his fellow-students shall read it to them, and have into the bargain, say, twenty guineas for his trouble, and if the Council does not see its way to vote the money, I will guarantee that he gets it somehow. (Prolonged cheering.) For his subject—if he wills it—he can remodel the Royal Institute of British Architects, and play any tricks he likes with it, and all its works and pomps. Further, I should like to suggest that the judges in this competition be under thirty years also, if that is not going too far; but perhaps you will leave this matter also to the Council and to me. Having

provided you with an address for next year does not fill the gap to-night. You will have gathered already, however, that I am all on the side of youth; young ideas and young ways of expressing them are what I envy; the light touch of youth, so full of promise, so full of life, of vigour, and vitality, is worth a great deal in all forms of art; in fact, without it, what should be a thing of interest becomes an object to deplore, and what should be a thing of beauty is often very far from it. Cultivate youth, then, keep it green as long as you can, and water it well from the springs of learning, for study you must, and study hard, too, if ever you hope to make yourselves felt in your generation. There are many modes of study, and the form that suits one may not do for another; but, in one way or another, you must put your young shoulders to the wheel. Do not, however, try to be too clever and artistic—with a capital A—for nothing is worse than apparent effort in design. The simple, direct, and restrained, even if it does not catch the eye of the assessor, will do you more good to have achieved than half a dozen flashy productions, even if they get you the same number of commissions. Do not be in too great a hurry with your work, or too anxious to get it, but go steady, and never put your name to anything that is not of your very best; also remember that it is often just as important to know what to leave out of a design as it is to know what to put in, and that the one thing of all others to be careful about is proportion. The study of light and shade—a good stock phrase—is, I know, recommended by the faculty, but we have in our country so little light and so much shade, that this fact alone should make us ten times more careful with our proportions. In my youth, I fear, I never had a good grounding in those delicious rules which give the right proportions for making everything, and I am unorthodox enough not to be a great believer in this rule-ridden type of learning. At best, such rules are apt to give us commonplace and lifeless results; and I venture to maintain that architecture at its best is not built up of rules, but rather of rhyme and reason. So, whatever you do, think for yourselves. I do not for a moment suggest that you should try and be "original"—Heaven forbid! But I do maintain that you should be always thoughtful, and very careful. Please do not think that I want you to disregard what has been done in the past, for ours is a traditional art. We should, however, use past examples intelligently, and not blindly, even when we design on academic lines. This brings me to a rather serious consideration—the sad lack of a sound grounding in our students generally. Although architecture is such an important study, and though architects belong to such a great and glorious profession, there is very little to guide us as to the best method of producing the finished article from the raw material at our disposal. Our public schools only teach a very little drawing, and our universities are only just beginning to open their eyes to the fact that our profession exists at all; and we ourselves are not too clear on the matter of the best course to adopt. And now I should like to say a word or two to the prize-winners, as I have so many before me, swelling, no doubt, with pride, and pluming themselves in the sunshine of success. I would say to these—Beware! Many a good man has done the same before, and never been heard of since; and the fact of your having got a prize to-day is only one more reason why you should work hard again to-morrow. Skill of various kinds requires very careful handling, and architectural skill is no exception. All work and no play does, no doubt, make a dull boy; but the dullest man one can possibly meet is the self-satisfied prig, too conceited to learn, and too proud to keep himself in practice in the little that he really does know. I could prove to you, from statistics, that prize-winners do not by any means always become successful architects; but I have too many old friends amongst this class to make it worth while running the risk of making almost as many enemies by so doing, so I will only suggest that you should study the lists for yourselves and ponder well on your own conclusions. Another pitfall is that travelling students often make poor use of their opportunities when travelling, and either go to the wrong places or spend their time in studying the wrong subjects; so I recommend you to place yourselves at once in communication with our Secretary. Having cautioned the winners thus somewhat ruthlessly, I should like to say a word of consolation to those who have not been placed. You, at any rate, have escaped the awful risks which stare the winners in the face, and if you have any grit in you, you will not take your licking lying down. The line which divides a winning design from a losing one is often a very fine one indeed, and the very fact of having competed, and the spirit in which the result is taken, is what does the real good, and not the mere winning of the prize. So there is hope for all, including even the winners—perhaps; for study and hard work will turn the students of to-day into the Institute of to-morrow, and I trust that whether at work or at play you will not forget this Institute, which really does a great deal for students. You will also make and cement many a friendship in so doing. Personally, I believe I have learned far more from my fellow-students and friends than I ever did from my teachers and masters. If you happen across a genius, cultivate him, therefore, for all you are worth—that is, if you do not happen to be one yourself. For the genius is a wonderful creation who has been defined in various ways; but as he is generally abnormally developed in his own particular sphere, a cutting taken from him will not be missed, will often flourish and produce fine results in the common or garden kind of student, just as a sprig cut from a fine apple-tree will produce wonders if grafted on to the common crab. The genius, in his turn, will derive benefit from his more plodding and business-like friend, who may often suggest ways of turning talents to account which might otherwise have escaped his poetic notice. We do not hear quite so much of crafts and craftsmanship now as we used to, probably for the reason that we have steadied down somewhat, and now recognise that architecture, after all, is itself quite enough of a craft to demand our whole attention. It is not necessary to be a bricklayer in order to grasp the limitations and proper principles of brick design; but it is necessary to know the size and shape of a brick before we can get very far on the architectural high road, and yet I have known young men in my time otherwise very capable assistants who could not tell me the size of a brick. In other trades the same thing applies, and there is a vast amount to learn about them; so if we like to take up a trade or two as a hobby, we shall no doubt largely benefit. As we have to do with all trades, it is obvious that general and intelligent observation, combined with reading and lectures, can be about the extent of our mastery of so many subjects. Drawing is our mode of expression in our type of craft, and we shall find it very useful to be able to draw accurately and intelligibly. Perhaps I have now said enough to show you that a student's life is not altogether a bed of roses; but it can be a very happy one nevertheless if only he takes a keen, intelligent interest in his work. Architecture is a great and honourable profession, and it should be upheld by a fine, honourable set of men. Play the game, therefore, strictly and straightforwardly; shun anything which, in your own phraseology, you would term "not cricket," whether in connection with your work or your desire to get it. An architect has a number of great and ever-increasing responsibilities, and his client has to place implicit trust in him, and this trust should never be abused in the very smallest degree, for although it may be a fine thing to be a great architect, and produce a quantity of really fine work; yet who, after all, is more respected and admired by all than the simple, honest, straightforward, and upright English gentleman?

Professor C. H. Reilly, M.A., of Liverpool, read the following

CRITICISM OF DRAWINGS SUBMITTED FOR THE INSTITUTE PRIZES AND STUDENTSHIPS.

I feel, he said, very strongly that the exhibition before us, in its broadest aspects, is the best indication we have of the general state of architectural thought among the younger generation. Students' work, at any rate in England, follows very closely—much too closely, I venture to say—the trend of current architectural taste, and whether an exercise be supposed to be in the principles of Palladio, Vignola, and Chambers or not, the result is generally a pretty faithful reflex of the latest competition devices of our competitively successful architects. In the absence of any national system of training in design it could hardly be otherwise. A year ago it was my good fortune to see in America the designs for the Stewardson scholarship, which holds there a similar position to our Soane medallion. The chief difference, as it strikes me now, was not that the best work was better, but that in the hundred or more designs submitted for this one prize, the general level of accomplishment was considerably higher than it is here. Among our students we have evidence before us to-night of many men of brilliant imaginative power and great artistic ability; but they seem to lack that technical accomplishment in design, that knowlege of architectural effects and possibilities, which is necessary for ability fully to justify itself. But if the best men suffer from lack of continuous training in design, how much more do the lesser? Indeed, the main advantage of schools of design—the only modern equivalent to consistent architectural tradition—is that the general level is raised. Everyone has remarked that in a time of strong tradition like the 18th century, how little absolutely bad work was done, and the same results apply to the organised teaching of design which every country save our own now possesses. Facility in design, like facility in draughtsmanship, comes with constant practice. I know myself what a good exercise I find it scribbling compositions or details on the students' boards at Liverpool. This leads me to this suggestion, that the Institute which has now taken in hand the training as well as the examining of students, should make training in design the keystone of its system. Instead of a couple of small designs and an elaborate system of written papers, I suggest that the Institute should substitute a minimum of papers and a series of designs to which the Tite and Soane might be a fit culmination. As it is, the winners of those prizes might be allowed to qualify for membership, just as the Prix de Rome, ipso facto, obtained for its holders their diplomas of the Ecole des Beaux Arts. Turning, then, to the Tite and Soane prizes, the competitions for them as exercises in design are naturally and rightly the ones to which we attach most importance. Sketches, measured drawings, essays, colour studies, valuable as they are as means of study, all pale in interest before a single honest attempt to evoke the noblest function of the human mind, its power of imaginative creation. Ultimately, all works of art must live by their appeal to the imagination; that is the divine fire without which the cleverest rendering, the deepest scholarship, are but negative accomplishments. Now, there could hardly have been chosen two subjects making a more immediate appeal to the imagination than those for this year's Soane and Tite prizes—a bridge and gateway to a capital city, and a wooded island in a lake set apart for the solemn rites of burial. They are ideal subjects, and our students—and all of us, for the matter of that—should be encouraged to dream dreams; so-called English common-sense and love of compromise will follow fast enough in practical office work. As to the Tite competition, I feel we need not despair of the future of our art when we have among us men of the poetical temperament of "Ek Thanaton Nikos," or capable designers like "Catafalque," "Apex," and the winner. The jury must have had a very difficult task in determining the result. Having set so fine a subject were they by their award to throw Palladio to the winds, and choose, irrespective of all else, the most poetical conception—the design which satisfied the spirit rather than the letter of their problem? It must have been a sore temptation; but English common-sense has won, as it generally does, and the very capable design of Mr. Foggitt,

from entries in our first dame's school—is taking to his goodly two peasant ladies for a picnic in the cemetery. It is, as you can imagine, a charming early 19th century water-colour. "Angary Is," on the other hand, shows all the sappy, bad effects which can be got by combining a heavy black line with colour. The Soane has not produced this year so good a competition as the Tite, either in numbers or in the general quality of the work, yet in these days of civic design an entrance to a capital city should have been an attractive subject. "Civitas," the winner, has sent in a thoroughly Beaux Arts set of drawings, even to the gold borders and the carefully composed frontispiece of details. The plans, sections, and elevations are all made things of interest in themselves. The draughtsmanship, if somewhat uneven, reaches in places a very high level indeed. The drawings are shaded throughout and made intelligible to laymen. "Manerthon" has had an honourable mention given him for a clever essay in François Premier architecture. The Soane is not restricted unfortunately, I think to the fine, Classical architecture practised by Soane and his contemporaries. It is, therefore, open to anyone to send in what the Americans would call an essay in archæology, and in this case it has been done with American thoroughness. The main gable, well shown on the 2in. drawing, exhibits all the varying scales, the uncertain grasp of motifs, which characterises such early work when ideas which since have blossomed were only in the bud. "SLLab," who also receives honourable mention, submits a very modern design in the latest *Daily Mail* vernacular. His draughtsmanship of his geometrical drawings corresponds to the clever draughtsmanship of the competition expert. Neither merit or misfits his designs there, however, any more than do. Both are "Chinstend of clever, slick touches. Indeed, in "SLLab" is no card he will fail to play. Mr Imre Kiralfy's friends, and design gateways for White, rather than Capitol. Cities "Harlequin" has to my mind, the most soberly architectural scheme, and shows it in sensible sepia drawings. His perspective reveals the fact that he has not quite realised that his main approach should start at the bridge not at the water level. But for this accidental fault he might have received a different place. "Elpis" Cat has laid out a circular place on the sea side of his gateway, which is approached over a miniature Waterloo Bridge. "Yellow Bird's" scheme with a central feature somewhat reminiscent of Hyde Park Corner, is quietly drawn in rather an old-fashioned way which seems to suit his architecture. "Journey's End" meets you with great pylons in which Assyrian, Classic, and Romanesque motifs are mixed, but hardly blended. I wish his architecture was as good as his draughtsmanship. Horatius" also sends a somewhat severe design in which a Roman spandrel bridge leads to a tower with new art buttresses and Egyptian sphinxes, crowned with an Imre garden pavilion. "Jemador" at least has courage. He shows a building of full terracotta. The Grissell and Saxon Snell prizes are the only others offered for design. The Grissell is given for construction rather than pure form. Unfortunately, none of the competitors are adjudged worthy. "Oregon" whose building is quiet and satisfactory has certainly attempted to design a novel form of roof. He has "dimented" his trusses above the hammer beam, branching them on diagonal lines which gives somewhat the effect of cross vaulting, and at the same time braces the roof against wind pressure. As an example of "architecture of adventure" deserves some credit. The remaining designs are not very happy. The Saxon Snell prize has not been awarded. Turning now to what I may call the research section of our prizes we come first to the Institute Silver Medal for measured drawings. Seeing that the Pugin is worth £40, and is devoted to Mediæval work, I wish the Institute could see its way to increase the Measured Drawings Medal from £10 to a like sum, and devote it to Classic and Renaissance architecture. Until we have devoted as much time to the study of Classic forms as our predecessors did, and our Pugin

enthusiasts do to-day to Gothic ones, we shall not make headway. Classic architecture is an affair of light and shade rather than of line. It should be rendered, therefore, in light and shade, and the thick-line drawing, which we owe to Burges, should be kept, if kept at all, for Gothic work. "Ethandun," the winner, has indeed sent shaded detail drawings of the Gothic building he has measured, and very well they look. His black line elevations are not so pleasing, and his surveys a little careless. "Nihil sine labore" justifies his motto in the six strainers he has sent of St. Lawrence Jewry, a Classical building, but shown in the strongest of competition black lines. Strong as these drawings are, they are bound to have the defects of their qualities. The carving, well drawn, has a totally wrong value, and an enriched moulding in effect counts more than a whole column. But it is not on such a question "Nihil sine labore" has been judged. He has not submitted his surveys. "Farnesi," "Cam," and "Oxonian" all send rather tentative drawings, some in wash and some in line, and the surveys are not as good as they should be. "Farnesi's" perspective of the much-measured Somerset House Strand entrance is a good piece of work. We come now to the Pugin, and a very difficult matter it must have been to make the award. Some drawings are crisper, some more spotty, some water-colour drawings are cleaner than others; but, beyond that, what can one say? It is a matter more of craftsmanship and industry than anything else. Mr. J. B. F. Cowper, the winner, who is to be congratulated on winning the Ashpitel prize as well, is a hardworking North-countryman. He sends six good perspective sketches of towers and spires, three in line, three in colour. He has measured several parts of the buildings in the special way Pugin students measure. He has, however, included among these latter the façade of some almshouses at Nantwich, which, but for the date, 1638, one would imagine were modern artisan dwellings. Mr. Hepworth sends in the most work, and in an elevation to the porches of Rouen Cathedral, which he has measured, maintains an extraordinary sharpness of pencil line. One cannot help wondering whether such laborious work is quite worth while, and whether the full-size detail of a single niche would not be more valuable than these hundreds of niches, all drawn with the same staccato touch. Mr. Hepworth, though, has measured more than the other competitors, and this is to his credit. One measured drawing is worth a very large number of sketches. It may sound heretical, but I cannot help thinking that sketching, in spite of the Pugin Studentship, is by itself a very dangerous pastime. A man who has sketched the skyline of a building and a little detail over the door is apt to think he knows all about it. Perhaps the blight of picturesqueness which has settled on our architecture could be traced to the enthusiastic sketching of twenty years ago. Mr. Clough has made a number of straightforward yet delicate drawings and some admirable colour sketches. He must have run the winner very close—whether behind or in front I need not say. Mr. Hadwen's shows evidence of a good deal of hard work, but his draughtsmanship is not very sympathetic. Mr. Alison sends good work, too, but is a little uncertain in his details. The Owen Jones Studentship has produced two good sets of drawings by Mr. Bellis and Mr. Oakley. Perhaps Mr. Bellis, with his power of drawing the figure, is the stronger man. His drawing of the Pompeian decoration from the Castle of St. Angelo is particularly good. His colour, though, is not as good as his draughtsmanship, for some of his drawings suggest the reproductions in Mr. Owen Jones's book rather than the thing itself. Mr. Oakley is more daring than Mr. Bellis, in that he submits several sheets of original designs. Attempting more, he has made a high failure rather than an easy success. His decoration often conflicts with the lines of his architecture, and I am afraid his panels would reduce his council chamber to a restaurant. To reconcile again great painting and great architecture is, however, the work of a giant, and no one in our time seems likely to accomplish it, unless it be Mr. Augustus John. Mr. Henderson, who wins the Arthur Cates Prize, sends some charming sketches, chiefly from Italy, and a design for a Carnegie library. The latter, to my thinking, rather negatives the former. His best drawing is that of Peruzzi's delightful Santa Maria Carcere at Prato. Why, I wonder, has Mr. Carnegie's personality ousted that of Peruzzi from Mr. Henderson's mind? Mr. Vey's drawings are not so good, though, perhaps, his design is better. Bay windows, however, running through several stories are difficult things to harmonise with a really strong cornice. The essays have been left to the last, not, however, because they are the least important. Indeed, of the research work, the reverse is the case. The winning essay, Mr. Honeyman's, on the design and construction of belfry stages and towers, is a very valuable piece of real research work, showing throughout intimate first-hand study and a thorough knowledge of his subject. Although only two essays have been submitted, the winner's amply justifies the Council in changing the type of essay subject to one involving research and scholarship. On the other hand, I do not like to see the more philosophical type of subject entirely abandoned. Could not we have both? Different types of men would be attracted, the man of ideas—the designer, in fact—to the one, the scholar to the other. I beg students not to look down on the essay prize. Men who can see fine shapes in their imagination should be able, and generally are able, to write in good literary form. I frankly do not believe in the great inarticulate artist. He is apt to be a humbug. The biggest men, from Michael Angelo to Reynolds, from Reynolds to our best modern architects, have all had this double facility of expression. I believe very strongly that the one form of expression helps the other; but we must never make the mistake, as did Vasari and even Vitruvius, of accepting one in place of the other.

Sir Aston Webb, C.B., R.A., proposed a vote of thanks to the President and Professor Reilly for their addresses. Lest the young men should feel too elated, and those of middle age too depressed, by the stimulating speeches to which they had listened, he would remind them that Ruskin, in his memorable address to the Architectural Association, observed that the highest enthusiasm was usually found among the aged, the infirm, and the poor. In his address, the President had, with a very light touch and an underlying seriousness, given very generous words of encouragement and warning to students. Professor Reilly had criticised the students' works without fear or favour, and all would benefit by the remarks of so capable and independent an observer, offered in such a friendly spirit.

Stepping on the other side of the room, Sir Aston unveiled, amid hearty applause, a striking portrait of the Past President, Mr. Ernest George, painted by Sir Hubert von Herkomer, R.A., for a body of subscribers. Mr. George is represented in threequarter length, as seated, with his hands folded before him, the face turned a little away. In asking the President, on behalf of the Institute, to accept the custody of the portrait, Sir Aston said Mr. George was Ernest by name and earnest in his work; they all loved him as a man and as a friend, and all admired his work. He regarded the work before them as a faithful and excellent likeness of their Past-President, and as an admirable example of Herkomer's work, and a valuable addition to the interesting collection of portraits on the walls.

Professor Selwyn Image, the newly-elected Slade Professor at Oxford, seconded the vote of thanks. He wished, he remarked, he could traverse the allegations made by the President with regard to the neglect of architecture by the universities; but he could not honestly do so. However, he promised to do all in his power to secure a better recognition of the claims of what he considered to be the Queen of the Arts.

Mr. Ernest George, who was heartily cheered on rising, briefly expressed his gratification that his portrait had been added to the Institute gallery.

The President said it gave him great pleasure to formally accept so excellent a portrait of a very popular President. He then proceeded to distribute the prizes, in accordance with the list published by us a fortnight ago, pp. 89-90.

"BUILDING NEWS" DESIGNING CLUB.

A CINEMA PHOTOGRAPH THEATRE.

A more up-to-date subject could not be set, or, perhaps, a more easy problem devised, than a Cinema Theatre for the exercise of the skill of our Designing Club. Nevertheless, in some respects, the novelty of it no doubt somewhat reduced the popularity of this competition. We anticipated that this might prove to be the case, and so, to meet any difficulty, we took the trouble to proportionately define in detail the requirements when we set the conditions. Some may have thought too little scope was left for the imagination and ingenuity of the competitors. The results show, however, that the facts were far otherwise; indeed, we have, by long experience, learned to estimate the capabilities of the average member, whose restricted outlook has to be taken into account, and his limitations must be adequately allowed for whenever an attempt is made to inspire him to exercise his inventive faculties and use his brains by first looking up, and then working out, special information for a specialised building scheme. Unless this precaution is taken, the best-intentioned endeavour to get away from merely elementary and picturesque proposals, such as small houses, cottages, or similar subjects, is little likely to succeed. The everyday type of student only too readily inclines to select the line of the least resistance, and by no means infrequently, as every master knows, displays a singular aptitude for meeting difficulties half-way; consequently, it requires very little to incline him first to reconnoitre, and then speedily retreat, whenever the Designing Club undertakings strike out beyond the regulation track. We try to thwart this tendency to escape from wholesome effort by facilitating the enterprise, and erstwhile making the task as easy as possible, though coddling students in this fashion has its limitations and disadvantages, indicative of enervated circumvention which comes of expediency—a proceeding not to be recommended. The following is a reprint of our instructions:—"A Cinema Photograph Theatre on a level site, with streets on two sides and a footway on the third or back frontage available for exit doors. The land runs east and west, and is 100ft. long by 50ft. wide, with shops abutting on the east end, where no light or other casement can be obtained. The local authority will allow no directly western entrance, but angle-set doorways at the corners are allowable. The problem is to obtain a gradually rising commodious arrangement of seats with a clear view from all parts of the house, which must have sufficient passageways and convenient entrances and exits for a continually-changing audience. A small orchestra at base of stage recess will be necessary, and a gallery of four tiers of seats to be provided. The building is to be constructed in ferro concrete, with a domical roof in the centre of auditorium for ventilation, no windows for light being needed. The architectural treatment must be Classic, carried out in cement or glazed brick facings for the greater part in a simple, dignified monumental manner, not too expensive, but not in a temporary style. Use stone for the doorways, plinths and quoins. The name of the building is to be placed in a frieze done in glazed ware white lettering on a rich mottled dark blue ground. This is to give the key to the scheme of colour, which will mainly be white. The exits and entrances are to be so arranged that the performance will not be interfered with by daylight every time the doors are opened. The operating room about 12ft. square, with small film rewind room in corner, to be provided on gallery level at rear of same. The exit doors must have two steps above the pavement. The entrances may have more, but no steps may project beyond the lines of frontage. Provide two small sanitary conveniences, and one refreshment-bar for the public. Plan, two elevations, and one section to scale 8ft. to the inch. A small view is required. Details of the construction will be an advantage. Flat roofs, asphalted; but the cupola is to be

covered with lead, and to show as an essential feature of the building."

We place "Margis" first, "Mount Zion" second, and "Showman" third. The fourth position is accorded to "Harvest Moon," "North Pole" coming fifth, and "Serio" sixth.

"Margis" unnecessarily curtails the seating accommodation on the ground floor. The side corridors encroach upon the space, as, indeed, they must do in any case; but there was no need to have also a gangway inside the auditorium. Had the exit doorways been located at the ends space would have been saved. The main purpose of the corridor should primarily be devoted to entrance purposes, and one good exit on each side at the stage end of the theatre would suffice, allowing also the gallery exits. "Margis's" curved, skew set main entrances cannot be described as good. They would have been far better laid out in a direct way at right angles, and with the outer doorway set back to the recessed point, as at present. In this way they would comply with district council's conditions; or, failing that alteration, a straight cant at the corner, with the steps in line with same, would have been far preferable to the curve. One pay-box only is wanted, and one of these angle doorways should have been reserved for exit. The present position of the pay box is not very convenient, protruding into the theatre. The refreshment bar would be better with an open front, and treated more as an alcove instead of being shut in for drinking, or as a flirting place, practically devoted to men and the barmaids. The projecting "orchestra" is not needed, as the "stage" space below the picture-screen affords ample accommodation for a band suitable for such a performance. The half plan method of showing the two floors, made necessary, perhaps, by the employment of side galleries, is not the best way or the clearest method for showing "Margis's" intentions. The staff retiring-room, and the manager's room, seem to be adroitly managed off the exit stairways, which, being intended primarily for emergency (there being two other staircases at the west end), would ordinarily be private. The so called "yard" we understand to be intended to give air intake to the heating-chamber; but it would not be convenient to carry coal so far along the footway to the coal shoot at the end of it. "Margis" had no right to run his stairs to the basement, or to carry the flat over his side rooms up to the external wall of the adjoining shops, and finish his flats so. Side galleries do not make the best arrangement for viewing moving pictures. Moreover, the particular provision of these galleries is somewhat expensively contrived. Architecturally, this scheme is by far the best, being marked by refinement and skill. The treatment of the picture-screen surround is not so happy as in the design placed third.

The second competitor, "Mount Zion," lifts his dome on top of a segmental arched ceiling, and outside the effect is rather satisfactory. The entrances, by way of circular vestibules, lead to a "promenoir," and wide stairs approach, which looks fittingly important and clever, though so great a width for the steps would necessitate a middle rail, to comply with by-laws. The side corridors are excellent, and a way to the lavatories is got from them as well as from the front hall. The refreshments are upstairs, reached by two grand staircases leading to the gallery, and a big adjacent servery is located under the operating room, which is distinguished externally by a stone built pediment. The artists' rooms are not needed at the display end of the theatre, and the space would have been much more useful if devoted to increased seating accommodation to swell the financial returns. The side corridors are treated as aisles, with flat roofs. There is much thought and skill exhibited in this scheme by "Mount Zion"; but his perspective view somehow gives an indifferent look to its architectural treatment, which seems wanting in simplicity and scale, more particularly to the outside of the porches, which would have been better without the pilasters.

"Showman," the third place winner, treats his exit recess lobbies very sensibly as dwarf projections into the theatre flanking the proscenium, and omitting retiring-rooms at this end of his building. His saucer-domed ceiling does not grow sufficiently well out of the plan, which is crudely left unfinished in this respect. Had the seats been drawn in, the plan would have gained in appearance. Externally, the domical crowning feature would scarcely be seen at all. The end elevation is well managed, excepting the entrance and exit doorways. Neither of them is quite satisfactory in appearance, and, anyhow, they ought to agree. The plainer treatment is the better of the two. There should have been no break between the main quoin and the rusticated work of these porches. The upper plan omits their roofs. The ticket box is better situated than in the first scheme; but the manager's office would be much curtailed in section by the exit stairs from the gallery. The refreshment place would be improved by opening it out to the theatre, with the bar counter set crossways in front of the window, instead of wasting space, as it does at present. The entrance stairs would come awkwardly in relation to the window, and there is not enough light to either of the staircases. That to the basement is quite dark. If "Carrara" whiteware faces up the exterior, the joints must show; but these façades look roughcasted.

"Harvest Moon" reserves his aisles as external side-ways for traffic beyond structural archways, which is a better contrivance; but the two intermediate "clearing exits," placed as they are, somewhat exceed actual needs. The eastern end entry, with its two pay-boxes, would not be wanted. The stairs down to heating-chamber under the "stage" recess could be contrived below the proscenium picture-field on the east wall, and the musicians' room as shown is not very well shaped or managed. The exit lobbies ought, anyhow, to be kept free of encumbrances. The double splays at the end of the auditorium have an awkward effect, and waste space also above, without giving any exits to the side galleries. This balcony for standing room only has all the objections of the "promenades," once the salient features of all music-halls. Without their convenience of free circulation for people, these balconies, in the darkened cinema theatre, would be liable to give an opportunity for much objectionable conduct by both sexes. No watch committee would, indeed, permit such an arrangement. The lay-out of the entrance part of the premises is badly contrived, and so are the sanitary allowances, cramped and squeezed in as they are, while the staircases must run the head-room over the vestibules very hard indeed. Outside, the mural elaboration in party-coloured glazed work spoils the effect of the building, and no view is furnished, as required. The dome does not grow nicely out of the plan. The lobsided look of the refreshment place is very ugly and inconvenient, being set out without due concern as to the walling above in fact, the author has not considered constructional limitations as he should have done.

"North Pole" does do that, and in several particulars he deserves our commendation, particularly for his attempt to recognise a dome as an eminent feature architecturally, so that it must be recognised externally from the ground line upwards, and cannot be casually introduced simply as an incident of the roofing. We give "North Pole" this credit, but we feel how far short he comes of good ideals, wasting a lot of enclosed space, and heaping up a vast superstructure—merely a heavy mass carried over the theatre, as a sham for outside appearance. His cross section looks like an impossible performance, and in the absence of a longitudinal section, the author evidently has not quite realised what a distorted effect would result from such an incongruous combination of arches and girders. The entrance end of the building is intended to be architecturally handled, and we agree that there is a laudable effort in this direction, but this effort is too self evident. The curved counter to bar is cramped and awkward, with no room for customers to squeeze in between it and the columns in front. The curved seating in the theatre is not necessary, and the exit doors flanking the "stage" should have been located as in the third-placed plan. The squat proportion of all four of the doorways is quite ugly.

"Serio" keeps the entrance end of his plan comparatively low as a one-story building, and we understand the advantage this might be, though he has made a needlessly ample entrance-hall. It is not a good arrangement either, notwithstanding all this space. Women must go right out into the entrance lobby, almost into the street, before reaching their lavatory. The pay-box is at one end of this great hall, and the staircase to the gallery is at the other. The refreshment-bar is open to the hall, as it ought to be, and the exit lobbies flanking the "stage" are sensibly done. The orchestra space is too restricted—sufficient only for a grand piano. Architectural treatment is not the strong part of "Serio's" scheme, and the dome would rest on girders extending from one end of the theatre to the other, about 76ft. span, with very thin piers shown on the ground floor to do the work. None occur at all, however, to carry the girders above the gallery level. It is evident that "Serio" has not realised what he was doing, in spite of the elaborated details supplied of cornices, and a section through the girder itself. Construction is not his strong point.

"Grasshopper" is distinguished by breadth and a good sensible plan, not by any means to be overlooked. The exterior is faced with brick, having projecting piers, according to the elevations, banded with stone. These, presumably, are flush with the plinth, as they rest upon it. On plan, however, none of these things show, so we are left to conjecture. The unbroken block of twenty-four seats wide without a central gangway would not work well with a continually changing body of people. The dome is set over the middle of the theatre; but it seems dumped in that position, without regard to anything, and nothing leads up to or prepares for such a feature. Surmise, also, is left to account for the construction. No one could know that ferro-concrete specialised the execution, and very few would see the cupola, not being airmen. The entrance end of the premises is among the best of any heretofore mentioned, and we regret not being able to place "Grasshopper" higher. The stage for dramatic performances was not asked for. No heating-chamber seems to have been thought of. A way down to a basement might quite well have come where the place called a "store" now is. Perhaps gas radiators were contemplated.

"Oxonian" is too rough, and so fails to do his job justice. The broad handling of the exterior, which he sends, goes far to redeem his faults, which are mostly self-imposed. We do not understand how he intended to roof the theatre, and having elected to bring a pier slick down inside, midway of the length of his square domical ceiling, he puts a doorway right in the way of the aforesaid pier, leaving both the door and the pier to be shown in a casual way, one on top, or, rather, immediately in the way of the other. The stage in the coved recess was not stipulated, and the muddled hall lounge, all sixes and sevens, looks the last place on earth for any sane person to lounge in. The refreshments place would be dark and fusty, close to the "gent's lav.," with the rest of it. Two pay-boxes flanking the entrance would never be required. Cinema patrons come in driblets, the performance being continuous. The internal treatment adopted is excessively indifferent, and unworthy of a man like "Oxonian," whose entrance front is really rather good.

"Girder" uses two sheets, sending a design which might be mistaken for a church. The entrance-hall internally is quite open to the theatre, payment being made before entering the building, the gallery door at foot of the stairs coming on one side of this ticket wicket. The janitor, however, could not well stand so as to control the public, as he must actually do, and a second official

would only be in the way. A lofty domical erection, with the timber framing showing inside, has a flat grille set in the square surface of its base. The large side windows would have to be blocked up; otherwise the cinema pictures could not be seen on the screen. The four emergency exits are recessed into the "auditorium," and thus the side walls are stiffened, but the doorways are not well contrived in relation to the efficiency of the exhibition display.

"Mike" has ideals, but fails to work them out adequately. Thus, his boxes at the back of the theatre are mismanaged. The person seated at right angles in the smaller boxes would have to lean forward to see the pictures, and by so doing would hide them from his neighbour sitting facing the proscenium. The segmental fronts of the gallery curtails the seating space awkwardly, and by continuing the same line to the front of the side, or larger, boxes, they are spoiled without saving any space, which makes the muddle all the more aggravating. The ceiling plan displays the domical intention, and the section makes it clear that all that one sees above the flat level is only for meretricious effect, though called a "ventilating-chamber," which business is all fudge handled this way. The name of the building is carried out much as we suggested; but perhaps this is due more to accident than otherwise. The bonny big windows seem to be much encumbered by stairs inside. Others are enormous ones for w.c. provision. One w.c. has only a slit of light, and, in that case, the cloakroom and closet are one and the same apartment, a not entirely inodorous arrangement, obstructing, as it does, the gallery exit way.

"Ink-splash" produces a plan with side corridors and four emergency exits; but he seats his people in a solid block, with a very narrow gangway at each extremity, so that we gain little space by what he has done. The main walls are carried up inside of these aisles, and flats cover the passages. The seating is for 412. The dome is the same in section inside and out. Lofty pilasters are put where the cross girders take this lantern, which is of the same diameter as the width of the theatre. The entrances into the "auditorium" are very awkward. "Prospero" provides an angle-set bar, with the ladies' accommodation on one side of it, and the gentlemen's place on the other. Both entrances to the theatre have pay-boxes. These are not badly set in the corners; but their openings should have been put on the angle. The ceiling of the theatre is horizontal, and no dome is shown in the section, though one appears in the elevations and view. The plan is in some ways very good. "Dix-Sept" also fails to give a section of his overstilted dome, and his external wall surface is interspersed by pilasters between rusticated piers which serve no special purpose beyond needlessly breaking up the mural breadth. This plan has been studied, but is left undetermined in important particulars, such as the relation of the cupola to the "auditorium" walls and ceiling. "M. C." gives a stage 10ft. 6in. deep, and muddles up the entrance end badly with a large, wasteful landing on the first floor. The refreshment-room opens off the half space of the main stairs, which would prevent good supervision. "Nota Bene" has an indifferent scheme, spoiled by wasteful corridors, dark as night, leading to lavatories which are of enormous height. "Arte et Labore" sends a crude plan, on a badly-set-out sheet of paper, with the view set end up. The stage is big enough for a music-hall. "Occidens" lacks a sense of proportion, and puts winders to the too wide stairs leading to gallery. His external-wall treatment at the side is his best feature. The ladies' w.c. window, opening into the main portico, is at best a nasty notion. "Kay" is painstaking, and has a good proscenium screen. His entrance end is ungainly and wasteful of space. "V" shows a cloakroom door set in a space where the stairs would only leave about 3ft. headway. His refreshment-saloon is 22ft. by 15ft. Two pay-offices are provided, one to the entrance and one to the exit. His elevations, showing some sense of architectural semblance, are much too crudely drawn. "Also Ran" is not in the running. He puts an angle-set doorway, and carries over it the corner of the superstructure, with its massive rusticated pier 5ft. wide on each face immediately over the bracketed hood to door. As seen in perspective, this is too ungainly for words. "Hopper" omits a plan of the gallery, and puts his refreshment bar under the stairs, practically cutting it in twain. His entrance end is suggestive, though badly worked out. W.c.'s are not over-commodious when made only 3ft. deep and 3ft. 6in. wide, as here provided. Of the architecture we can say nothing commendable. "Planit" is very neat, and has corridors which he makes external to the theatre, the exits being placed on one flank only, with exceedingly dark outlets. The waste of space in the centre of the "auditorium," to allow of these exit and entrance doors, is a great blemish to this plan. "Weird Animal" submits a crude scheme on a badly-drawn sheet insufficiently complete. "Toby's" redeeming point is the east end of his section, though his design is not distinguished by beauty of treatment, while his notions of sanitary convenience are as bad as they can be. The doorway to the men's place is flush with the refreshment-counter front, and the ladies' place is beyond the street entrance, behind its doors, which open inwards.

THE UNITY OF LIFE.

At Carpenters' Hall, London-wall, E.C., on Wednesday week, Mr. T. Raffles Davison, Hon. A.R.I.B.A., delivered a lecture on "The Unity of Life." Mr. Robert Cobay, Master of the Carpenters' Company, occupied the chair.

Having shown how entirely subjective are our views of art and life, the lecturer continued:—Let us try to have good ideals, that their expression may be the truth of our real selves, and not mere affectation. Let us try that our work may be better, and our aims finer. As the man is in himself, so his work will be. You cannot disguise yourself in your work, and perhaps not much in your surroundings. If you are more impressed with the dignity of life, your existence may not take on so rosy a hue as that in which the joy of life is thought of most account; but it may be truer to your ideal and desire. Does not the thoughtful, practical, tidy workman score over the hasty and careless worker, and are they not both the victims of their character? It is foolish to think you can separate art from life, for as you live, so you are, and so you will art. Can we, then, over estimate the value of truth as a foundation of our character and aims? In matters of art we may conclude that, generally speaking, we get our deserts. When I see a great commercial building bristling with ostentatious vulgarity, I conclude that the client probably wanted it and—alas! probably likes it. When a great Cardinal puts up a cathedral in an exotic style, and everyone is willing to accept it, I conclude it doesn't much matter, and that religion in this case is a thing above architectural association and tradition. If we do not aim at Truth, and demand it, we must not complain if we do not get it. At any rate, we might say that much of the vulgarity and fussiness in modern art is a truthful symbol of the hurry and bustle of modern life. In art, as in life, no one is altogether bad and no one is altogether good. Because I make a mess of my arrangement and design, that may not prevent me being a very skilful carver. But Truth calls a halt when the departure from the constructional needs creates an appearance of weakness which endangers stability. The charm of life is in its variety of endowment, and the interest of art comes from endeavours which are always partial. The most perfect art has been shown in carved panels by men who could not by any means design the building in which to use them, and the most able architect may be one who looks with envious and appreciative eyes at the artistic work of craftsmen who realise his dreams. The humblest craftsman about a building who expresses an artistic individuality in his work stands shoulder to shoulder in the firing-line of our battle against ugliness and squalor, and he is my sincere comrade with the most accomplished architect of any time. When we come to talk about Truth in art we must try to understand what we mean. An able architect has told me that he views with complete satisfaction a beam which is composed of a steel girder cased in and hidden from view by wood or plaster, because, says he, there is no deception about it—you know the steel is inside. Well, you may say this sounds sophisticated, but there are many points in building matters like this. Take the latest development of ferro-concrete. How are you to obtain a truthful and artistic expression of it in building? How can you give expression to that part which you cannot see? The metal bars or rods without which the whole would collapse can have no definite expression outside the skin of concrete with which they are clothed. But the worst falsehoods in architectural art we always understand to be the pretence of one material being another. There is no reason why we should not aim to get the colour of a beautiful marble if only we don't pretend it is marble, and there can be no harm in using an oak stain for its excellent colour if we are not going to use artifice to make deal look like oak. Surely it is not well to pretend we are supporting a great load on a round oak pillar if it is obvious we could not do it, and that there is obviously a steel stanchion inside. In such a case we have neither truth nor the appearance of truth. Thus are we thrown back on a device like reinforced concrete, for the truth of that lies in the fact that the outer surface which we see does a necessary part in the work of construction, and though we cannot express the metal within, we must assume, from our knowledge of the facts of construction, that it is there. But the truthful treatment of materials we may all realise with little thought. The false treatment of materials covers a wide range. Stone is constantly being treated as wood, pot as metal, and metal as pot. Marble is treated as stone blocks instead of as slabs, cast iron as wrought, and wrought as cast. Soft stone is treated as only hard should be, and vice versâ. Terracotta is treated as stone instead of as brick, cement as stone, and in some of the cleverest modern internal architectural work you will find stone forms translated into plaster. This latter is a frequent fault, and one to be much deprecated. The illogical and false treatment of material is a constant and glaring evil in modern art. Cast iron, which is actually used as a term of reproach, is one of the most beautiful materials when properly employed. Wrought iron work has had many revivals in recent years, and yet one hardly knows where to go for the work of an earnest and artistic workman who supplies the public direct. Take another craft, that of plastering. I feel strongly as to the possibilities of beautiful plasterwork. You all know the simple and effective bits of exterior plaster decoration which you see on old cottages, and which was so often done by the local mason, who modelled it up with his trowel on the wall, or, it might be, scratched in with a fan of pointed sticks, or pressed canvas against it to produce a sort of herring-bone texture, or stamped it with templates. Much beautiful work of a very simple kind was also done inside cottages; not cottages which had been cut down from manor-houses, but homes for people with similar incomes to those who crowd Bermondsey or Ilford or Lambeth. Now, why cannot we have some of this simple and effective work again? There are several reasons, doubtless; but one of them is that we are taking all our ornament from the shop, the factory, and the agent. We are not getting it direct from the workman himself. Why cannot we get a working plasterer to do decorative work himself? He has the easiest of all media in the world to work in. I would like to see an ordinary working plasterer trying his hand at simple frieze ornament or simple panels which we could use in our small houses and cottages. The fine art which has been expressed by men like Mr. Bankart is out of reach of many; but the working plasterer could give us poor folk something to relieve the monotony of our dull walls. But a working plasterer and a

DOCK EXTENSION IN THE PORT OF LONDON

[illegible] of the General Purposes [illegible] the Port of London Authority, [illegible] Dock Company explained the leading [illegible] of an important report which has [illegible] prepared by the Chief Engineer, Mr [illegible] Palmer, C.I.E., on the improve[illegible] and extension of the dock accommodation [illegible] the Port of London. The report [illegible] masterly and practical manner the [illegible] dock construction in London from [illegible] when the Howland Great Wet [illegible] in the seventeenth century, [illegible] opening of the Tilbury Docks in [illegible]. The matters dealt with by Mr Palmer [illegible] classified under three headings: (1) The [illegible] programme, embracing works [illegible] to be carried out without delay in order [illegible] the much needed increase of accom[illegible]. (2) The secondary programme, [illegible] such works as given a continu[illegible] the normal growth of trade in the [illegible] necessary by the time the first [illegible] completed. (3) The third, or [illegible] programme, which will largely [illegible] upon eventualities.

The whole of the works reported on would [illegible] approximately £14,126,760 viz., London Docks, £662,000; West India Docks, £105,000; Millwall Docks, £747,700; East India Docks, £268,000; Victoria Dock, £1,300,000; Albert Dock, £615,000; South Quebec Dock, £2,585,000; North Albert Docks, £350,000; Tilbury Dock, £2,618,600; and [illegible] passenger landing stage, £230,000.

The primary or urgent matters at present [illegible] £896,700; and the secondary programme [illegible] £5,722,000. This would leave a [illegible] of £4,808,000 out of the total estimate for works in a third programme to provide for the more distant future. The execution of the works comprised in the primary programme would, it was stated, probably [illegible] about five years. The Port Authority [illegible] practically accepted certain improvements [illegible] over. They include the making of [illegible] navigable basin from London Bridge [illegible] the Tower Bridge, 150ft. wide by 14ft. [illegible] at low water; from the Tower Bridge [illegible] Thames Tunnel, 500ft. in width and [illegible] in depth; from the Thames Tunnel to [illegible] Greenland Dock entrance, 500ft. wide [illegible] 16ft. deep; from the last named point to [illegible] Royal Albert Dock, a width of 600ft. and a depth of 20ft.; and from the Albert Dock to [illegible] open sea, a depth of 30ft., with width of [illegible] 600ft. from the Albert Dock to Crayford Ness Point, and 1,000ft. below this point. According to Mr. Palmer's report, it is probable that from the Royal Albert Dock downwards a still greater depth of channel may be necessary in the future.

CONFERENCE ON THE SMOKE EVIL

A conference on "The Smoke Evil," convened by the British Institute of Social Service and the Coal Smoke Abatement Society, was held on Monday afternoon in the Library of the Institute, Tavistock Square. Sir W. B. Richmond, R.A., who occupied the chair, moved: "That, in the opinion of this conference, the pollution of the air [illegible] smoke [illegible] health and [illegible] work [illegible] Local [illegible] to the abatement of [illegible] large towns and [illegible] arrived with Parliament [illegible] strengthen the hands of [illegible] dealing them to [illegible] [illegible] the suppression of smoke [illegible] [illegible] could be no doubt that [illegible] nosphere as we had on the pre[illegible] [illegible] restrictions to the extent of [illegible] and probably more to the [illegible] to the rich classes. [illegible] [illegible] irreparable injury done to [illegible] by the smoke fiend in our [illegible] [illegible] Hammersmith he had had the [illegible] on the pictures washed and had gone [illegible] again in a week's time, and in [illegible] minutes he had obtained a bowl of [illegible] as black as his hat. A single wet [illegible] deposited on the surface of a picture [illegible] sulphuric acid, which penetrated [illegible] much that it became part of the copal [illegible] varnish with which the picture was covered, [illegible] if the varnish were dry, and could only be eradicated by a solvent which would destroy the picture. This fact was discovered by Faraday in 1857, when he was employed to examine the state of the pictures in the National Gallery. Bronze was eaten into by the acid, and there could be no doubt that in the British Museum those priceless marbles, exposed to sulphuric acid, had enormously changed during the fifty years he had known them. Little portions of colour having disappeared, and the surface having lost its beautiful transparent look and become like opaque putty. Even if pictures were hermetically sealed, the acid got in, and at the National Gallery the glass had to be taken off and cleaned at the back of the pane. Much of the degradation of the present day was due to the want of light and the miserable conditions in which people lived. In France, Germany, and Italy one never saw the depression on the faces of the people such as one saw in London and other large towns. There were certain laws against the smoke nuisance which borough councils had the power to enforce, but they did not always do so. When it was proposed to give greater strength to the authorities, they were immediately stopped by Parliament saying that to make the existing Act stronger would be deleterious to industry. But he knew of industries which suffered on account of the smoke of London. All smoke should be punishable. Sheffield was now becoming a more or less clean city, and in Manchester a great agitation was going on, and that could only be carried out effectively if Parliament would consent to do as the county councils suggested, and delete the word "black" from the Public Health Act with reference to smoke.

Dr. H. A. Des Voeux, in seconding the resolution, observed that Parliament would give what the public demanded. The annual cost to London of the smoke nuisance was £5,000,000. In Glasgow a fog caused the death rate to increase with enormous rapidity, and two fogs in that city in the autumn of 1909 had been responsible for 1,063 deaths, or as many as in the "black week" in the South African War. The Hon. Rollo Russell, in supporting the resolution, said that smoke did great damage to health, and by far the greatest offender in dirtying the atmosphere was the domestic fire. Dr. Samuel Rideal, in supporting the resolution, spoke of the action on metals of the sulphuric acid in the air. Dr. John Owens spoke of the destruction of buildings caused by acid in the air, and said that Westminster Abbey and the Houses of Parliament were rotting away. In the domestic fire, 5 per cent. of its coal was turned into soot.

On the suggestion of the Hon. Rollo Russell, it was decided to institute an inquiry among certain trades which might be affected by the smoke nuisance, such as builders, silversmiths, and some of the shops in Regent street. The resolution was then carried unanimously.

Mr. Culbertson, of Kilmarnock, has been appointed surveyor to the Dunbar Town Council.

OBITUARY.

By the death of Mr. Henry Nicholas Hawks, I.S.O., which took place on the 30th ult., his Majesty's Office of Works has sustained a severe loss. Mr. Hawks entered the service of the Department in 1877, and was attached to the Scottish branch of the office in Edinburgh. After serving as architect and surveyor in Edinburgh for some years, during which time he was identified with the erection of many important buildings in Scotland, he was promoted to be architect and surveyor in charge of public buildings generally in the provinces. During this period of his service he designed and supervised the erection of the following buildings, amongst many others: Custom House, Post Office, and Inland Revenue Office, Southampton; County Courts at Croydon, Swansea, and Cardiff; and the Royal Naval College, Osborne. In 1907 he was placed in charge of the Royal Palaces and most of the public buildings in London, with the exception of the post offices. Mr. Hawks has been the architect of the new melting house at the Royal Mint, the Patent Office extension in Fornival street, and many alterations and improvements to the Tower of London. But the principal works entrusted to him during this period have been the extension and fireproofing of the National Gallery and the erection of new offices for the Board of Agriculture in Whitehall illustrated in our issue of November 4, 1910, both still in progress. In recognition of his services in designing and supervising the building of the Royal Naval College at Osborne, and in preparing the residence of Queen Victoria at Osborne for use as a convalescent home for officers of the Navy and Army, King Edward VII. appointed Mr. Hawks a Companion of the Imperial Service Order in 1904. The funeral will take place to-day (Friday), at 3 p.m., at Streatham Cemetery, Upper Tooting, the service being held at Christ Church, Streatham, at two o'clock.

The historic church of St. Helen, Bishopsgate, E.C., the Westminster Abbey of the City, will be reopened, after restoration, on Monday, March 13. All the money needed for the work has been raised.

New groynes and sea-walling are being constructed at Saltdean, to the east of Brighton, for the East Sussex County Council. The contractors are Messrs. Holloway Brothers, Ltd., of London, and the consulting engineers Messrs. Owens and Case.

Mr. H. Deirden, the borough engineer of Dewsbury, has prepared plans for the remodelling of the sewage works of the borough. It is proposed to expend £48,000 on the scheme. The erection of a larger pumping station is contemplated, and about 12 million gallons of sewage will be dealt with daily.

A carved reredos of the Early English period has just been completed by Mr. Thomas Rudge, of Clapham Common, for erection in Trinidad Cathedral as a memorial to the late Bishop. The reredos is in Corsham stone and alabaster, with statues representing St. James, St. John, St. Peter, and St. Andrew. With the dwarf wings it will be 27ft. long by 14ft. high. The architects are Messrs. W. and C. A. Bassett Smith.

The Old Priests' House at Muchelney, Somerset, which probably dates from the 14th century, is the subject of an appeal by the National Trust for Places of Historic Interest or Natural Beauty. The present incumbent, with the consent of the ecclesiastical authorities, has offered to sell the house to the Trust for £200, and the Society for the Protection of Ancient Buildings has undertaken to bear the cost of putting the building into repair if the property is acquired.

The parish church of Great Wollaston, Salop, was reopened last week after restoration. A new roof has been provided, a new turret erected for the bell, the old coving taken down and opened up to the roof, showing the old oak timbers, and the walls restored. Mr. Treasure, of Shrewsbury, kindly gave his services as hon. architect. The work has been carried out by Mr. G. Wynn, builder, of The Coedway, Great Wollaston. The church is notable as being the one where Old Parr used to worship, and contains a tablet to his memory, bearing the words "The Old, Old, Very Old Man, Thomas Parr, who lived in the reigns of Ten Kings and Queens, etc. Aged 152 years and ten months."

CURRENTE CALAMO

Mr. Leonard Stokes's idea for a premiated President's Address at the Institute next year is as excellent as it is novel. May it prove a precedent! Not only at the R.I.B.A., but in other places, where Kings' speeches and presidents' addresses, and other flowers of oratory, have become wearinesses of the flesh and dampers of the spirit! The suggested subject ought certainly to evoke something really historical. It is only your student under thirty who has any really adequate ideas of how to reform the R.I.B.A. We had them badly once. Fortunately, like measles, they are less dangerous in youth; and you grow out of the tendency to infection. Our flippant critic in another column, who is "Only an Engineer," cannot compete, of course. What a chance he will miss!

For the rest, the Address was in every way an admirable one. Possibly the advice to R.I.B.A. students to "keep their youth *green* as long as they can," and not to try "to be too clever or artistic," was in each case a little unnecessary. Most of them are pretty sure to! That many are likely to be "original," may "Heaven forbid," as Mr. Stokes piously ejaculated. "Very thoughtful" and "very careful" must the coming architect be if he is to revive the prosperity we are all waiting for—even the "genius," who was advised by the President to keep his eye on his more plodding and business-like friend, who undoubtedly *can* often suggest "ways of turning talents to account"—of the sort we hinted at last week in our hints how to win competitions.

One thing we rejoice at with Mr. Stokes, and that is, that we hear less about "crafts and craftsmanship" in connection with architecture than was the fashion a while ago, and which still lingers here and there, much as last year's West End modes are this year all the go in the suburbs. The "arts and crafts young man" among architects has always more nearly realised our idea of "one born out of due time" than any other creature of circumstance it has been our lot to encounter. Simply "to take up a trade or two as a hobby" is, of course, mere relaxation to the superior being who recognises that "architecture, after all, is of itself quite enough of a craft to demand his whole attention." With a Stokes' memory the task is a bagatelle; but spare us the cultivation of the "arts and crafts" dear to the bazaar-holders, and the encouragers of "home industries"!

If the victims of King Fog in London and our great cities only succumbed in Bulgaria, or the Congo, of if their tortures could be fathered on the Holy Inquisition, or some other religious bugbear, how the pseudo-humanitarians and the bigots would bound into the fray and denounce smoke with a vigour fifty times equalling King James's "Counterblast," and that of all subsequent anti-tobaccoites! As it is, we sit and listen patiently to facts and figures, like those given at the meeting in Tavistock-square on Monday by Sir W. B. Richmond and Dr. Des Vœux, and resign ourselves with the patience of jackasses to the annual loss in London alone of five millions sterling, and to the slaughter in Glasgow by fog in one week of as many victims as fell in the "Black Week" of the Boer War. Will nobody head a revolution of the real sort against the Smoke Fiend and his malignant myrmidons?

Whatever else Sir Charles Dilke did, or did not do, we shall all miss his life-long zeal for the preservation of open spaces. But for him the Crown long ago would have practically enclosed the Forest of Dean. He also joined with Lord Eversley, Mr. Fawcett, Sir William Harcourt, and Mr. Bryce in bringing the Commons Act of 1876 into line with the views of those opposed to enclosure as an alternative to the regulation of commons as open spaces; and he had much to do with preventing the incursion of the military and Crown authorities upon commons in all parts of the country. He became associated with the Commons Preservation Society in 1869, immediately he entered the House of Commons, and for a time he acted as its chairman; and it has most properly passed a resolution placing upon record its appreciation of his efforts during the last forty years. Who will continue them? The need is still patent.

We are glad to hear that the Birmingham City Council has succeeded in its application to the Local Government Board in relation to the Harborne and Quinton town-planning scheme. As we have already stated, under the advice of the General Purposes Committee the Corporation scheduled 2,320 acres of land, chiefly in Harborne and Quinton, as suitable for a scheme under the Housing and Town-Planning Act, 1909. The Local Government Board were asked to give authority for the preparation of a scheme upon lines which were only very broadly suggested. This having now been given, details will have to be considered in consultation with the landowners and others interested, and will be submitted to the City Council. If it is then approved, a further sanction of the Local Government Board will be required, which may or may not necessitate a second public inquiry. The Council and the landowners should, at any rate, be able to come to such an agreement as to dispense with the necessity for external intervention, and so expedite the project.

Most sensible people, whose politics do not bias their business ideas, will agree with Mr. Rider Haggard's remarks at the Authors' Club Dinner on Monday night, when, speaking on small holdings, that the need of this country is sane, real, and active policy of land purchase, akin to that which now prevails in Ireland. We have said so here and elsewhere for years past; and we say once more, with Mr. Rider Haggard, that the stability of a country depends, above all things, on the number and the prosperity of its land holders. While they are few, as in England, the land is "idle," and the choice before us in the near future is a radical alteration in the laws of inheritance, or some such system of purchase as is working well in Ireland.

The old lady who found such comfort in the blessed word Mesopotamia was not in it with some of our daily contemporaries, who are jubilantly swearing by Sir John Jackson's big dam, which one of these says is to restore the fertility "of what was once the Garden of Eden, watered by the four great rivers." That the great contractor will make as good a job of his present undertaking as he did of the Admiralty Harbour Works at Simonstown goes without saying. May he find that "the gold of that land is good," and that the Turk will pay up promptly!

The Edinburgh Representative Committee have wisely decided to make the preservation of Holyrood Palace and the erection of a new arch and gateway thereto King Edward's memorial. "Nothing more completely represents a nation than a public building," said Disraeli, in "Tancred," and no fitter monument to King Edward could be devised than the clearance from the Scottish Royal Palace of the disfiguring adjacent old property, and the restoration and preservation of its historic and architectural traditions. We hope there will be no local squabbling, and that the scheme may be completed in all its fullness. According to that, a clearance is to be made, a spacious place is to form an approach to the arch, and an important street-improvement is to be conjoined with the erection of an impressive and costly memorial gatehouse standing on the site of the old Gothic porch. If this is done, the Government and the city of Edinburgh might be fairly asked to bear part of the cost—the Government because of the Mall precedent, which is entirely appropriate, and the city because of the public improvement that would be effected. To restrict the plan to the unpretentious restoration of the old gatehouse would, no doubt, avoid complications with the Government and the Edinburgh ratepayers, and remove the scruples of the purists; but it would be a poor economy, and unworthy of Scotsmen.

The London County Council had before them on Tuesday a reply from the First Commissioner of Works declining the proposal that the London County Council should pay £75,000 to the Government in order that they (the Government) might carry out the work of extending the Mall. The Council's Improvements Committee, on this, proposed that they should be instructed to see if any other scheme could be formulated to allow the Coronation procession to use the Mall road. After a four hours' debate it was resolved to proceed with the Mall improvement so as to be in time for the Coronation procession, and to submit to arbitration any question as to the apportionment of costs between the Council and the Office of Works. That seems sensible, as far as it goes, and we hope the work may be carried out adequately and creditably in accordance with Sir Aston Webb's suggestions.

The two Departmental Committees appointed by the Home Secretary to investigate the dangers of lead-poisoning encountered by house-painters and carriage-painters will no doubt be useful. The personnel of each is satisfactory; but we should have thought an architect might have been added to the Buildings Section, and possibly a representative or two to both, of some of the leading paint and varnish makers, who, to do them bare justice, have sought to minimise the risks by the use of other pigments, or the adoption of remedial measures.

We are glad to know that Mr. Basil Holmes is confident that the Thames Conservancy, of which he is a member, is concerned about the amenities of the Thames as likely to be interfered with by the Metropolitan Water Board's reservoirs, which are to be multiplied now that, seemingly, the provision of a purer and more adequate supply of water for London is to be left to a later and wiser generation! If reservoirs must be made, there is really no reason why they should not add to, instead of spoiling,

the natural beauty of their surroundings. Take as an instance the reservoirs in North London, bounded on the north by Woodberry Down, and which abut on the gardens of the fortunate dwellers on their bank, who enjoy the prospect of what is practically a broad lake, wherein wild fowl of all kinds find a congenial refuge, and [illegible] a healthy open space [illegible] which otherwise, during [illegible] has lost many [illegible] advances of the builder.

Mr. John Lockwood Kipling, C.I.E., one of the pioneers of art education under Government auspices in India, and father of Mr. Rudyard Kipling, died on Thursday in last week, at his residence, The Gables, Tisbury, Wilts.

At the last meeting of Bo'ness Dean of Guild Court plans were submitted for a new post office. The plans showed a massive building of two stories, facing East Pier-street and Kinneil street. A sorting room adjoins the main building, and is lighted from the roof. With the exception of a battery room, the second story is utilised for a caretaker's house. The estimated cost is £2,000.

Through the generosity of an anonymous donor, who provided £8,000, a nave, aisles, and tower have been added to the church of St. Michael and All Angels, Eastbourne, and the consecration by the Bishop of Chichester took place on Tuesday. The tower, which is about 90ft. high, is visible from the sea and a large area of the surrounding district. The total outlay on the church has been £13,500.

Mr. R. Taylor Heape has added to his previous benefactions to the Rochdale Art Gallery a gift of thirty oil-paintings by modern artists to the permanent collection. The works just presented include "Poultry in a Wood," by Emile Claus, James McWhirter's "Fisherman's Haven," Sir F. A. Waterlow's "Mending the Nets," "Rebekah," by Fred Goodall, and examples of the art of John Pettie, Yeend King, Phil Morris, David Murray, Frank Brangwyn, and Herbert Schmalz.

At Victoria District Railway-station the premises are being entirely reconstructed, and provision is being made for the erection of a superstructure. An arcade is being constructed across the railway, with shops on each side, and from this arcade the main entrance to the booking-hall will be obtained. The booking-hall itself will be at a level below that of the street, and will be hung from the main girders crossing the station. The works are being carried out under the supervision of Mr. Arthur R. Cooper, engineer to the railway company.

In order to facilitate the completion by Whitsuntide of the widening of the last section of Blackpool Promenade by carrying the unfinished portion of the parade between the North Pier and Cocker-street, North Shore, the borough surveyor proposes to lay two miles of temporary railway on sleepers parallel with the tramways, along the sea front on the Marine-parade, for the accommodation of a light engine and forty waggons. About 226,000 tons of sand are required and this will be brought from South Shore.

The ferries committee of the Birkenhead Council are about to execute considerable alteration to their property at New Ferry, the extreme south-end ferry with which traffic is regularly conducted on the Mersey. The stage at present in use is too small for the requirements of traffic, and will be replaced by a new stage now under construction by the Ailsa Shipbuilding Company at Troon. The new stage will be 130ft. long and 13ft. wide. The removal of the old stage will be carried out by Messrs. Gibney and, at the same time Messrs. Grayson will effect extensive repairs to the bridge.

At the annual meeting of the American Society of Beaux Arts Architects, held at the Brevoort Hotel, New York, the following officers were elected to serve: President, Donn Barber; vice-president, Charles Ewing; secretary, A. B. Trowbridge; treasurer, F. H. Bosworth, jun.; corresponding secretary, John V. Van Pelt; executive committee, Donn Barber, Charles Ewing, A. B. Trowbridge, F. H. Bosworth, jun., James Otis Post, Ernest Flagg, John W. Cross, W. W. Bosworth, Joseph Howland Hunt; committee on education, James Otis Post (chairman), Donn Barber, Charles Ewing, Lloyd Warren, Duncan Candler, William Emerson; annual committee on Paris Prize, Lloyd Warren (chairman), Donn Barber, James Otis Post, John M. Carrere, George A. Licht.

PROFESSIONAL AND TRADE SOCIETIES.

THE DECLINE OF ARTISTIC HANDICRAFT.—The growth of commercialism was the principal reason put forward by Mr. S. Perkins Pick, F.R.I.B.A., of Leicester, to account for the decline of artistic handicraft, on which subject he lectured to a large and appreciative gathering of the members of the Sheffield Society of Architects and Surveyors, at the University, on Thursday night in last week. He suggested that the deterioration was caused when the old guild methods were abandoned. The chief object of the old guild conditions seemed to him to have been to insure that only the best class of work should be done. The Mediæval apprenticeship customs prevailed in all handicrafts from early days to the end of the 18th century, when manufacturing, with its specialising in departments, gradually destroyed that unity which was such a valuable outcome of the old fashioned methods. The decline at the end of the 18th century was not confined to England and English work, but was experienced throughout all the more civilised countries of Europe. The advance of science during the 19th century, with its numerous inventions and discoveries, offered facilities for producing vast numbers of sham and cheap imitations of works more properly made by other methods, thus neglecting the first essential of true art—namely, honesty. The lecturer showed a series of slides depicting silver, iron, and wooden goods, and goods of other materials, contrasting the early and later examples, and thus showing how the mid 19th-century work fell behind that of the earlier period. A number of interesting incised slate tombstones were also exhibited, showing the falling-off in the character of the ornamentation of the stones as the 19th century advanced. The president (Mr. W. J. Hale) took the chair, and at the close of the lecture an interesting discussion took place.

DEVON AND EXETER ARCHITECTURAL SOCIETY.—The annual meeting of the members of the Devon and Exeter Architectural Society (embracing the counties of Devon and Cornwall) was held at the Central Hotel, Lockyer-street, Plymouth, on Saturday last, the president (Mr. William H. May, M.S.A., of Plymouth) being in the chair, and among those present were Messrs. J. Crocker, John M. Penn, J. Jerman, J. A. Lucas, C. Cole (vice-president), Harbottle Reed, E. F. Hooper, B. H. Palmer (Exeter), A. S. Parker, C. King, R. H. Arthur, H. L. Thornely, E. W. Lister, H. Watts, R. A. Mill Lister, jun., B. P. Shires, E. Coath Adams, J. S. B. Ward (Plymouth), C. Cheverton, E. M. Leest, J.P., A. J. Adams, C. H. Phillips, A. G. Smith, C. H. L. Varcoe (Devonport), Sampson Hill (Redruth), and Allan J. Penn (hon. secretary). The annual report and balance-sheet were unanimously adopted. The retiring president, Mr. W. H. May, then delivered an address. He said: "It cannot be long now before our turn will come to have a seat on the Council of the Royal Institute. When it does, I trust our representative will be firm and outspoken, as I feel sure the difficulties that beset us down in the West are not always realised sufficiently by that august body. There are welcome rumours that the general trade of the country is improving; but as it is a recognised fact that the building trade is the last to feel the beneficial influence of such a movement, it is more than probable that the day is still far distant when we in the West will realise the looked for improvement. Amongst the builders who tender for us there appears to be an almost unhealthy keenness in the competition for the comparatively small amount of work about, often causing them to overlook the conditions of contract, and rely on variations, omissions, and extras to make the job pay which, one need hardly say, are usually futile. As regards Registration: What has been done? Little or nothing. The Royal Institute is on the active tout for the new Licentiate class, which is to increase its numerical strength, to say nothing of its funds, and enable it to obtain a Registration Bill. Let us wait and see. From my own point of view, I cannot believe that any English Government will sanction so one-sided a measure. The Bill must be universal, and why the Institute should ignore other established societies is only known to itself. Certain remarks have been made recently in the professional papers to the effect that the Royal Institute has approached the Society of Architects concerning the proposed Bill. If such is the case—and at present there is no official confirmatory statement—it is a movement that will materially strengthen the cause, and I am of opinion that united we shall stand and hold our own; but, divided, we are bound to fall. I have already reported on the Town-Planning Conference, the greatest movement for the year, and one that should be of unrivalled benefit to the nation. The thanks of all are due to the Royal Institute for its success. We are all aware that Belgian cement is often used in England, and, unfortunately, substituted for English material, under the misnomer of Portland cement. Much of it that has been sold in England is composed of a mixture of natural cement and ground stone or sand, with a small percentage of artificial cement, to assist its passing certain tests. The Belgian natural cement is just the rock as quarried, burnt in a kiln, the same as ordinary lime, and then ground. The following is an analysis of good English Portland, side by side with that of Belgium as imported into this country; but whereas the analysis of the English cement is one which may be taken as constant to, say, one make of cement, with the Belgian cement, owing to the varying nature of the material, it is difficult to find any two analyses alike.

	Belgium. per cent.	English. per cent.
Insoluble matter	6.02	1.44
Silica	21.50	22.10
Iron	1.99	2.70
Alumina	4.75	7.98
Lime	56.93	61.00
Magnesia	1.36	.98
Sulphuric acid	1.21	1.65
Volatile matter	4.40	1.58
Alkalies and undetermined matter	1.84	.37

The average tensile strains obtained from a number of Belgian cement tests are as follows—viz.:

After 7 days	335lb. per square inch
After 28 days	475lb. " "
But a good brand of English cement will give—	
After 7 days	650lb. per square inch
After 28 days	750lb. " "
and when mixed with 3 parts sand—	
After 7 days	350lb. per square inch
After 28 days	450lb. " "

and this latter, you will notice, is practically equal to the tensile strain obtained with neat Belgian cement, so this reasonably shows that English is not only a much superior article, but, if properly handled, more economical. The causes of the inferiority of Belgian cement are due to the uncertainty of the quality of the stone quarried, and the method of burning. Some pieces of the rock quarried are identical in composition with Portland cement, whilst other pieces have only the composition of hydraulic lime, and, owing to this variation in composition of the raw materials, they are burned lightly, so that the underlimed portions are not fused to a slag, and the overlimed portions are altogether too lightly burned." Mr. James Jerman proposed a vote of thanks to the retiring president for his excellent address, and also for his valuable and untiring services in presiding over the society during the past year, which was seconded by Mr. John M. Penn, supported by Mr. B. P. Shires, and carried by acclamation. The president, Mr. W. H. May, suitably replied. The following officers and council were elected to fill the vacancies of those retiring:—Mr. James Jerman, F.R.I.B.A. (Exeter), president; Mr. E. Coath Adams, M.S.A. (Plymouth), vice-president; Messrs. H. L. Thornely, F.R.I.B.A. (Plymouth), Sampson Hill (Redruth), H. Watts, A.R.I.B.A. (Plymouth), Mr. S. Dobell (Exeter), hon. treasurer, and Mr. Allan J. Penn, A.R.I.B.A. (Exeter), hon. secretary. The newly elected president, in taking the chair, expressed his gratification at having been elected president of the society, and assured the members that nothing should be wanting on his part to further the best

interests of the profession as well as of the society. A cordial vote of thanks was accorded to the hon. treasurer (Mr. S. Dobell) and to the hon. secretary (Mr. A. J. Pinn), the retiring president emphasising the devoted work of the latter for many years. The meeting concluded with a luncheon, at which the majority of the members remained to support the new president, followed by a short toast list.

GLOUCESTERSHIRE ARCHITECTURAL ASSOCIATION.—The fourth annual general meeting of the Gloucestershire Architectural Association was held on Thursday, January 26, at the Northgate Mansions, Gloucester, Mr. H. W. Chatters in the chair, others present being Messrs. Wood, Trew, Dancey, Overbury, Malvern, Jones, Crisp, Iredale, Paterson, and Davis. Mr. Walter B. Wood, of Gloucester, was elected president for the coming year, and Messrs. H. A. Dancey and T. Overbury vice-presidents; Messrs. W. F. Jones, S. H. Healing, and J. Fletcher Trew were elected members of council; Mr. H. W. Chatters was appointed hon. corresponding secretary for Cheltenham, Mr. G. P. Milnes for Stroud; and Mr. Harold S. Davis hon. secretary and treasurer. An interesting programme was arranged for 1911. Hearty votes of thanks were passed to the retiring president, vice-presidents, and officers for their services to the association.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—At a general meeting held at the Leeds Institute on Thursday, January 26, when Mr. Sydney D. Kitson, F.R.I.B.A., presided, Mr. J. J. Wood, A.R.I.B.A., of Leeds, read a paper on "The Guild of the Comacine Masters." Illustrating his discourse by means of appropriate slides, the lecturer took a comprehensive survey of the extensive area over which the Guild exercised influence. Always in league with the Church, it was not surprising to find that the most characteristic examples of the work of the Guild were of ecclesiastical nature. Wherever Christianity had penetrated throughout the ruined Empire of Rome, there the Comacine Masters had left their mark on church architecture. Vast as was the spread of their influence—affecting such widely-separated districts as Lombardy, Sicily, Servia, Germany, France, and Britain—yet the presence of one immense organisation offered the only explanation of the otherwise inexplicable similarity of contemporary architecture in such places. For administrative purposes, the Guild was divided into lodges, each lodge consisting of a school, where the traditions of the various crafts were taught; the laborerium, or general workshop; and the opera, or administrative office, which constituted the link between the Guild and its patrons. Under a President, or Grand Master, the Magistri, or members of the governing body of the Guild, organised the various works, while the Liberi Muratori (Freemasons) carried out the different branches of its work. From the coming of the Longobards to Northern Italy, in the 6th century, the Guild flourished until the dawn of the Renaissance, when, probably owing to its own unwieldiness, it broke up. The concluding portion of his paper Mr. Wood devoted to Comacine work in the British Isles, citing and illustrating such well-known examples of Saxon-Lombardic work as Earl's Barton Church, chapels at Bradford-on-Avon and Durham, and parts of churches at Sompting and Monkwearmouth, where, either in characteristic tower, round arch, or type of ornamentation, the work of the Comacine Guild was unmistakable; while in Ireland he believed the round towers owed their character, as certainly as did the richly-ornamented crosses, to the same origin. At the close Mr. Wood was accorded a hearty vote of thanks, on the motion of Mr. Douglas Bowman. The next meeting will be held on Thursday, February 9, when Mr. F. C. Eden will read a paper entitled "Varallo, Orta, and Varese."

LIVERPOOL ARCHITECTURAL SOCIETY (INCORPORATED).—The meeting of this society announced for Monday next has been cancelled, as Mr. Temple Moore, F.R.I.B.A., is unable to read his paper.

CHIPS.

The North-Western Railway of Peru is constructing a new terminus station at Lima. Mr. W. F. Sargisson is the architect.

The North Dublin Rural District Council has built, or are building, 509 labourers' cottages. During the past year £11,000 was expended in providing housing accommodation.

The Caledonian Railway Company are making improvements at Oban Quay alongside the railway, a space of 200ft. in length being created and laid in concrete for handling the fish traffic.

The Doncaster Town Council have decided to seek sanction from the Local Government Board to the raising of a loan of £10,000 for additional plant at the corporation electricity works, in view of contemplated tramway extensions.

A Carnegie free library and technical school are to be built at Rathmines, Dublin. Messrs. Batchelor and Hicks, of Dublin, are the architects. The cost of the library is estimated at £7,500, and the technical schools at £12,000—a total of £19,500.

The new Presbyterian lecture-hall at Newbiggin was opened last week. The hall is 45ft. by 20ft. inside, and there is seating accommodation for 200 persons. Inclusive of furnishing, the cost has been £600. The contract has been carried out by Mr. D. Holmes, of Newbiggin, from the designs of Mr. G. Bell, architect, of Newcastle-on-Tyne.

The proprietor of a hotel in the Rue de Presbourg, near the Etoile, has been ordered by the municipal authorities of Paris to reduce the height of the building, on the ground that it rises too high above the general level of the houses which surround the Arc de Triomphe. The proprietor pleads that his hotel has been constructed in accordance with the accepted rules of architecture, and has decided to appeal to the Conseil d'Etat.

The War Office has acquired the buildings of the Flint Castle, and will transform them into a Territorial headquarters for Flintshire. The castle ruins are to remain as formerly, and the scheme entered upon only applies to the line of buildings with a frontage to the main thoroughfare and land for storage purposes at the rear. The buildings can be readily adapted for the headquarters, and the alterations are estimated to cost about £900.

The secretary of the Minnesota Chapter of the American Institute of Architects, L. A. Lamoreaux, suggests that municipalities should encourage the construction of fireproof buildings by reducing the taxes on such buildings for a term of years. He holds that fireproof construction is so great a benefit to the community as a whole, because of its value as a fire-stop in the case of a conflagration, that the municipalities can well afford to encourage it.

Seven years ago Congress awarded to L. Amatois, a citizen of Washington, a prize of $10,000 for the design, declared by a board of judges to be the most meritorious, for the western doors of the Capitol at Washington. The doors have been completed and cast in bronze. The panels symbolise Jurisprudence, Science, Art, Mining, Agriculture, Electricity, Engineering, and Commerce, to represent the apotheosis of America. It is seventy-two years since the first bronze doors were placed at the eastern portal of the Capitol. They were by Rogers, and are known as the Columbus doors. Afterwards the Crawford bronze doors, on which were designs depicting scenes in the history of the republic, were placed at the Senate and House entrances.

Captain C. E. Munro, Board of Trade Inspector, sat for over six hours on Wednesday at a largely attended public inquiry into an application of the Cowes Harbour Commissioners to construct a breakwater, 900ft. in length, below high-water mark in the north-westerly direction, starting from East Cowes, to a point across the Shrape mud-bank. Mr. C. F. Hiscock represented the Royal Yacht Squadron, which opposed the scheme, as did others. Mr. C. R. Dunlop explained the scheme, which it is estimated will cost £6,000. Mr. Walmsley, engineer to the Dover Harbour Board, recommended the erection of the breakwater mainly to prevent the encroachment of mud from the eastward, and to shelter the harbour during the prevalence of north-easterly gales. Mr. W. T. Douglass, M.I.C.E., also gave evidence in support of the scheme.

Correspondence.

ARCHITECTS AND ENGINEERS.

To the Editor of the BUILDING NEWS.

SIR,—On page 58 you chipped some of us civil engineers, and purred complacently about the public recognition at last of the fact that the practical and beauty-loving architect is the real John Thomas the public mean to do our town planning and our big shops. The architect is no longer to sit sucking his thumbs and dreaming visions while "the engineer evolves nightmares!" That was your own expression, Sir; "nobody denies it!"

I wish you and yours well; but, really, I can't see that your illustrious educational bodies do much to fit you for the coming boom you prophesy. Do you, or does the Royal Institute of British Architects, seriously foresee a probable early demand for campo santos, belfries in stone or brick, entrance-gateways to capital cities, and things of that sort?

Very fine and large are the responses of competitors for the Royal Institute Students' Prizes you have so promptly and generously illustrated. Nineteen gentlemen, I see, are burning to build "City Gateways." I wonder when they'll get a job? For the only two practical subjects in the whole list there were just eight and four competitors respectively, and neither for the wooden skating-rink nor the convalescent hospital was any prize at all awarded.

And, Sir, when do you think it likely, when arranging its students' competitions, that the Royal Institute of British Architects will wake up to the fact that people have actually begun to build in reinforced concrete?—I am, etc.,

ONLY AN ENGINEER.

Mr. John McWhirter, the distinguished Scottish landscape painter, died at his residence in Abbey-road, St. John's Wood, on Saturday, from bronchitis, in his seventy-second year.

The German sculptor, Professor Emil Hundreiser died on Monday at Charlottenburg in his 65th year. Professor Hundreiser was a pupil of Siemering, whom he succeeded in 1905 as Director of the Rauch Museum. He has executed a number of public monuments in all parts of Germany.

The Cities and Town Planning Exhibition will be opened in Crosby Hall, Chelsea, on Monday evening next, at 8.30, by Mr. John Burns, M.P., who will deliver an address on "Civics and Town Planning." Thereafter the exhibition will be open daily until Saturday, February 25 inclusive, from 2 to 6.45 p.m., and from 8 to 10 p.m. Admission 6d. Guidances or lectures at 5 p.m. and 8 p.m. on days to be announced. Admission free on Sundays, 3 to 5 p.m.

A lecture on "The Merovingian Abbey of St. Martin of Tours (472-999): The Model of the Great Churches of the Middle Ages," will be delivered by the Dean of Gloucester in the Lecture-room of the Royal Academy on Tuesday week, the 14th inst. at 4 p.m. The Very Rev. Dr. Spence-Jones is the Hon. Professor of Ancient History in the Royal Academy, and the lecture will, we believe, institute a comparison between the destroyed Abbey church of St. Martin at Tours and the Cathedral (formerly St. Peter's Abbey) church of Gloucester.

A referendum of Coventry ratepayers was taken at Coventry on Wednesday on the scheme of town improvement, estimated to cost nearly £200,000. The project which had already received the city council's sanction, but was rejected at a public meeting, provides for the construction of an extensive new business thoroughfare piercing a slum area, and designed to relieve the congestion of traffic in the narrow streets. There are 21,672 electors, and the result declared last night showed 1,638 in favour of the scheme, and 4,566 against.

The exterior of the Cathedral at Ripon has been under restoration, the architect being Mr. J. Oldrid Scott, F.S.A., F.R.I.B.A., and the builder Mr. T. S. Ullathorne, of Selby. Two of the flying buttresses of the choir have been renewed in Tadcaster stone, and the Transitional arcading on the choir clerestory has been repaired in Pateley Bridge grit-stone. The fine 15th-century buttresses to the nave have been restored in stone from Tadcaster. The carving has been carried out by Mr. John Baker, of London.

Intercommunication.

GUINEAS FOR BEST REPLIES.

QUESTIONS.

WHITE STREAKS IN LIMESTONES.

HEATING WATER.—

HOT-WATER SUPPLY.

TROUBLE WITH KEEN'S CEMENT.

THE APOSTLES IN ART.—

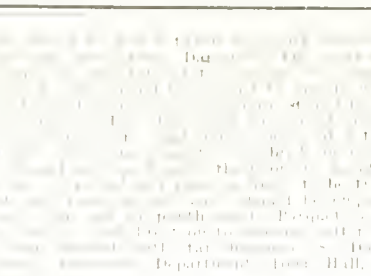
REPLIES.

GROUND FLOOR. First let us take dry rot. At the outset in the construction of the floor of the house, care should be taken to see that no cause of dry rot exist. The timber and the construction of the floor should be such as would not encourage the growth of fungus known as Merulius lachrymans. The timber, therefore, should be dry, free from a large proportion of sap, well seasoned and sound. Should have been felled in mid-winter, when little or no sap was in the tree and stacked

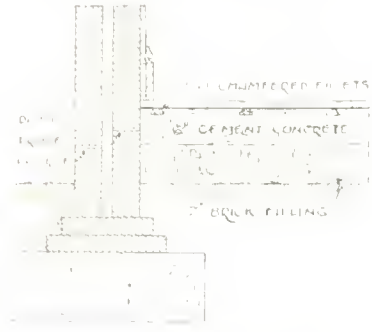
GROUND FLOOR

SECTION

so that it had sufficient air circulating round it. The construction of the floor should not allow of any stagnant air to remain under it, but should have ample ventilation, by means of air-bricks, so placed as to insure a cross-current of air from wall to wall. No paint should be placed on timbers before they have had an opportunity to dry, and the pores of the wood should not be stopped up by brewsax, etc. Linoleum on the floor is considered by some to be conducive to dry rot. In old floors the timbers should be creosoted under pressure before being surrounded by concrete, and no wooden stakes used for levelling should be allowed to remain in the concrete, as they act as conductor of damp, etc., from the ground floor to the floor above. An air-



GROUND FLOOR

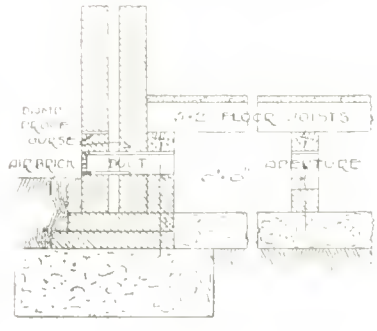


CHAMFERED FILLETS

6" CEMENT CONCRETE

BRICK FILLING

SKETCH 1.



DAMP PROOF COURSE

6"x6" FLOOR JOISTS

AIR BRICK

JOIST

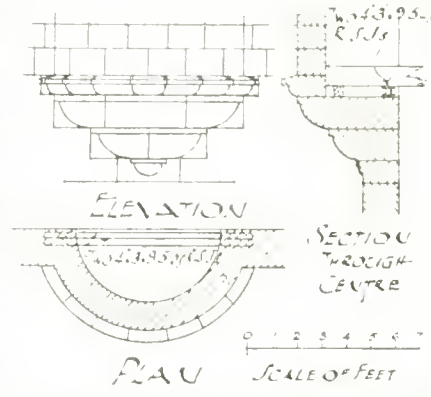
APERTURE

SKETCH 2.

cient the disadvantage is, of course, greater, as the expense of the filling is omitted. Among the many advantages of a floor of this description over one constructed as in Sketch 2 are the following. Absolutely vermin-proof, freedom from dry- or damp-rot through ventilation being faulty or impaired by the covering of air-bricks with soil, etc., absence of considerable excavation and expensive carting of surplus, and the increased warmth of the rooms on the ground floor, through the absence of open joints in the floorboards, spaces between skirtings and flooring, etc., which all have access to the open air, and a keen draught can generally be found at the hand to be held to any of these too frequent faults in the modern dwelling-house. I have heard it said that with the solid floor access to gas and water pipe cannot so readily be gained as in the ordinary floor, but what is easier than to leave on the surface of the concrete floor over site a 2in. or 3in. pole, which, when removed, when the concrete has set, leaves a perfect channel in which to lay the pipes, and access is thus obtained, with far less trouble, by the removal of a board fixed with brass cups and screws than by having to work upon the pipe a foot or more below the timber joints through spaces of about 12in. occurring at regular intervals. In best work wood blocks are the best coverings for these floors, in which case pipes must be circulated in the timbers of the first floor, as the blocks cannot be disturbed. If block are used, to minimise the cost, pitchpine or deal can be used for the centres, whilst the margin, which will remain uncovered by carpet, may be of oak or other hard wood, but in the case mentioned by query I should suggest (as shown in Sketch 1) 1in. red deal flooring, tongued and grooved, kiln-dried, and relet nailed, that is, nailed in the matching to 2" by 1" double chamfered fillets, coated with pitch before laying, embedded in the surface of the concrete about 1in., centre to centre. A good coating of pitch to be spread over the surface of the concrete before the boards are laid, all headings splayed, and board well cramped. The concrete over site to be laid as soon as the walls are raised high enough to enclose same, composed of five parts of ballast to one of Portland cement, and sufficient sand to fill the interstices, no board to be laid for at least two months after concrete is spread, and, if possible, hot winters to be the door immediately preceding the of pitch and laying of boards, as the the floor depend upon the dryness of the In cottage work I have used coke concrete and nailed direct into this without counter-fillets, but the former method is pre Sketch No. 2 shows an ordinary constructed floor of 6in. by 2in., spiked to 4 in by 2in. oak or fir plate, bedded on sleeper wall, at 6ft. centre. To insure as much as possible absence of dry- or damp-rot, proper ventilation is provided by means of 9in. by 4in. earthenware or galvanised iron air-bricks, having bats slid around to keep any fallen mortar from filling the hollow in the wall, and also to convey a good current of air into the floor direct. Two, at least, air-bricks should be provided to every compartment, and two small ones in different positions are better than one large one. All sleeper and fender walls must be formed with covered apertures, to enable the draught to circulate. The position of damp-proof course is shown in both sketches, and it is hard to better two layers of slate, with joints alternating, each course laid and bedded in cement mortar.—Gordon E. Thorne, 10, Atherley road, Southampton.

[12988.] GROUND FLOOR. Directly walls are above ground fill in with clean cut 2in. deep and allow to consolidate. When building is ready for floor lay with 6in. Portland-cement concrete, composed of one part best London Portland cement, five parts broken stones or bricks to pass 1½in. ring. Lay over same 3in. of ashes breeze concrete, composed of one part best London Portland cement to five parts coke siftings, sifted to pass 3in. sieve, and accurately and uniformly gauged, well rammed and consolidated, and floated to a smooth, level face. Lay over the whole surface of concrete a bed of mastic, and carry same up walls 3in. Mastic the underside and end of 1½in. white batten tongued flooring in 4in. widths, and nail direct to the concrete with 2in. floor brads. Mastic composed of one gallon creosote oil to one hundredweight of pitch. This will make a perfectly dry, noiseless, and vermin-proof floor.—Ernest Lawrence, 4, Eve well-park, Maindee, Newport.

[12991.] ORIEL WINDOW.—The accompanying sketches show method of constructing oriel window



ELEVATION

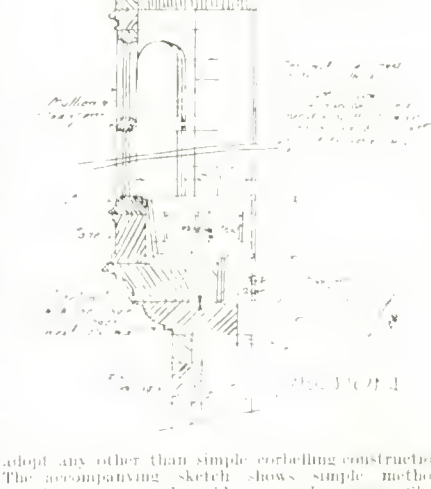
SECTION THROUGH CENTRE

PLAN

SCALE OF FEET

asked for. In setting out the elevation the profile of the corbel courses are taken from section and struck on the plan, and the intersection with wall face projected upwards to intersect horizontal from the section. The essential point of construction is the taking down of the corbel courses, which is accomplished by two 4in. by 3in. by 9·5lb. rolled steel girders, built in at each end at least 1in.—J. W. Thorpe, 5, Woodville terrace, Lytham.

[12999.]—ORIEL WINDOW.—For a small window of this type I do not think it will be found necessary to



adopt any other than simple corbelling construction. The accompanying sketch shows simple method, found to answer admirably in similar cases. Slate

dowels should be used, as they have the same expansion under heat as the stone, and, consequently, will not cause cracks. A circular T or L iron is sometimes carried round oriel and built into wall on either side, but is not necessary in this case.—S. Douglas Meadows, Engineer's Department, Town Hall, East Ham.

[13060.]—CORRUGATED - IRON SHEETING.—The gauge of the sheeting, the atmospheric conditions, and the periodical painting, all govern to some extent the life of the material. The gauge varies from 16 to 24 Standard Wire Gauge. Therefore a 24 S.W.G. would not last as long as a 16 S.W.G. That most commonly used is 20 or 22, the thicker quality being only used for better work. Without painting, the life of corrugated iron, varying with the gauge and climatic conditions, would be from eight to twelve years. Painting every three years prolongs this period indefinitely. When used as paling its life would be longer than when fully exposed to the weather on a roof. Galvanising and painting every three years is the best preservative from rust.—S. Douglas Meadows, Engineer's Department, Town Hall, East Ham.

[13060.]—CORRUGATED - IRON SHEETING.—If ungalvanised the life for roofing purposes is necessarily extremely short, a few years, even, in the country would find it rusted through. In the pure air of agricultural districts galvanised corrugated iron of No. 20 gauge should last twenty to twenty-five years; but in towns and manufacturing districts, where it may be attacked by acid or sulphurous vapours, or in chemical works or stabling, where free ammonia is given off, it could not be expected to last longer than, say, ten years, unless painted, when, with careful attention and repainting every three years, it should last indefinitely, if not subjected to any other damage but atmospheric influence. The iron should be painted two coats in zinc oxide, the first coat applied before fixing, and it will be found necessary to prepare the galvanised surface to take the paint, which may be done by washing with a weak solution of commercial hydrochloric acid (about 1oz. to the quart of water). Messrs. A. B. Davis and Co., Ltd., of Liverpool, make an acid-proof paint, which is particularly suitable for use on corrugated iron. As fencing galvanised corrugated iron should last somewhat longer than when used for roofing.—Collings B. Young, 61, Carlyle-road, Manor Park, Essex.

The education committee of the corporation of Bolton have received the sanction of the Local Government Board to the borrowing of £3,433 for the purchase of the site for the new training college.

The statue of the late Duke of Devonshire, which has been erected at the junction of Horse Guards-avenue and Whitehall, will be unveiled by the Marquis of Lansdowne on Tuesday, February 14, at three o'clock.

The partnership heretofore subsisting between Richard John Leeson and William Henry Wood (trading as Oliver Leeson and Wood), Pilgrim-street, Newcastle-upon Tyne, architects and surveyors, has been dissolved.

It has been unanimously agreed at a joint meeting of the Markets and the Plans and Works Committee of Edinburgh Town Council to recommend that an honorarium of £500 should be given to Mr. J. A. Williamson, A.R.I.B.A., the city superintendent of works, in connection with the erection of the new cattle-markets and slaughter-houses at Gorgie.

The British Acting Consul at Boma, Congo State, reports that the construction of new hotels at Matadi, Thysville, and Kinshasa is projected. The name and address of a firm to whom communications might be addressed in this connection may be obtained by British firms on application to the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C.

To-morrow (Saturday) a new Central Temperance Hall will be opened in Westgate-road, Newcastle-on-Tyne. Extensive alterations have been carried out, involving an expenditure of £1,400. The new Central Hall affords seating accommodation for 750 people. A new roof has been inserted of fibrous plaster. Messrs. Frank Caws and Steel are the architects.

The death is announced of Mr. Alexander Cullen, F.R.I.B.A., F.R.S.E., of 3, Blythwood-square, Glasgow, and Brandon-chambers, Hamilton, for many years chairman of the architectural section of the Royal Philosophical Society of Glasgow. Mr. Cullen had been a Fellow of the Royal Institute of British Architects since 1898, and was also a Fellow of the Glasgow Institute of Architects.

The *Westminster Gazette* says:—With the issue of the Building News for January 6 that publication reached the opening number of the hundredth volume. A journal with such a long period of useful service behind it needs no word of praise; but we can pause to congratulate our contemporary on having reached such an auspicious stage in its career. A number of interesting plates are included in the contents of the number.

Our Illustrations.

THE NEW MIDDLESEX GUILDHALL.

We heartily congratulate the Middlesex County Council on the fine design, which we illustrate to-day, and which has been prepared by Messrs. Gibson, Skipwith, and Gordon, in response to the reference back to the council's committee of the whole matter, as reported by us on p. 921, in our issue of December 23 last. It is proposed to carry out the building in brown Portland stone, and all will agree that it will be a credit alike to its authors, its surroundings, and the County of Middlesex. To have transmogrified the present very incongruous and inconvenient building would have cost £72,000—probably more, as no one ever knows the cost of adapting and adding to old buildings till the bill comes in. The cost of the new building will be about £85,000. This building is to be erected on the site of the present Guildhall in Broad Sanctuary, Westminster, and additional freehold land has been obtained to secure an island site having a frontage of 102ft. to Broad Sanctuary and 161ft. to Little George-street. This gives ample light all round, and advantage has been taken to place all the offices on the street frontages. The ground floor will contain two quarter sessions courts, with large public hall and all the necessary offices, and the first floor will contain the committee-rooms and offices for the County Council, and on the second floor will be the Council-chamber, for 104 members, besides officials, reporters, and public galleries. The buildings have been designed with Portland-stone frontages, and in a style to suit the architectural character of its surroundings, and it is intended to have them completed within two years. The architect is J. S. Gibson, of the firm of Gibson, Skipwith, and Gordon, with whom is associated in this work Mr. H. T. Wakelam, the county engineer.

TITE COMPETITION FOR A CAMPO SANTO CHAPEL AND CLOISTERS, ROYAL INSTITUTE OF BRITISH ARCHITECTS: HON. MENTION CERTIFICATE DESIGN.

This very original and striking design attracted very much attention in the Exhibition, and we described it in our review which appeared on January 20. The author is Mr. W. G. Newton, son of one of the Vice-Presidents of the Institute, Mr. Ernest Newton, A.R.A., F.R.I.B.A. Our accompanying illustrations not only show his picturesque ideals and bold conception of the precipice site, but his adherence to the principles of Palladio, and, by way of comment, the following quotation is inscribed on his principal drawing from Preface to Book IV.: "Hence, because the ancient Greeks and Romans employed the utmost care in building their temples to the gods, and composed them of the most beautiful architecture . . . . I shall show in this book the form and the ornaments of many ancient temples, of which the ruins are still to be seen, and by me have been reduced into designs that everyone may know in what form, and with what ornaments, churches ought to be built." Little remains to add to what has previously been said. It may not have been possible, under the circumstances, and according to the instructions governing the competition, to give Mr. Newton the prize, but the judges were more than justified in awarding him a certificate of merit as a recognition of his skill. As a place of Christian burial, the buildings seems somewhat lacking, and the colonnaded hall has little in keeping with the idea of a church. No altar is provided, and the singers are placed in the aisles beyond the row of big columns, where the "chorus" would be out of sight. Architecturally, the conception, with its atrium, is Classically severe and consistent. The spirited freshness and imaginative ability displayed by the handling of the site, and by locating, in an eminently pictorial way, the long low line of buildings on the summit of a precipice, render this scheme notable among the records of the students' competitions at Conduit-street. We shall give the perspective of Mr. Newton's design at an early day, and also some other drawings of the prize design.

"AUCHENROSS," COMBRIE, PERTHSHIRE.

The site of this house was a plain rectangular field near to the River Earn, with good views of the neighbouring mountains on three sides. Local stone was used for the main walls; but, not being of sufficiently good quality, the outsides had to be plastered. The entrance porch and stone dressings are of Auchenheath stone. The family coat-of-arms is carved in the tympanum of the porch. Leaded lights have been used throughout. The internal woodwork has been left in its natural state, except the ceiling beams in the hall, which have been stained. The roof is covered with rough green slates. The drawing which we reproduce was shown at the last Exhibition of the Royal Academy. Messrs. Foster, Lovell, and Lodge, of Westminster, are the architects.

A CINEMA PHOTOGRAPH THEATRE.

(For assessor's award in this Building News Designing Club competition, see p. 163.)

*** We should have stated last week, in our description of the new Town Hall, Stoke-on-Trent, that we were indebted, through the architects, to Mr. J. Dudley Daymond, of the well-known firm of John Daymond and Son, Edward-street, Vincent square, S.W., by whom the whole of the stone carving of the building is being executed, for the two photographs of the exterior, and that of one of the aldermen's chairs.

COMPETITIONS.

DOUGLAS, ISLE OF MAN.—At a meeting of the Douglas Town Council, the awards were received in the competition for laying out the Villa Marina estate, situated in the centre of Douglas sea-front, which was recently acquired by the town council at a cost of £60,000. A condition of the competition was that the cost of executing the design should not exceed £16,000. The adjudicator, Professor C. T. Adshead, A.R.I.B.A., of Liverpool University, gave the awards as follows:—(1) Percy Robinson and W. Alban Jones, Albion-place, Leeds; (2) Stanley Ramsey, Herne Bay; (3) John Casker and Harold Hill, Altrincham. Messrs. Robinson and Jones provide for the erection of a diagonally-shaped concert-hall next to Broadway, and various reading, refreshment, and other rooms.

At the Royal Institution on Saturday in next week the 11th inst., Dr. Thomas G. Jackson, R.A., will deliver the first of three lectures on "Architecture: the Byzantine and Romanesque Period."

The Association of Master Painters in Ireland held its annual conference in Dublin last week. Count Plunkett presided at the meeting held in the National Museum, and distributed the Association prizes to the successful pupils. He then delivered a lecture on "Decoration."

Correspondence which has been laid before the Council of Singapore reveals extraordinary miscalculations regarding the foundations of the sea wall in connection with the great harbour scheme, the borings for which, based on the contract, have been shown to be in some cases as much as 60ft. wrong. Messrs. Cooke, Son, and Mathews, the engineers, state that, if they had been informed of the real figures, they would never have recommended the adoption of the scheme. They blame the Straits Settlements Public Works Department for the inaccurate estimate.

The new church of St. Mary, Checthams-street and Toad-lane, Rochdale, was consecrated yesterday (Thursday). It replaces an edifice erected in 1740, and has been built from designs by Mr. J. Nimlan Comper. It is Late Perpendicular in style, and consists of nave and chancel under one roof, wide north aisle and morning chapel and vestries, also on the north side. There is a small bell turret on the western gable. The builders were Messrs. George Henson and Son, of Wellingborough, and the carving of the screen and other woodwork is by Mr. W. D. Gough, of London.

A CINEMA PHOTOGRAPH THEATRE

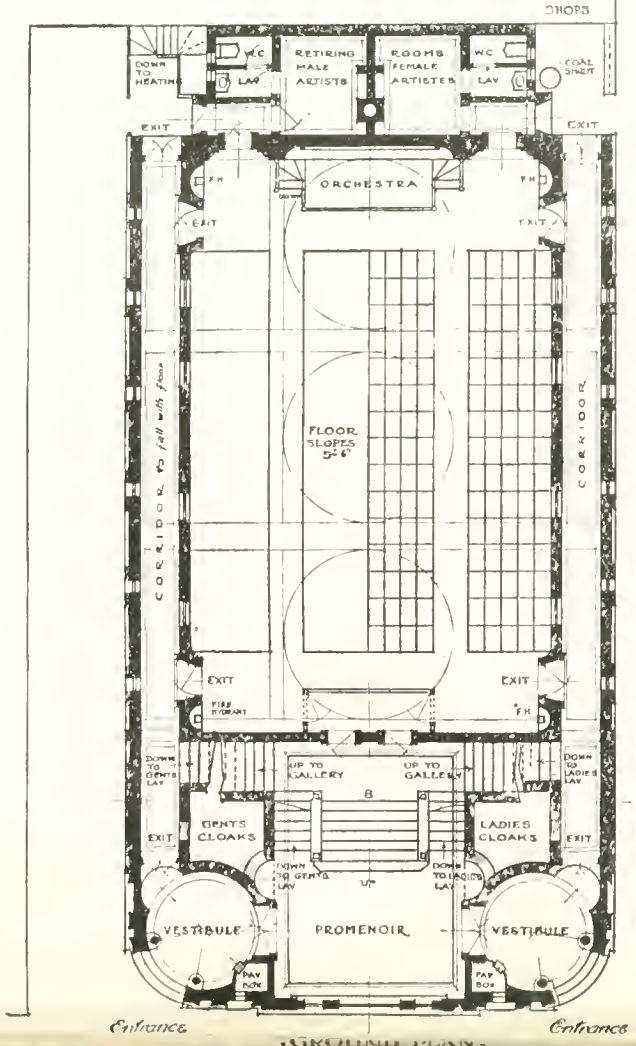
by Mount Zion

·PLACED SECOND·

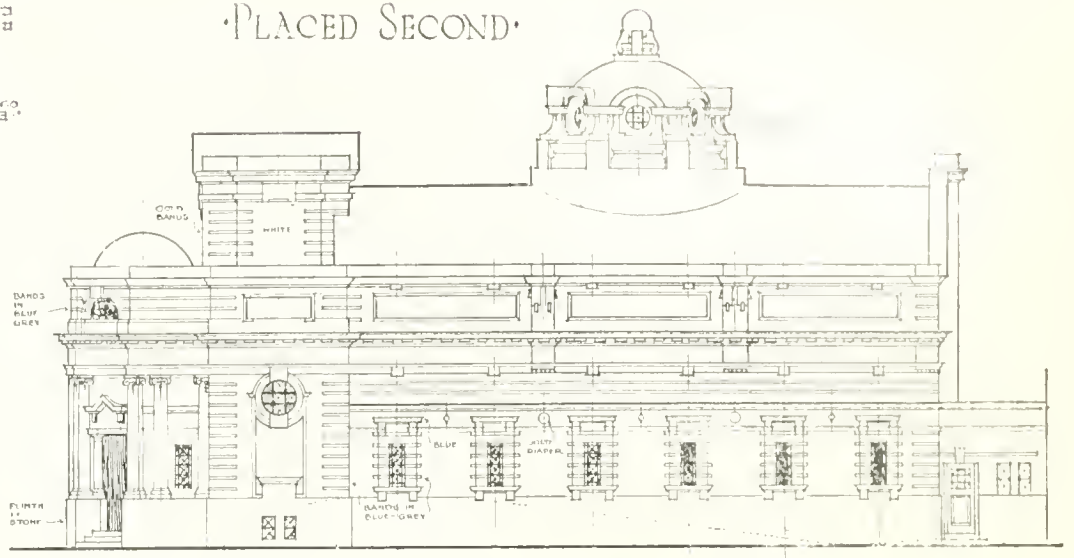
SCALE OF FEET.

·NOTES·

WALLS CONSTRUCTED OF REINFORCED CONCRETE FACED EXTERNALLY WITH CARRARA WARE & INTERNALLY WITH PLASTER – ROOFS OF REINFORCED CONCRETE COVERED EXTERNALLY WITH ASPHALTE – CUPOLA COVERED WITH LEAD. CORRIDOR WINDOWS GLAZED WITH OPAQUE GLASS

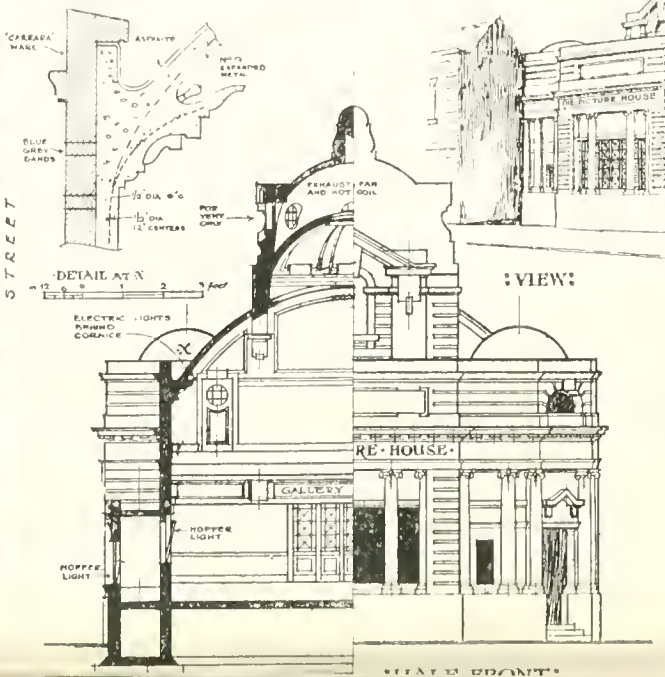


·GROUND PLAN·

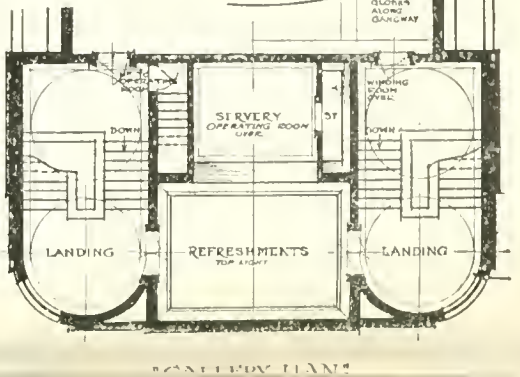


·SIDE ELEVATION·

·VIEW·

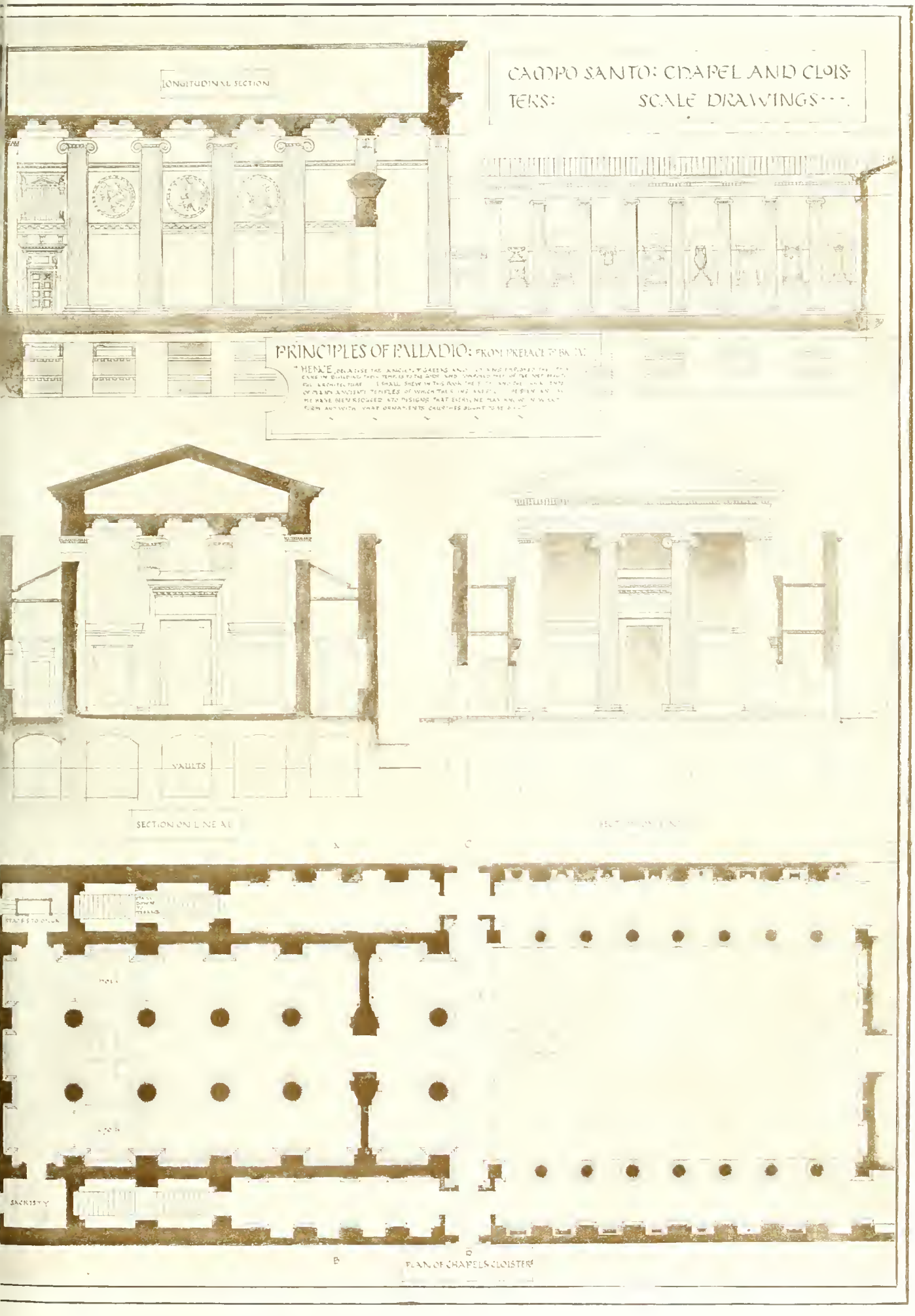


·HALF FRONT·



·GALLERY PLAN·

A CAMPO SANTO.—HON. MENT
Royal Institute of British Architects.



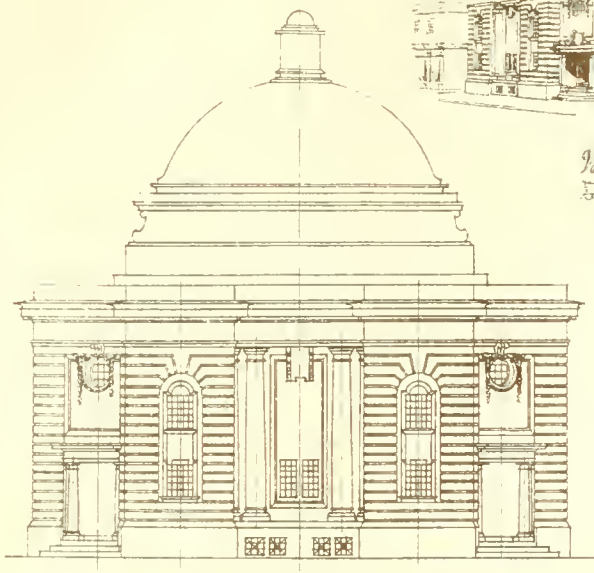
ON DESIGN. By W. G. NEWTON.

Prize and Travelling Studentship, 1911.

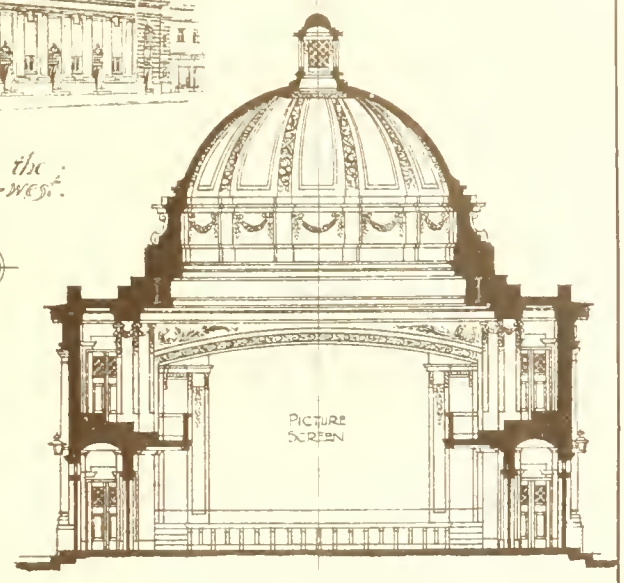
ROYAL ACADEMY EXHIBITION 1910

"BUILDING NEWS" DESIGNING CLUB

View from the South-west.



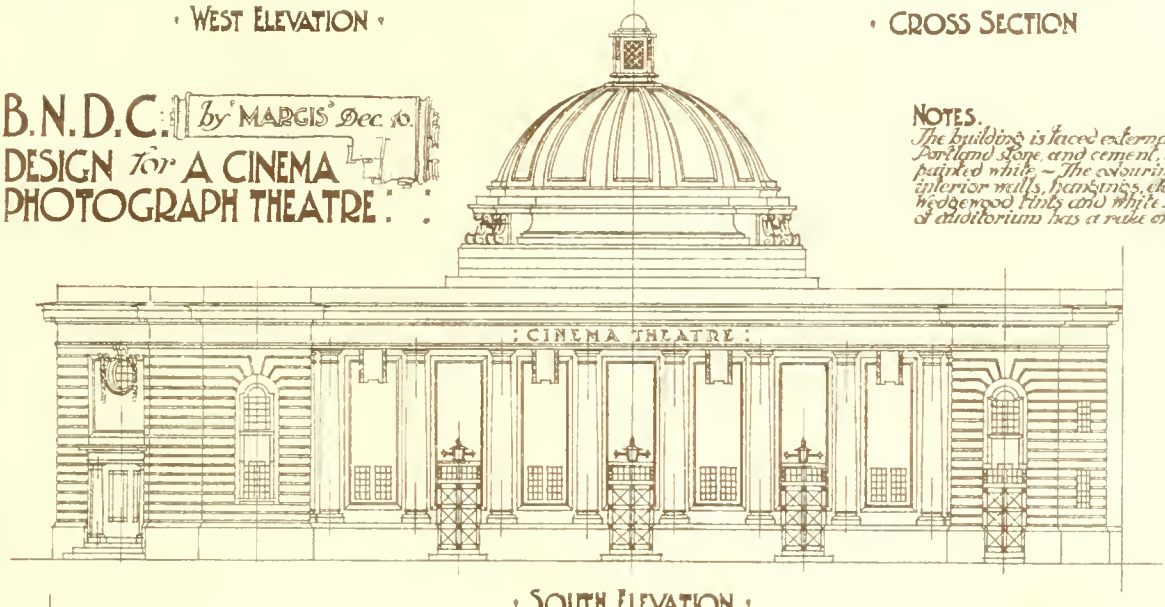
WEST ELEVATION



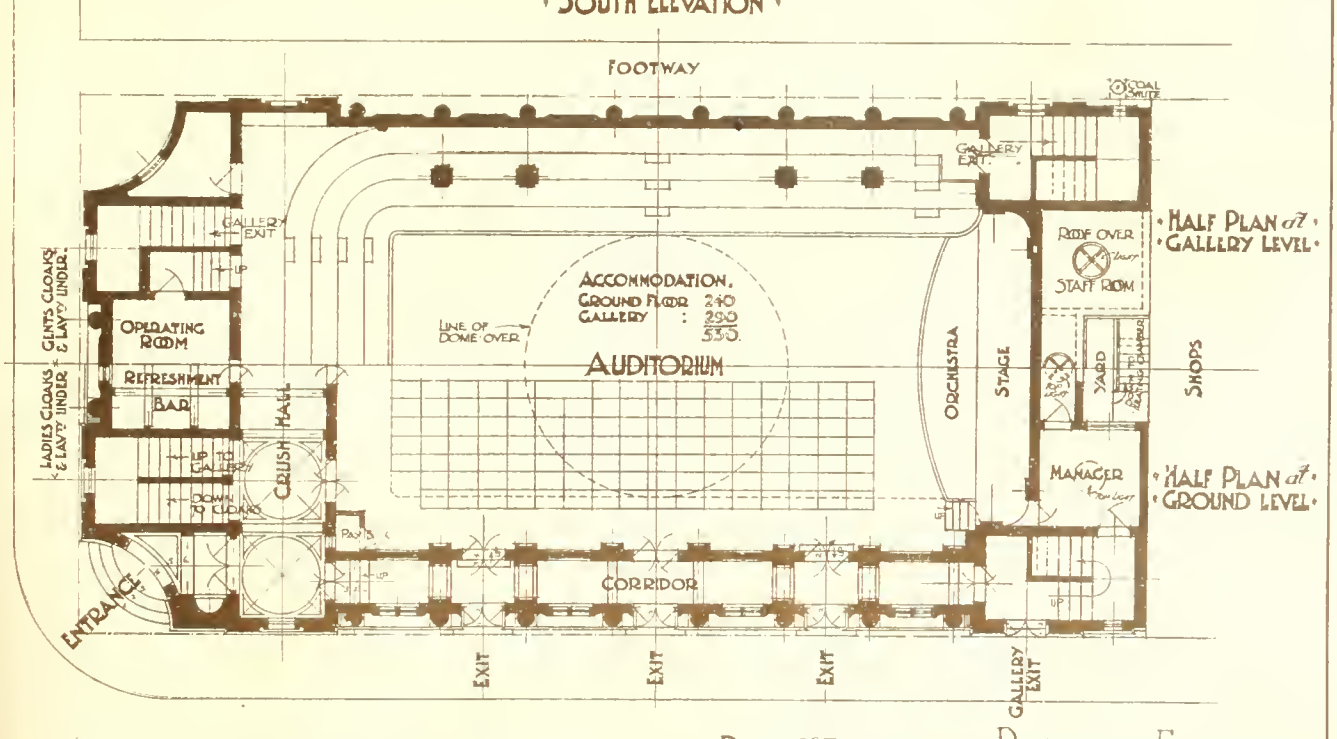
CROSS SECTION

B.N.D.C. by 'MARGIS' Dec. 10. DESIGN for A CINEMA PHOTOGRAPH THEATRE.

NOTES.
The building is faced externally with Portland stone and cement, the latter painted white. – The colouring of the interior walls, hangings etc. to be in Wedgewood tints and white. – The floor of auditorium has a rake of 1 in 15.



SOUTH ELEVATION



HALF PLAN at GALLERY LEVEL

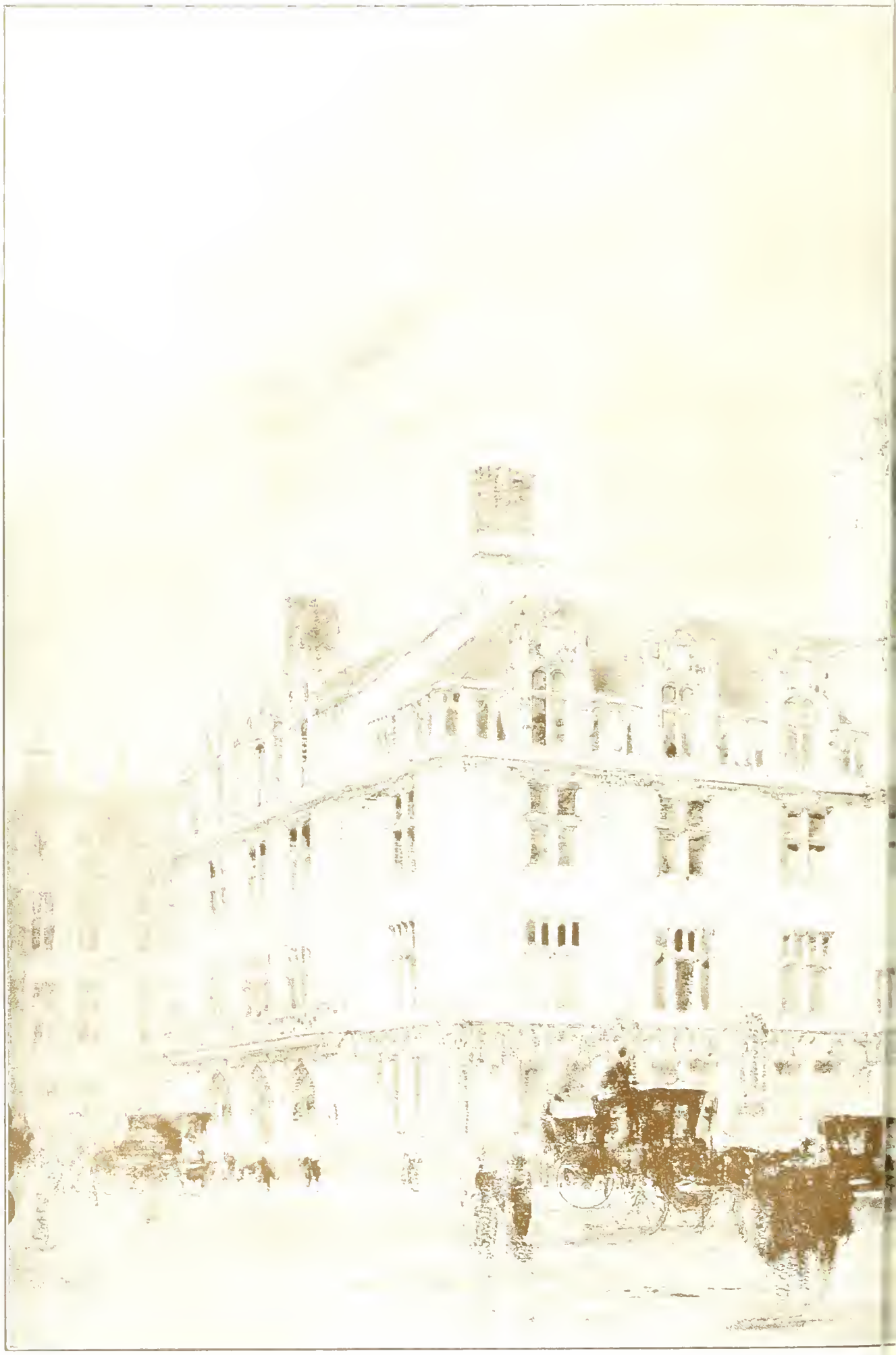
HALF PLAN at GROUND LEVEL

feet 10 5 0 10 20 30 40 feet

SCALE of FEET : EIGHT FEET TO ONE INCH.

PLAN of THEATRE

PLACED FIRST



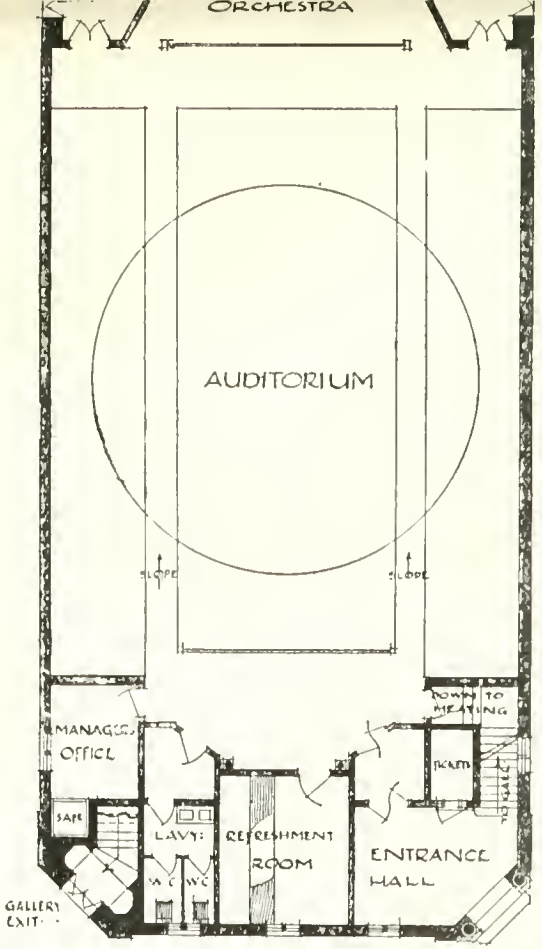
MIDDLESEX NEW GUILDHALL.—J. S.

BSON, SKIPWITH, and GORDON, Architects.

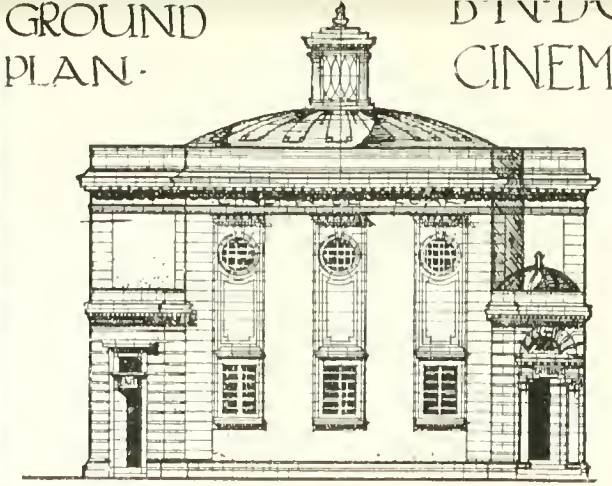
B.N.D.C. DESIGN A.

CINEMA THEATRE.

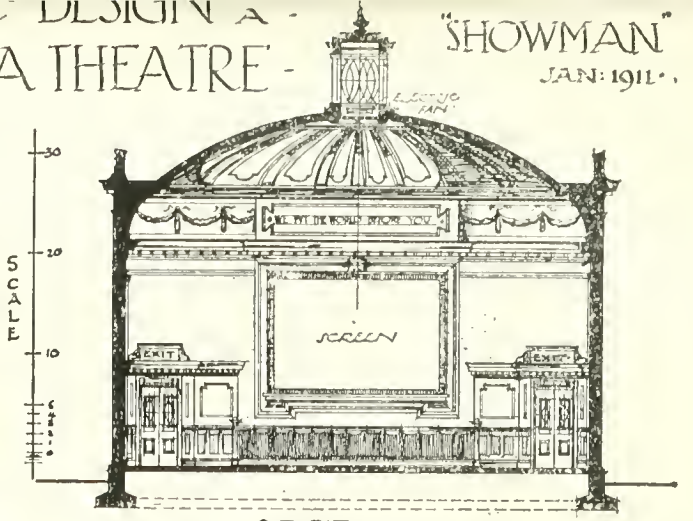
"SHOWMAN"
JAN: 1911.



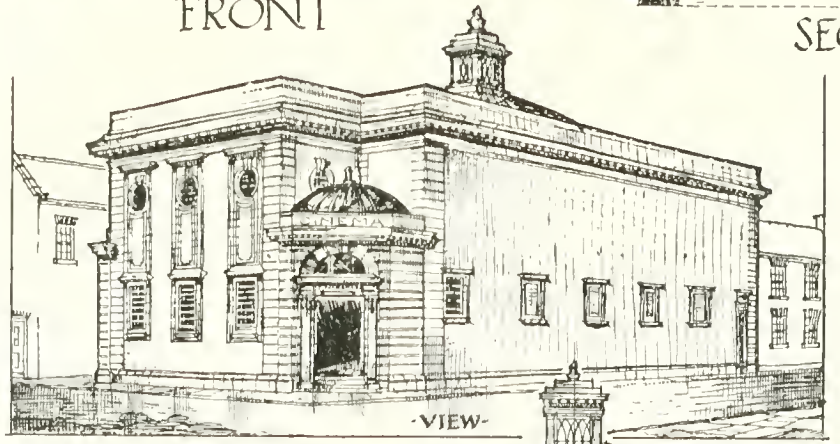
GROUND PLAN.



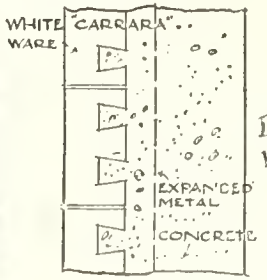
FRONT



SECTION

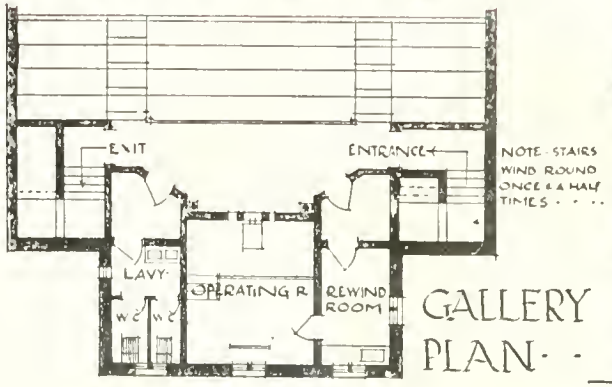


WALLS, ROOF & FOUNDATIONS OF RE-INFORCED CONCRETE EXTERNAL FINISH OF WHITE "CARRARA" WARE & CEMENT.



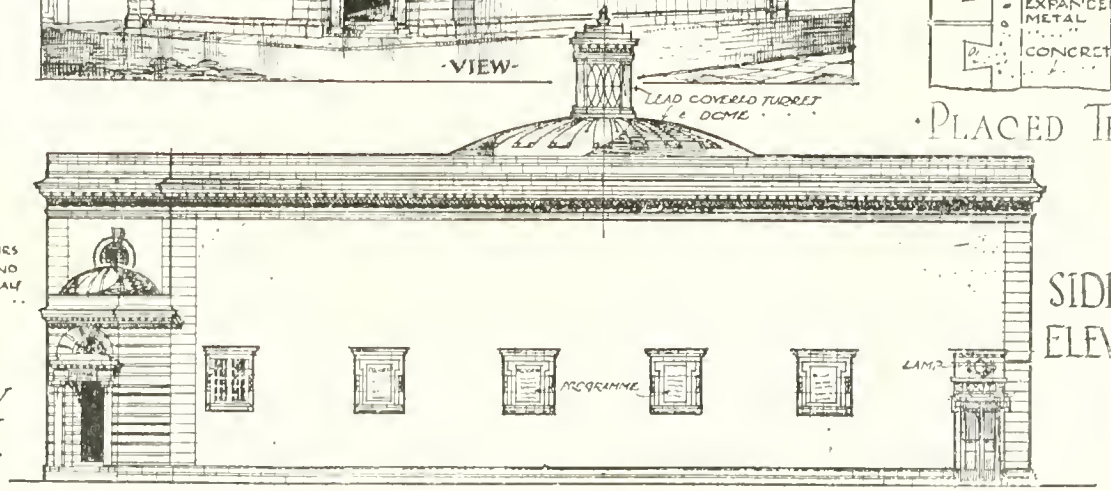
DETAIL OF WALL.

PLACED THIRD.



NOTE - STAIRS WIND ROUND ONCE & A HALF TIMES.

GALLERY PLAN.



SIDE ELEVATION

Engineering Notes.

THE [illegible] DAM [illegible] Sir [illegible] M.P. [illegible] July [illegible] [illegible] the [illegible] [illegible] engineers, [illegible] Excelsior Nagar [illegible] Parchal [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] Works [illegible] Architect [illegible] estimated [illegible] [illegible] made in 1908 [illegible] three [illegible] £7,110,000 [illegible] Hendrich [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

anything except £25,000. He was bound, in considering the compensation to which plaintiff was entitled, to have regard to the circumstance that if the corporation had proceeded either with the plans approved by the building committee or a more extended plan, and had had contracts prepared and work commenced, they could have stopped the whole or any part of the work under clause 10, in which event plaintiff's right to remuneration at the rate of 5 per cent. would have gone. The plaintiff claimed that he was entitled to compensation on the basis that designs for a building to cost some £80,000 would ultimately be accepted and carried out, and he seemed to base his claim on the ground that there was now contemplated a building to cost something like this amount. He (the Official Referee) could not award damages on any such basis as that. The corporation said there was but one scheme, and that was the scheme of Mr. John Ward, and that all the plaintiff did was to prepare the architectural developments for Mr. Ward's scheme, and, therefore, that the plaintiff ought to be paid certain percentages on this scheme only. As far as the remuneration by percentages went, the view he adopted was that it did not apply either in favour of the plaintiff or in favour of the defendants. Therefore, in his opinion, the plaintiff could not claim, and the defendants could not force him to accept any special rates of percentage. Dealing with plaintiff's prospective remuneration if the corporation had obtained a contract for the erection of a building to the designs which they had adopted and approved, they might still under clause 10 have stopped the whole or any part of it at any time they thought fit, and the most the plaintiff could have claimed would have been 5 per cent. on £24,000, with a certain percentage on the quantities, together with the £350, but less the £300 which plaintiff was prepared to pay back in the interests of the museum. Thus he could not award compensation to the plaintiff on anything like the scale he had claimed in his original claim to the corporation, or in his claim in the present action. He had come to the conclusion on the whole that the total sum paid into court—viz., £1,500, was adequate and proper remuneration and compensation to the plaintiff under the circumstances of the case. As he had awarded the plaintiff a sum in excess of the amount which was first tendered to the plaintiff by the corporation, who denied liability in paying in the further sum, he gave judgment for the defendants in the action, with the general costs of the action, and he awarded the plaintiff the costs on the issue as to liability. In reply to Mr. Pollock, K.C., plaintiff's counsel, the Official Referee gave leave to appeal on the question of costs. According to a legal writer in the *Western Mail*, the actual effect of the award is that the Official Referee has found that the sum of £1,500 paid into court by the corporation is sufficient to meet the whole of Mr. Seward's claim of £10,000, and of damages of an unspecified amount. He has based that finding upon the limit of expenditure to which the corporation were prepared to go with regard to the museum building, namely, £25,000, and he has disregarded Mr. Seward's contention that the true basis was the £150,000 scheme, or, alternatively, £80,000, which was the amount it was alleged the National Museum authorities were about to expend. With regard to costs, up to the moment the money was paid into court by the corporation, the latter have to bear Mr. Seward's costs, but from that moment Mr. Seward has to pay the general costs of the corporation, as well as his own, of course. But inasmuch as the corporation, by their defence, technically denied liability to pay anything, the referee gives Mr. Seward the costs of one issue—namely, the issue as to whether the corporation were under any liability. It is estimated that the combined costs of both parties will aggregate between £3,000 and £4,000.

The corporation of Goole have adopted a sewerage scheme prepared by Mr. Midgley Taylor, C.E. The estimated outlay is £35,000.

Mr. Daniel Young, late of Messrs. Young, Tinker, and Young, builders, Manchester, died on Jan. 26 at Church-lane, Ashton-on-Mersey, aged 70 years.

Mr. R. H. Bicknell conducted an inquiry on behalf of the Local Government Board at Croydon on Wednesday into an application of the town council for compulsory powers to acquire certain property in North End. This widening scheme, if carried out, will bring the new frontage line to a point separated from Whitgift Hospital only by the business premises of one firm. The Whitgift Hospital Preservation Committee view this as distinctly threatening to these Elizabethan almshouses a flank move after a frontal attack has failed, and were represented at the inquiry by Mr. William Martin, F.S.A., barrister.

Our Office Table.

Mr. D. S. Maccoll, keeper of the National Gallery of British Art (Tate Gallery), has been appointed keeper of the Wallace Collection, in the place of Mr. Claude Phillips, who has retired. Mr. Phillips, who was for some years the expert adviser to the National Art Collections Fund, was appointed by the Government as the first keeper of the Wallace Museum. Mr. Maccoll, who was appointed to the Tate Gallery in 1906, when Sir Charles Holroyd was made Director of the National Gallery, was born in Glasgow in 1859, and educated at the Glasgow Academy, University College School and College, London, and Lincoln College, Oxford. He studied art at the Slade and Westminster Schools of Arts, and is well known as an art critic and an exhibitor of water-colours at the New English Art Club. One outcome of his trenchant criticisms was that, after great opposition, a commission was appointed to investigate the administration of the Chantrey Bequest. After hearing much evidence, the commission recommended certain reforms which, up to now, the Royal Academy have not put into practice, and, by the irony of fate, Mr. Maccoll soon afterwards became the custodian of the Chantrey pictures.

A meeting of the King Edward Memorial Committee was held at Liverpool on Friday, when it was unanimously resolved that the site of the equestrian statue which the citizens are about to erect should be at the south front of St. George's Hall. The commission for the statue was placed in the hands of Mr. Goscombe John, R.A., who prepared a model to be placed on the site. The proposal aroused considerable criticism, and a committee of experts was called in to advise on the scheme. A model of an equestrian statue prepared by Mr. Norman Shaw, R.A., on different lines from those followed by Mr. Goscombe John was submitted to the committee. It was decided to adopt Mr. Goscombe John's scheme as amended by Mr. Norman Shaw. Sir Lawrence Alma-Tadema approved of the amended design. The revised design has met with severe criticism from many of the leading architects of Liverpool, including Professors Adshead and Reilly, Mr. Arnold Thorneley, president, and Mr. Edward Kirby, an ex-president of the Liverpool Architectural Society.

In his second and concluding Cantor lecture on "The Masters of Etching," given before the Royal Society of Arts on Monday night, Mr. Frederick Wedmore dealt with the recent revival in England and France of the art of etching. For the French revival, which preceded by a few years that in this country, we were chiefly indebted to Braquemond, Jules Jacquemart, and Meryon, although Charles Jaque, Manet, and Ribot also contributed to it. Subsequent leading French etchers included Helleu and Bejot. In England the masters of the Revival were Whistler and Seymour Haden. If the former had the greater variety of method and of mind, the latter must be credited with having found early his broad and vigorous and decisive way. Two Frenchmen who had long and finely worked in England were Legros and Théodore Roussel. For Mr. Frank Short the art of engraving held no problems that defied solution. Brangwyn and Alfred East obtained large decorative effect. In Cameron's work was recognised the charm of picturesqueness and of mystery. The dry points of London by Muirhead Bone possessed much piquancy and extraordinary technical skill.

Mr. I. C. Johnson, J.P., of Mayfield, Gravesend, reached the hundredth anniversary of his birthday on Saturday, and received very many telegrams and letters of congratulation. Sir Arthur Bigge wrote on Friday: "Dear sir,—The King has heard with great interest that you celebrate your hundredth birthday to-morrow, and congratulates you on this rare event. Your remarkable career is known to his Majesty, who is glad to hear you are still able to continue your studies, and trusts that every blessing may bestowed upon you." The reference in the King's message to Mr. Johnson's studies alludes to the fact that Mr. Johnson is engaged in the translation of the Gospels from the original Greek into English. He was born at Vauxhall, the son of working-class parents. His education in the day school was supplemented by attendance at night school for the study of architecture and drawing. He entered the employment of a cement manufacturer at Nine Elms, and eventually obtained the position of manager of a cement factory in Kent. He perfected, although he did not invent, the process of manufacturing Portland cement. He undertook the manufacture of his own cement at two factories in Kent and one at Gateshead, and is still the head of the firm of cement manufacturers bearing his name.

The underpinning of a masonry conduit, two 48in. cast-iron water-mains, and one 72in. steel lock-bar pipe line is to be undertaken in connection with the building of the new Richmond Hill trunk sewer now under construction in the Borough of Queens, New York City. The existing waterworks structures are part of the supply system for the Borough of Brooklyn, and the sewer will be carried under them in a double-barrel inverted siphon. It is proposed to put in pile footings on either side of the conduit, to carry the ends of two heavy steel box girders, each about 46ft. long, and slightly less than 5ft. deep. From these girders there will be hung by 1in. steel rods 26in. I-beam stringers which will support the bottom of the conduit at intervals of 2ft. Wooden sheeting is to be driven along either side of the conduit to allow the underpinning to proceed without removing the earth cover from the top and sides of the conduit.

The opening lecture of the British and American Archæological Society of Rome has been given by Mr. Frederic Crowninshield, the Director of the American Academy of Art, the subject being, "Some Processes of Mural Painting in Ancient, Renaissance, and Modern Times." Sir Rennell Rodd, the British Ambassador, presided. The lecturer referred to Rome as the best place for the study of mural painting, owing to the large number of such works of art which it contains, and the extensive period of time which they cover. He cited the paintings on the Palatine, in the Villa of Livia at Prima Porta, on the Via Flaminia, in the tomb on the Via Latina, the Early Christian frescoes, and those in the Sistine Chapel, in the Stanze, in the Farnese Palace, in S. Ignazio, and in the Senate House. He spoke of the construction of the wall itself, upon which the paintings were placed, and of the necessary precautions to be taken against their deterioration. He then defined the various kinds of mural painting, such as encaustic, tempera, fresco, casein, oil, water-glass, and modern wax painting; he explained these several methods in their application to Classical, Renaissance, and modern paintings, and discussed their relative advantages and durability, with the reasons for the preference of one method over another at different periods.

Laxton's Builders' Price-book for 1911 (London: Kelly's Directories, Ltd.) is issued. It contains about 73,000 prices. The editor takes our own view that the near future will see the return of better times, and that the fresh impetus will be chiefly helped by the encouragement given by the Town-Planning Act. The usual useful features of the volume are well maintained.

The death is announced of Mr. J. Fawcett Gilcriest, J.P., F.S.I., M.R.I.A.I., of Wine-street, Sligo, who had practised as an architect and civil engineer in Sligo and adjoining counties for very many years.

It was reported to the London County Council on Tuesday that the work comprised in the contract with Messrs. F. and T. Thorne, entered into last autumn for the erection of administrative buildings and 109 cottages on section B of the Norbury estate, has now been completed. The cottages contain accommodation for 758 persons, and altogether accommodation for 2,623 persons in 349 cottages, in addition to the superintendent's quarters, has now been provided on the estate.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, Effingham House, 1, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at correspondents' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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NOTICE.

Bound copies of Vol. XCVIII. are now ready, and should be ordered early (price 12s. each, by post 12s. 9d.), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XLI., XLVI., XLIX., LIII., LXI., LXII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXIX., LXXX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., LXXXVI., LXXXVII., LXXXVIII., LXXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., and XCVII. may still be obtained at the same price; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

Handsome Cloth Cases for binding the BUILDING NEWS, price 2s., post free 2s. 4d., can be obtained from any Newsagent, or from the Publisher, Effingham House, 1, Arundel-street, Strand, W.C.

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The charge for **Competition** and **Contract** Advertisements, **Public Companies**, and all official advertisements is 1s. per line of Eight Words, the first line counting as two, the minimum charge being 5s. for four lines.

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Rates for **Trade** Advertisements on front page, and special and other positions, can be obtained on application to the Publisher.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

RECEIVED.—B. and Co., Ltd.—W. H. S. and Son.—G.—C. and B.—W. W. and Son. B. and Son.—P. H. T.—P. C. Co., Ltd.—C. A. Co., Ltd.—W. H. M. and Son.—W. and W.—D. J. and Co.—G. A.—E. and Son, Ltd.—F. H. M.—J. S. and Co.—C. A. A., Ltd.—E. and R., Ltd.—A. W.

T. L. S.—No.

R. H. H.—Please send.

DRIVER.—Yes, if brief.

CONSTANT READER.—Inquire of B. T. Batsford, 94, High Holborn, W.C.

A. R. G.—Thanks, no; we are full up for years to come in that direction.

STUCK.—We know nothing of the firm named. See our "Directory" pages under the heading "Drain Clearing Machines."

L.—Send to the Sturtevant Engineering Co., Ltd., 147, Queen Victoria-street, E.C., for their catalogue, "B 98." You will find a fan therein that will do just what you want.

FUSION.—Thanks; we know *everything* about the Great Pyramid! Send it to some of our more interested contemporaries, and let us have something, say, about reinforced concrete, and not too antediluvian.

"BUILDING NEWS" DESIGNING CLUB.

FIFTH LIST OF SUBJECTS.

E. A Timber-built Refreshment "Hoste" for Workpeople employed in a countryside factory. The building is to be so contrived that the upper floor may be occasionally used for entertainments, and generally as a men's clubroom during evenings. The prime purpose of the arrangements are intended to supply a convenient provision for meals at popular prices. The ground floor to be allocated to a women's dining-hall as well as kitchen and scullery, these apartments being placed on a mezzanine floor, with larder and storage, manager's office, and staff reception place in a half-basement, thus obtaining double floor-space approximately within the height of the women's dining hall, which is to be 15ft. high from floor to ceiling, its ground floor level being one foot above the ground line, which falls 3ft. from west to east in a length of 60ft., which is to be the maximum length of the building, exclusive of the stairways. These are to be placed in brick-built adjuncts, with stone or concrete steps planned in short lengths; one at each end for approach and exit to the upper floor, which is to be occupied as a hall of about 1,800ft. super., including a removable platform at one end. This room to have an open-timbered roof with tie-beams. No drinking-bar is required, and no lavatories or closets. The kitchen part of the premises to be towards the east end, the frontage facing south. A coal store and heating chamber may be placed in a basement under the women's hall, with approach to same below adjacent staircase. The treatment must be suitable for "half-timber," the panels being filled with concrete slabs, with plastered face inside as well as out, and the timber to show. Roofs tiled. Iron casement windows. Part of the elevations if desired may be weather-boarded. A lift to be provided for service up and down from kitchen. Heating to be by radiators worked from basement boilers. Floors boarded, and plastered ceilings. The plans may be 16 inches to the foot. Elevations and section 8ft. to inch. View sketch desirable. Drawings to be sent in not later than March 4, 1911.

DRAWINGS RECEIVED.—"Batten," "Oxonian," "Mike," and "Showman."

The partnership hitherto existing between Charles Reginald Moffat and Sidney Arthur Dearing, Chadwell-street, City, builders, contractors, and decorators, has been dissolved.

Aided by a Board of Trade grant, the Edwardian fortifications on the River Tweed's banks at Berwick are to be acquired, at an early date by the Historic Monuments Committee for preservation for the public.

The new fire-station at the corner of Albion-street and Legge-lane, Birmingham, was formally opened last week. It is situated in the jewellery quarter of the city, and has cost, including site £14,000. The builder was Mr. Elvins of Birmingham.

At Killasnett, County Leitrim, a new Roman Catholic Church of the Annunciation has been built at a cost of £2,400, to replace an edifice erected in 1877. It is of stone, is Gothic in style, and has been constructed from plans by Mr. J. J. McDonnell, of Belfast.

There have recently been placed in the National Portrait Gallery a pastel portrait of the first Lord Grantham, Diplomatist (1695-1770) and Ambassador at Vienna, by an unknown artist, and plaster-casts from the busts by J. Adams-Acton the sculptor, of the first Lord Brougham and Cardinal Manning.

M. Theophile Camel, the sculptor, died in Paris on Monday, aged 48. Born in Toulouse, he became the pupil of De Falguière and of De Mercie. His best known work is the personification of the Parisian work-girl, which was bought by the Municipality of Paris, and has been erected in the Square Carpaux at Montmartre.

The Wallsend Drill Hall, a portion of which was originally built for the 2nd Volunteer Battalion of the Northumberland Fusiliers, is now to be completed for the 5th Battalion Northumberland Fusiliers. The architect for the original work was Mr. M. H. Graham, of Messrs. Graham and Hill, surveyor to the Territorial Association of the county.

The "Nederland che Staatscourant" of Jan. 15 publishes a notice inviting tenders for constructional work and repairs at the Royal Palace of Het Loo. The upset price is put at 475,000 florins (about £40,000). Tenders, which will be opened on February 6, should be addressed to the "Administratie der Domeinen, Ministerie van Financien," The Hague.

Further progress in the restoration of Skeffling Church has been made by the completion of the south aisle, which was opened last week by the Bishop of Hull. Ten years ago the roof was renewed at a cost of 500 guineas. Skeffling Church, whose grey tower is a familiar landmark between the Humber and the North Sea, is one of the archæological treasures of Holderness. It was completed on August 18, 1470, and is a fine example of the Perpendicular style. The restoration of the tower will be undertaken at once, and when that is done the north aisle will be dealt with, and the scheme will be completed.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY (To-day.—Royal Sanitary Institute. Provincial Sessional Meeting at Bradford. Discussion on "School Clinics," to be opened by Dr. L. A. Williams.
Institution of Civil Engineers. "Rivers and Estuaries," by W. Henry Hunter, M.Inst.C.E. Vernon Harcourt Lecture No. 1. 8 p.m.
Leicester and Leicestershire Society of Architects. "The Town Estate," by Alderman A. E. Sawday, J.P., F.R.I.B.A. 5, St. Martin's East. 8 p.m.
Birmingham Architectural Association. "Notes on Irish Architecture," by R. M. Butler, of Dublin.
Glasgow Architectural Craftsmen's Society. "Some Buildings of Paris," by Vernon Constable, A.R.I.B.A. 8 p.m.

MONDAY.—Victoria and Albert Museum. "English Cathedrals and Parish Churches" (Lantern Illustrations), by Banister F. Fletcher, F.R.I.B.A. 5 p.m.
Architectural Association. "Greek Buildings," by Prof. W. R. Lethaby, F.R.I.B.A. 7.30 p.m.
Surveyors' Institution. "The Evolution of Fire-resisting Construction," by William Woodward, F.R.I.B.A. 8 p.m.
Society of Engineers. Distribution of Premiums by Diogo A. Symons, Past President, and Address by the President F. G. Bloyd. 7.30 p.m.
Cities and Town Planning Exhibition, Crosby Hall, Chelsea. Inaugural Address by the Right Hon. John Burns, M.P., on "Cities and Town Planning." 8.30 p.m.

TUESDAY.—British Museum. "Roman Triumphal Arches and Town Gateways" (Lantern Illustrations), by Banister F. Fletcher, F.R.I.B.A. 4.30 p.m.
Guild of Architects' Assistants. "A Mock Arbitration Case," by J. Gerald Large, and Others. 7.30 p.m.
Institute of Sanitary Engineers. Presidential Address by Arthur J. Martin. Caxton Hall, Westminster. 8 p.m.
Institution of Civil Engineers. "The Detroit River Tunnel, between Detroit, Michigan, and Windsor, Canada," by William John Wilgus, M.I.C.E. 8 p.m.

WEDNESDAY.—Carpenters' Hall Lecture. "Wood Carving," by Laurence A. Turner. 7.45 p.m.
Institute of Sanitary Engineers. "Surveying and Levelling," by Henry Adams, M.S.A. 7 p.m.
Royal Society of Arts. "Nigerian Head Hunters," by Captain A. J. N. Tremearne. 8 p.m.
Institution of Civil Engineers. Visit to the Victoria and Albert Museum (Heating and Ventilating System) and the Power Station, Imperial Institute.
Northern Architectural Association. "A Colonial Example of Town Planning: Adelaide, South Australia," with lantern illustrations, by J. Bruce, F.R.I.B.A. 7.30 p.m.
Manchester Society of Architects. Paper by F. W. Jackson.

THURSDAY.—Society of Architects. "The Turned Lattice Work of Egypt," by Col. F. Seymour Leslie, R.E., Hon. Secretary, 28, Bedford-square. 8 p.m.
Royal Society of Arts. "Indian Superstitions," by R. A. Leslie Moore. 4.30 p.m.
Sheffield Society of Architects. Paper on Brick-making Materials.

FRIDAY (FEB. 10).—Institution of Civil Engineers. "Rivers and Estuaries," by W. Henry Hunter, M.Inst.C.E. Vernon Harcourt Lecture No. 2. 8 p.m.

SATURDAY (FEB. 11.)—Royal Institution. "Architecture: the Byzantine and Romanesque Period," by T. G. Jackson, R.A.
Junior Institution of Engineers. Annual Dinner at Hotel Cecil. 7 p.m.

New Council schools are in course of erection in Trinity-road, Chelmsford. Mr. W. H. Pertwee, of London-road, Chelmsford, is the architect, and the builders are Messrs. Henry Potter and Son, of the same town.

The "Diario Official" of December 31 contains decree No. 8,484 granting, in favour of the Ministry of Justice and Home Affairs, an extraordinary credit of 272,575 milreis (about £18,000) to complete the construction of the National School of Fine Arts.

The plans of Mr. W. Kinnaird Jenkins, diocesan surveyor for the Archdeaconry of Cornwall, have been passed by the executive committee of the new operating theatre which is to be built at the Falmouth Hospital as a memorial to King Edward VII.

The Drapers' Company have given £15,000 for the building of a new wing to the applied science department of the Sheffield University. The new wing is needed for the housing of the non-ferrous metal department, and the department of coal-mining, which have greatly developed of late. The site for the extensions has been secured apart from the Drapers' Company's gift.

LATEST PRICES.

IRON.

	Per ton.				Per ton.		
Rolled-Iron Joists, Belgian	£5	7	6	to	£5	12	6
Rolled-Steel Joists, English	7	5	0	,,	7	15	0
Wrought-Iron Girder Plates	7	0	0	,,	7	5	0
Bar Iron, good Staffs	6	5	0	,,	6	10	0
Do., Lowmoor, Flat, Round, or Square	20	0	0	,,	20	0	0
Do., Welsh	5	15	0	,,	5	17	0
Boiler Plates, Iron—							
South Staffs	6	0	0	,,	8	15	0
Best Snedshill	9	0	0	,,	9	10	0

Angles 10s., Tees 20s. per ton extra.

Builders' Hoop Iron, for bonding, &c., £8 15s. to £9.

Builders' Hoop Iron, galvanised, £14 to £15 10s. per ton

Galvanised Corrugated Sheet Iron—

	No. 18 to 20. Per ton.	No. 22 to 24. Per ton.
6ft. to 8ft. long, inclusive gange	£13 0 0 ...	£13 10 0
Best ditto	13 0 0 ...	14 0 0

Wire Nails (Points de Paris)—

3 to 7	8	9	10	11	12	13	14	15	B.W.G.
6.3	6 9	9.3	9 9	10.3	11/-	11 9	12 6	13 6	per cwt.

	Per ton.				Per ton.		
Cast-Iron Columns	£6	10	0	to	£8	10	0
Cast-Iron Stanchions	6	10	0	,,	8	10	0
Rolled-Iron Fencing Wire	6	5	0	,,	8	10	0
Rolled-Steel Fencing Wire	6	5	0	,,	8	10	0
,, ,, ,, Galvanised	7	15	0	,,	8	5	0
Cast-Iron Sash Weights	4	17	0	,,	4	17	0
Cut Floor Brads	10	5	0	,,	—		
Corrugated Iron, 24 gauge	16	0	0	,,	—		
Galvanised Wire Strand, 7 ply, 14 B.W.G.	14	5	0	,,	—		

B.B. Drawn Telegraph Wire, Galvanised—

0 to 6	9	10	11	12	B.W.G.
£10 5 0	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.

Cast-Iron Socket Pipes—

3in. diameter	£6	2	6	to	£6	7	0
4in. to 6in.	6	0	0	,,	6	5	0
7in. to 24in. (all sizes)	5	7	6	,,	6	0	0

[Coated with composition, 5s. 0d. per ton extra; turned and bored joints, 5s. 0d. per ton extra.]

Pig Iron—	Per ton.		
Cold Blast, Lilleshall	110s. 0d.	to	117s. 6d.
Hot Blast, ditto	70s. 0d.	,,	75s. 0d.

Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.) :—

Gas-Tubes	75 p.c.
Water-Tubes	72½ ,,
Steam-Tubes	67½ ,,
Galvanised Gas-Tubes	65 ,,
Galvanised Water-Tubes	62½ ,,
Galvanised Steam-Tubes	57½ ,,

OTHER METALS.

	Per ton.				Per ton.		
Spelter, Silesian	£23	17	6	to	£24	0	0
Lead Water Pipe, Town	16	15	0	,,	—		
,, ,, ,, Country	17	10	0	,,	—		
Lead Barrel Pipe, Town	17	15	0	,,	—		
,, ,, ,, Country	18	10	0	,,	—		
Lead Pipe, Tinned inside, Town	18	15	0	,,	—		
,, ,, ,, ,, Country	19	10	0	,,	—		
Lead Pipe, Tinned inside and outside ..... Town	21	5	0	,,	—		
,, ,, ,, ,, Country	22	0	0	,,	—		
Composition Gas-Pipe, Town	19	15	0	,,	—		
,, ,, Country	20	10	0	,,	—		
Lead Soil-pipe (up to 4½in.) Town	19	15	0	,,	—		
,, ,, ,, Country	20	10	0	,,	—		
[Over 4½in. £1 per ton extra.]							
Lead Shot, in 28lb. bags	24	15	0	,,	—		
Copper Sheets, sheathing & rods	71	0	0	,,	71	10	0
Copper, British Cake and Ingot	58	0	0	,,	58	10	0
Tin, Straits	198	0	0	,,	198	10	0
Do., English Ingots	194	0	0	,,	194	10	0
Do., Australian	194	0	0	,,	194	10	0
Do., Bars	195	10	0	,,	196	0	0
Pig Lead, in 1cwt. pigs	14	2	6	,,	—		
Sheet Lead, Town	16	5	0	,,	—		
,, ,, Country	17	0	0	,,	—		
Genuine White Lead	21	0	0	,,	—		
Refined Red Lead	19	0	0	,,	—		
Sheet Zinc	32	5	0	,,	—		
Old Lead, against account	12	0	0	,,	—		
Tin ..... per cwt.	11	0	0	,,	—		
Cut Nails (per cwt. basis, ordinary brand)	0	10	6	,,	—		

TIMBER.

CONSTRUCTIONAL.

Per St. Petersburg Standard (100—12ft. by 11in. by 11in.)

Yellow Pine Deals, Quebec, 1st quality	£31	0	0	to	£42	0	0
,, ,, ,, 2nd ,,	21	0	0	,,	26	0	0
,, ,, ,, 3rd ,,	15	0	0	,,	18	0	0
Spruce Deals: St. Johns	8	0	0	,,	11	0	0
,, ,, Miramichi	7	5	0	,,	8	10	0
,, Boards: Swag	7	0	0	,,	8	0	0
Red Deals: Archangel 1st quality	20	10	0	,,	21	10	0
,, ,, ,, 2nd ,,	15	0	0	,,	17	0	0
,, ,, ,, 3rd ,,	11	0	0	,,	12	0	0
,, ,, St. Petersburg—							
,, 1st quality	16	0	0	,,	17	0	0
,, 2nd ,,	13	0	0	,,	14	10	0
,, ,, Wyburg & Uleaborg	10	0	0	,,	12	0	0
,, ,, Gefle, Gothenburg, and Stockholm	10	0	0	,,	17	0	0
White Deals: Crown	10	0	0	,,	12	0	0
,, ,, Seconds	9	10	0	,,	10	0	0
Flooring: White and Planed—							
1st and 2nd quality mixed	9	0	0	,,	9	5	0
1st, 2nd, and 3rd quality mixed	8	5	0	,,	8	10	0
Red Planed, 1st quality	11	5	0	,,	11	10	0
Pitch Pine: Prime Deals and Boards	17	0	0	,,	20	0	0
Lignum Vitæ	5	10	0	,,	12	0	0

Per foot super, as 1in.

Yellow Pine Logs (waney board)	0	2	9	,,	0	4	3
Pitch Pine Logs	0	1	6	,,	0	1	10
Canary Whitewood: Prime	0	3	6	,,	0	3	9
Birch: Quebec Loge	0	2	0	,,	0	2	6
Oak: Austrian Wainscot	0	7	0	,,	0	8	0
Mahogany: Gaboon	0	0	1¼	,,	0	6	2¼

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (50c.ft.)	£20	0	0	to	£21	10	0
,, Java ,, ,,	15	0	0	,,	18	0	0
Canary Whitewood: Prime bds.	Per cubic foot.						
14in. average	0	3	0	,,	0	3	3
Canary Whitewood: Medium bds. 11in. average	0	2	2	,,	0	2	6
Oak Planks: U.S.A., imported	0	1	9	,,	0	2	6
,, Boards ,, ,, Prm.	0	2	4	,,	0	2	9
,, ,, ,, ,, Mdm.	0	1	10	,,	0	2	2
Sequoia (Californian Redwood)	0	3	0	,,	0	3	6
Birch: Quebec logs	0	1	8	,,	0	2	2
,, ,, sawn planks	0	1	0	,,	0	1	2
Oak: Austrian Wainscot	0	6	0	,,	0	7	0
Walnut: Prime boards & planks Mdm. ,, ,,	0	5	0	,,	0	6	0
	0	3	4	,,	0	3	6
Greenheart: Hewn logs	0	3	6	,,	0	4	6
Cedar: Cigar box	0	3	6	,,	0	4	8
Satin Walnut: Imp. sawn boards, prime	0	2	3	,,	0	2	6
Orham: Imp. sawn boards, prime	0	1	10	,,	0	2	2
Mahogany: St. Domingo, Cuba, and Honduras	Per foot of 1in.						
	0	0	5½	to	0	0	6
,, African, Assinee, &c.	0	0	4½	,,	0	0	9
,, Lagos and Benin	0	0	3½	,,	0	0	4½
,, Sekondi and Cape Lopez	0	0	2½	,,	0	0	3½
,, Gaboon	0	0	1½	,,	0	0	0
Satinwood: West Indian	0	0	10	,,	0	2	2
Rosewood ..... Per ton	7	0	0	,,	12	0	0
Lignum Vitæ ,,	4	0	0	,,	11	10	6

STONE.*

Red Mansfield, in blocks ..... per foot cube	£0	2	4	
Darley Dale, ditto ..... ,, ...	0	2	3	
Red Corsehill, ditto ..... ,, ...	0	2	2	
Closeburn Red Freestone, ditto ..... ,, ...	0	2	0	
Ancaster, ditto ..... ,, ...	0	1	10	
Greenshill, ditto ..... ,, ...	0	1	10	
Chilmark, ditto (in truck at Nine Elms) ,, ...	0	1	9	
Beer, ditto ..... ,, ...	0	1	6	
Hard York, ditto ..... ,, ...	0	2	10	
Ditto ditto 6in. sawn both sides, landings, random sizes ..... per foot sup.	0	2	8	
Ditto ditto 3in. slab sawn two sides, random sizes ..... ,, ...	0	1	3	

* All F.O.R. London.

Bath Stone, delivered on rail at quarry stations ..... per foot cube	0	1	0	
Delivered on road waggons, Paddington Depot ..... ,, ...	0	1	6½	
Ditto ditto, Nine Elms Depot ..... ,, ...	0	1	6½	
Beer Stone, delivered on rail at Seaton Station ..... ,, ...	0	1	0	
Ditto, delivered at Nine Elms Station ,, ...	0	1	6	

Portland Stone, in random blocks of 20ft. average :—

	Brown Whit Bed.				White Base Bed.		
Delivered to railway depot at the quarry .... per foot cube	£0	1	5¾	...	£0	1	7½
Delivered on road waggons at Paddington Depot ...	,, ...	0	2	1	...	0	2	2½
Ditto, Nine Elms Depot ...								
Ditto, Pimlico Wharf								

BRICKS.

(All prices net.)

Hard Stocks	£1	6	6	per 1,000 alongside, in river	
Rough Stocks and Grizzles	1	6	0	,, ,, ,,	
Picked Stocks for Facings	2	10	0	,, delivered at railway station.	
Flettons	1	6	0	,, ,, ,,	
Pressed Wire Cuts	1	18	0	,, ,, ,,	
Red Wire Cuts	1	14	0	,, ,, ,,	
Best Fareham Red	3	12	0	,, ,, ,,	
Best Red Pressed Rnabon Facing	5	0	0	,, ,, ,,	
Best Blue Pressed Staffordshire	3	15	0	,, ,, ,,	
Ditto Bullnose	4	0	0	,, ,, ,,	
Best Stourbridge Fire Bricks	3	14	0	,, ,, ,,	
2½in. Best Red Accrington Plastic Facing Bricks	4	13	0	,, Net, delivered in full truck loads in London.	

GLAZED BRICKS.*

HARD GLAZES. (PER 1,000.)

White, Ivory, and Salt Glazed. Best.	Best. Buff and Cream.	Other Colours.	Second Colours.
Seconds.			
Stretchers—			
£10 17 6 £9 7 6	£12 7 6	£16 7 6	£10 17 6
Headers—			
10 7 6 8 17 6	11 17 6	15 17 6	10 7 6
Quoins, Bullnose, and 4½in. Flats—			
13 17 6 12 17 6	16 7 6	19 17 6	14 7 6
Double Stretchers—			
16 7 6 14 17 6	19 7 6	22 17 6	16 7 6
Double Headers—			
13 7 6 11 17 6	16 7 6	19 17 6	13 7 6
One side and two ends, square—			
17 7 6 15 17 6	20 7 6	24 17 6	17 7 6
Two sides and one end, square—			
18 7 6 16 17 6	21 7 6	25 7 6	16 7 6
Splays and Squints—			
15 17 6 14 7 6	20 7 6	23 7 6	15 17 6

Plinth and Hollow Bricks. Stretchers and Headers—

5d. each 4d. each 6d. each 6d. each 5d. each

Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres—

5d. each 4d. each 6d. each 6d. each 5d. each

Rounded Internal Angles—

4d. each 3d. each 5d. each 5d. each 4d. each

MOULDED BRICKS.

Stretchers and Headers—

6d. each 5d. each 6d. each 6d. each 6d. each

Internal and External Angles—

1 2 each 1 2 each 1 2 each 1 2 each 1 2 each

Cill Bullnose, Stretchers and Headers—

5d. each 4d. each 6d. each 6d. each 5d. each

	Per 1,000
Majolica or Soft Glazed Stretchers and Headers	£21 17 6
,, ,, ,, Quoins and Bullnose	26 17 6

Compass bricks, circular and arch bricks of single radius £6 per 1,000 over above list for their respective kinds and colours } Not exceeding 9in. × 4½in. × 2½in.

Camber arch brick, any kind or colour, 1s. 2d. each }

Stretchers cut for Closers and Nicked Double Headers, £1 per 1,000 extra.

* These prices are carriage paid in full truck loads to London stations.

	s.	d.	
Thames and Pit Sand	7	0	per yard, delivered.
Thames Ballast	5	6	,, ,,
Best Portland Cement	28	0	per ton, ,,
Best Ground Blue Lias Lime	19	0	,, ,,

Exclusive of charge for sacks.

Grey Stone Lime	11s. 6d. per yard, delivered
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. stn.	

SLATES.

	In.	In.	£	s.	d.	
Blue Portmadoc	20 × 10	..12	12	6	per 1000 of 1200 at r.stn.	
,, ,,	... 16 × 8	.. 8	12	6	,, ,,	,,
Blue Bangor	... 20 × 10	...13	2	8	,, ,,	,,
,, ,,	... 20 × 12	..13	17	6	,, ,,	,,
First quality	20 × 10	...13	0	0	,, ,,	,,
,, ,, ,,	... 20 × 12	..13	15	0	,, ,,	,,
,, ,, ,,	... 16 × 8	...	7	5	0	,, ,, ,,

Eureka unfading	£	s.	d.	
green	20 × 10	..15	17	6	,, ,,
,, ,,	... 20 × 12	..18	7	8	,, ,, ,,
,, ,,	... 18 × 10	...13	5	0	,, ,, ,,
,, ,,	... 16 × 8	...10	5	0	,, ,, ,,
Permanent green	20 × 10	...11	12	6	,, ,, ,,
,, ,,	... 18 × 10	.. 9	12	6	,, ,, ,,
,, ,,	... 16 × 8	. 8	12	6	,, ,, ,,

TILES.

	s.	d.	
Plain red roofing tiles	42	0	per 1000 at rly. stn.
Hip and Valley tiles	3	7	per doz. ,, ,,
Broseley tiles	50	0	per 1000 ,, ,,
Ornamental tiles	52	6	,, ,, ,,
Hip and Valley tiles	4	0	per doz. ,, ,,
Ruabon red, brown, or brindled	57	6	per 1000 ,, ,,
do. (Edwards)	60	0	,, ,, ,,
Ornamental do.	4	0	per doz. ,, ,,
Hip tiles	3	0	,, ,, ,,
Valley tiles			

Selected "Perfecta" roofing tiles—Plain tiles (Peake's)	46	0	per 1000	,,	,,
Ornamental do.	48	6	,,	,,	,,
Hip tiles	3	10½	per doz.	,,	,,
Valley tiles	3	4½	,,	,,	,,
"Rosemary" brand plain tiles	48	0	per 1000	,,	,,
Ornamental tiles	50	0	,,	,,	,,
Hip tiles	4	0	per doz.	,,	,,
Valley tiles	3	6	,,	,,	,,
Staffordshire (Hanley) Reds or Brindled tiles	42	6	per 1000	,,	,,
Hand-made sand-faced	45	0	,,	,,	,,
Hip tiles	4	0	per doz.	,,	,,
Valley tiles	3	6	,,	,,	,,
"Hartshill" brand plain tiles, sand-faced	50	0	per 1000	,,	,,
Pressed	47	6	,,	,,	,,
Ornamental do.	50	0	,,	,,	,,
Hip tiles	4	0	per doz.	,,	,,
Valley tiles	3	6	,,	,,	,,

OILS.

Rapeseed, English pale, per tun	£28	15	0	to	£20	5	0
Do., brown	,, ...	28	15	0	,,	27	5	0
Cottonseed, refined	,, ...	29	0	0	,,	30	0	0
Olive, Spanish	,, ...	33	10	0	,,	40	0	0
Seal, pale	,, ...	21	0	0	,,	21	10	0
Cocoanut, Cochin	,, ...	46	0	0	,,	46	10	0
Do., Ceylon	,, ...	42	10	0	,,	43	0	0
Do., Mauritius	,, ...	42	10	0	,,	43	0	0
Palm, Lagos	,, ...	32	5	0	,,	33	5	0
Do., Nut Kernel	,, ...	35	0	0	,,	35	10	0
Oleine	,, ...	17	5	0	,,	19	5	0
Sperm	,, ...	30	0	0	,,	31	0	0
Lubricating U.S. ..... per gal.		0	7	0	,,	0	8	0
Petroleum, refined	,,	0	0	6¾	,,	0	0	6¾
Tar, Stockholm ..... per barrel		1	6	0	,,	1	10	6
Do., Archangel	,,	0	19	6	,,	1	0	0
Linseed Oil ..... per gal.		0	4	1½	,,	—		
Baltic Oil	,,	0	4	4	,,	—		
Turpentine	,,	0	4	9	,,	—		
Putty (Genuine Linseed Oil) ..... per cwt.		0	11	0	,,	—		
,, Pure Linseed Oil, "Stority" Brand ,,		0	10	0	,,	—		

VARNISHES, &c.

	Per gallon.
Fine Pale Oak Varnish	£0 8 0
Pale Copal Oak	0 10 0
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 6
Extra Pale Paper	0 12 6
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

GLASS.

	15oz.	21oz.	26oz.	32oz. Net.
English Sheet Glass: Fourths	1¾d.	2½d.	3d.	4½d. ,,
Thirds	2½d.	3d.	4d.	4½d. ,,
Fluted Sheet	3½d.	4½d.	—	— ,,

Hartley's English Rolled Plate: ¼in. 5/16in. ⅜in. 2½d. ... 2⅝d. ... 2¾d.

Figured, Oxford Rolled, & Oceanic Glass: White. Tinted. 3½d. ... 5½d.

TRADE NOTES.

Under the direction of Messrs. Heaton and Walker, architects, Hinckley, the "Boyle" system of ventilation (natural) embracing the latest patent air pump ventilators and air inlets, has been applied to the Drill Hall, Hinckley.

The Galway New Fever Hospital has been supplied with Shorland's patent Multum-in-Parvo with descending smoke flue [illegible] roof and special [illegible] Messrs. E. H. Shorland and Co., Ltd., Salford, Manchester.

Messrs. C. P. [illegible] M.M.Q.S.A., quantity surveyors, [illegible] have removed their offices to 14, Smithy-street, Nottingham, to [illegible] commodious premises [illegible] Colwyth Chambers (Hippodrome Premises), Nottingham.

The Saxon Portland Cement Co., Ltd., Cambridge, have issued a very artistic and instructive booklet giving important information with regard to the process of cement manufacture adopted at their up-to-date factories, and showing the favourable comparison of Saxon guarantee specification with the requirements of the British standard specification. Some interesting "Don'ts" for users, with an abbreviated list of corporations, councils, and railway companies who are users, and a list of some of the company's most important contracts.

PILKINGTON & CO.

(Established 1838.)

DEPTFORD WHARF,
190 & 192, CREEK ROAD, DEPTFORD, S.E.

Registered Trade Mark,

POLONCEAU ASPHALTE

Patent Asphalte and Felt Roofing

ACID-RESISTING ASPHALTE.
WHITE SILICA PAVING.

Seyssel Asphalte direct from the Mines.

Telephone Nos. New Cross 1102 2 Lines.

FOR

Olivers' Seasoned Hardwoods,

APPLY TO—

WM. OLIVER & SONS, Ltd.,
120, Bunhill Row, London, E.C.

TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender; it adds to the value of the informal tion.

Cardiff.—For electric-light wiring at Kitchener-road schools, for the corporation. Mr. Arthur Ellis, The Hayes, Cardiff, electrical engineer:—

Price, Friend, and Co., St. John-square, Cardiff	£395 0 0
Bedford and Co., Frederick-street, Cardiff	336 17 9
Ellis and Ward, Birmingham	312 17 6
Alger, R., and Sons, Dock-street, Newport	3 3 17 6
Perman, E., Dock-street, Newport, Mon.	279 0 0
Johnson & Phillips, Castle-arcade, Cardiff*	249 0 0
Steel, C. H., & Co., Queen-street, Cardiff	—
Saymans, Llanfair-road, Cardiff	—

* Recommended for acceptance.

Bo'ness.—For pipe-laying (4 miles), for the town council. Mr. J. H. Wilson, Bo'ness, burgh surveyor:—

Track-cutting and pipe-laying—	
Reynolds, B., Clifford-road, Stirling	£1,980 0 0
Jupp and Sheridan, Bo'ness	1,766 5 0
M'Coll, D., Inverkeithing	1,685 1 5
Brown and Kincaid, Glasgow	1,662 2 11
Mackay, G., and Son, Edinburgh	1,610 12 8
Crawford, R. C., Hillhouse, Uddington	1,584 7 2
Flett, W. G., Lenzie	1,460 0 0
Brebner, R. C., Edinburgh	1,138 0 0
Black Bros., Johnstone	1,131 11 4
Henderson and Duncan, Morningside	1,129 1 6
Wilson, T., Roberton, Hawick	1,104 9 4
Pollock, C., and Co., Glasgow	1,384 14 2
Barkie and Sellar, Bo'ness	1,362 9 0
Bruce, D., and Son, Whitburn	1,357 5 11
Adamson, D., Cowdenbeath	1,264 4 0
Grant, G., and Son, Blackridge	1,141 3 7
Dobson, W., Yeaman-lane, Edinburgh	1,119 11 6
Robertson, A. H., Inverkeithing	1,097 17 1
Wilson, A. D., Glasgow	1,078 6 2
Hardie, J., and Son, Bo'ness	873 8 4

Carshalton.—For erecting verandahs at children's infirmary, for the Metropolitan Asylums Board. Mr. W. T. Hatch, M.I.C.E., Embankment, E.C., engineer-in-chief:—

Hayward Bros. & Eckstein, Ltd., Union-street, Borough	£2,060 0 0
General Iron Foundry Co., Ltd., Upper Thames-street	1,966 0 0
Cook, A. B., Stanley Parade, Stanley Park-road, Wallington	1,798 0 0
Heywood, W. H., & Co., Victoria-street	1,740 6 0
Wenham & Waters, Ltd., Paragon Works, Croyden	1,698 10 0
Freeman, H., Ltd., Mulgrave-road, Sutton	1,625 0 0
Honour, F. W., The Green, Warlingham (accepted)	1,569 0 0

Crossness, S.E.—For making trial borings upon the site of the proposed enlargement of the Crossness pumping-station, for the London County Council:—

Tilley, T., and Sons, Tothill-street	£94 8 0
Le Grand & Sutcliffe, Bunhill-row	76 13 0
Isler, C., & Co., Bear-lane, E.C.*	54 15 0

* Recommended for acceptance.

Derby.—For erecting county offices, at St. Mary's-gate, for the Derbyshire Standing Joint Committee. Mr. G. C. Copestick, Licentiate R.I.B.A., County offices, St. Mary's-gate, Derby, architect. Quantities by Messrs. Edis and Dale, 16, Great Marlborough-street, London, W.:—

Hodges, G., Horninglow-street, Burton-upon-Trent	£23,690 0 0
Warner, J. and J., Mickleover, near Derby	22,110 0 0
Weston, R., and Son, Leacroft-road, Derby	21,869 0 0
Harris and Hunt, Marehay, Ripley	21,735 0 0
Wildgoose, J. W., Rutland-street, Matlock	21,686 11 0
Wood, E., and Son, Park-street, Derby	21,500 0 0
Morley, E., and Sons, Gerald-street, Derby	21,294 0 0
Dickinson, J., Ashbourne-road, Derby	21,268 0 0
Ford, W., and Son, Summer Hill, Derby	20,875 0 0
Lowe and Sons, Curzon-street, Burton-upon-Trent	20,840 0 0
Kershaw, R., Edward-street, Burton-upon-Trent	20,750 0 0
Pegg and Bailey, Porter-road, Derby	20,730 14 0
Walker and Slater, Uttoxeter Old-road, Derby	20,490 0 0
Smith, A., Gordon-road, Derby	19,911 0 0
Walkerdine, W., Bridge-street, Derby (accepted)	19,540 0 0
Penny, A. J., Cotmanhay-road, Ilkeston	17,435 0 0
Roberts, D., Nottingham-road, Ilkeston (not received)	—

Kettering.—For culverting Peg Brook, for the urban district council. The surveyor, Market-place, Kettering:—

Palmer, A. E., Leicester	£712 0 0
Smith and Bunning	673 4 3
Berry, B. H., Radcliffe-on-Trent	671 13 0
Drever, O. P.	671 0 0
Phillips and Slow	658 5 10
Lewin, A., and Son	639 0 0
Jewell, A., Market Harborough*	596 0 8

* Accepted. Rest of Kettering.

Greenwich.—For the erection of a new section house at Blackheath-road, Greenwich. Mr. J. Dixon Butler, F.R.I.B.A., Surveyor to the Metropolitan Police District, New Scotland Yard, S.W., architect. Quantities by Messrs. Thurgood, Son, and Chidgey, 8, Adelphi-terrace, Strand, W.C.:—

Kent, H.	£8,630 0 0
Graham, T., and Co.	8,240 0 0
Blake, W. E.	8,065 0 0
Thomas and Edge	8,046 0 0
Blay, W. F., Ltd.	7,910 0 0
Wallis, G. E., and Sons, Ltd.	7,861 0 0
Lovatt, H., Ltd.	7,711 0 0
Smith J., and Sons, Ltd.	7,670 0 0
Fairhead, A., and Son	7,650 0 0
Lawrence, W., and Son	7,642 0 0
Mowlem, J., and Co., Ltd.	7,614 0 0
Godson, G., and Sons	7,598 0 0
Grover, J., and Son	7,588 0 0
Holliday and Greenwood, Ltd.	7,584 0 0
Patman and Fotheringham, Ltd.	7,473 0 0

Leytonstone.—For the heating and electric wiring at the County High School for Girls, Leytonstone. Messrs. W. and J. H. Jacques, 2, Fen-court, Fenchurch-street, E.C., architects:—

Heating apparatus:—	
Werner, Pfleiderer, and Perkins	£975 0 0
Russell and Co.	775 0 0
Barnards, Ltd.	709 0 0
Haden, G. H., and Sons	686 0 0
Halsey, J. T.	678 0 0
Korting Bros.	667 0 0
Easton Lift Co.	661 0 0
Freer, W.	649 0 0
Nicholson and Co.	631 0 0
Wenham and Waters	619 0 0
Dunning and Cooke	607 0 0
General Iron Foundry Co.	596 0 0
Duncan, Watson, and Co.	595 0 0
Wembley Heating Co.	564 0 0
Clark, Hunt, and Co.	562 0 0
Macintosh and Sons	532 10 0
Davies, F.	497 0 0
Cannon and Hefford	495 0 0
Watkin and Son*	469 0 0
Electric wiring:—	
Duncan, Watson, and Co.	£645 0 0
Marr, J. B., and Co., Ltd.	615 0 0
Ryan and Son	600 0 0
Hawkins and Sons	549 0 0
Morgan, E.	520 0 0
Wenham and Waters	506 0 0
Newbald and Co.	503 10 0
Wilkins and Brother, Ltd.	496 15 0
Troup, Curtis, and Co.	490 3 0
Lawrence and Thorrington	489 10 0
Johnson and Phillips	487 0 0
Electrical and Motor Co.	458 18 0
Weston and Sons	449 13 6
Private Telephone Co., Ltd.	442 10 0
Halsey, J. T.*	425 2 6

* Recommended for acceptance, subject to the approval of the Essex County Council.

London.—For the supply and delivery of auxiliary hand-gear for penstocks at or near the Abbey Mills, Deptford, Falcon Brook, Lots-road, and Crossness pumping-stations, for the London County Council:—

Sykes, H., Ltd., Bankside, S.E.	£1,251 0 0
Whitehead and Poole, Ltd., Radcliffe, near Manchester	1,133 0 0
Hunter and English, Ltd., Bow-road, E.	1,075 0 0
Blakeborough, J., and Son, Brighouse, Yorks	935 0 0
Waller, G., and Son, Stroud, Gloucester (accepted)	813 0 0

London.—For the supply of 500,000 stoneware cable ducts required in connection with the electrification of further portions of the London County Council's tramways:—

Doulton and Co., Ltd., Lambeth, S.E.	£6,600 0 0
Sutton and Co., Overseal, near Ashby-de-la-Zouch	5,600 0 0
Mansfield, H. R., Burton-on-Trent	4,731 5 0
Stanley Bros., Nuneaton*	4,487 10 0
Skey, G., and Co., Ltd., Tamworth	4,375 0 0

Estimate of the chief officer of the tramways, £5,000.
* Recommended for acceptance. † Not to specification.

Plumstead, S.E.—For alterations to the wall and for the erection of fencing on a plot of land over the line of the southern high-level sewer No. 2 adjoining No. 13, Station-road, Plumstead, for the London County Council:—

Rowell, D., and Co., Westminster	£70 19 11
Elwell, J., Ltd., Birmingham	60 0 1
Miller, W., and Sons, Wolverhampton (accepted)	59 19 8

(*Continued on p.* VII.)

LIST OF COMPETITIONS OPEN.

Corbridge—Sewerage and Sewage Disposal Scheme	£15 (merged) and £10	J. H. Nicholson, Clerk, Midland Bank Chambers, Hexham	Feb. 28
San Thomé, Portuguese West Africa—Laying-out Streets, Sewerage, Water Supply, and Lighting		The President of Municipal Council, San Thomé, Portuguese West Africa	Mar. 27
Gidea Park—Town Plan of Gidea Park (E. G. Dawber, H. V. Lanchester, and M. E. Macartney, Assessors)	£100, £50	The Secretary, Town Planning Exhibition, 33, Henrietta-st., W.C.	,, 31
Manchester—Library and Art Gallery (Prof. Reginald Blomfield, A.R.A., assessor)		Thomas Hudson, Town Clerk, Town Hall, Manchester	,, 31
Coventry—Municipal Buildings and Proposed Town Hall. (E. Guy Dawber, F.R.I.B.A., 22, Buckingham-street, W.C., Assessor.)		Geo. Sutton, Town Clerk, 10, Hay-lane, Coventry	April 1
Carlton—Sewage Disposal Scheme		James Senior, Clerk, Carlton, near Barnsley	,, 6
Corbridge, Hexham—Sewerage and Sewage Disposal Scheme	£15, £10	J. H. Nicholson, Clerk, Midland Bank Chambers, Hexham	,, 13
Aspatria—Sewerage Scheme		F. Richardson, Clerk, Aspatria, Cumberland	June 10
Athens—Court of Justice (cost £160,000)	£800, £320	Comm. Intel. Branch, Board of Trade, 73, Basinghall-street, E.C.	Aug. 8
Glasgow—Alexander Thomson Travelling Studentship	£60, £20	C. J. Maclean, Secretary, 115, St. Vincent-street, Glasgow	Dec. 29
Penistone—Carnegie Free Library		The Clerk to the District Council, Penistone	No date

LIST OF TENDERS OPEN.

BUILDINGS.

Bishopstawton—Repairs to Vicarage and Glebe Cottages		Harding, Son, and Rootham, Solicitors, Barnstaple	Feb. 3
Tonyrefail—New School	Glamorgan County Council	The Council Offices, Westgate-street, Cardiff	,, 4
Manchester—Medical Supt.'s House, Bagueley Sanatorium	Sanitary Committee	The City Architect, Town Hall, Manchester	,, 4
Alltwen—Additions to School	Glamorgan County Council	The Council Offices, Westgate-street, Cardiff	,, 4
Sidbury—Additions to Church Schools		Harbottle Reed, F.R.I.B.A., 12, Castle-street, Exeter	,, 4
Smiddyhill—Single Cottage	Haddo House Estates	C. G. Smith, Factor, Haddo House, Aberdeen	,, 6
Merthyr Tydfil—Infants' School at Lower Pentrebach	Education Committee	The Deputy Surveyor, Town Hall, Merthyr Tydfil	,, 6
Longford, Ireland—Store at Station	Midland Gt. West. (Ireland) Rly. Co.	The Chief Engineer, Broadstone Station, Dublin	,, 6
Farnham—Additions to Drill-Hall, Bear-lane	Territorial Force Association	Jarvis and Richards, Archts., 10, Queen Anne's-gate, S.W.	,, 6
Nethermill—Single Cottage	Haddo House Estates	C. G. Smith, Factor, Haddo House, Aberdeen	,, 6
Merthyr—Infants' School at Lower Pentrebach	Education Committee	The Deputy Surveyor, Town Hall, Merthyr	,, 6
Ilketshall St. Lawrence—Enlarging School (50 places)	East Suffolk Education Committee	J. Webb, Building Surveyor, County Hall, Ipswich	,, 6
Brumby—Pair of Cottages		John Potts, 54, Fox-street, Scunthorpe	,, 6
Stockport—Alterations to St. Petersgate Baths	Baths Committee	John Atkinson, A.M.I.C.E., Boro' Sur., Town Hall, Stockport	,, 6
Moss-side—Single Cottage	Haddo House Estates	C. G. Smith, Factor, Haddo House, Aberdeen	,, 6
Risca—Ninety-seven Houses	Urban District Council	A. J. Dardis, Surveyor, Council Offices, Risca, Mon.	,, 6
Oldtown of Fochel—Single Cottage	Haddo House Estates	C. G. Smith, Factor, Haddo House, Aberdeen	,, 6
Meltham—Boiler House at Isolation Hospital		Joseph Barry, Architect, Market-place, Huddersfield	,, 6
Newton—Double Cottage	Haddo House Estates	C. G. Smith, Factor, Haddo House, Aberdeen	,, 6
Ilkley—Country Residence		W. H. H. Marten, A.R.I.B.A., 3, Cookridge-street, Leeds	,, 6
Balquhindachy—Double Cottage	Haddo House Estates	C. G. Smith, Factor, Haddo House, Aberdeen	,, 6
Belfast—New Buildings, Castle and Fountain-streets	W. Coates and Son, Ltd.	Young and Mackenzie, Archts., Scottish Provident Bldgs., Belfast	,, 6
Mains of Drum—Single Cottage	Haddo House Estates	C. G. Smith, Factor, Haddo House, Aberdeen	,, 6
The Hague—Constructional Work, &c., at Royal Palace		Administratie der Domeinen, The Hague	,, 6
Huddersfield—Detached House, Saleodine Nook		J. H. Hall and Son, Architects, Exchange, Huddersfield	,, 6
Ebbw Vale—Alterations, &c., to Conservative Club		Edgar Price, Architect, Station Chambers, Ebbw Vale	,, 6
Colne—Laneshawbridge Council School	Education Committee	Holgate and Spivey, Architects, Colne, Lancs	,, 6
Bridgend Nolton Church Institute		P. J. Thomas, Architect, Bridgend	,, 7
Walsall—Additions to Electricity Generating Station	Electricity Committee	John R. Cooper, Town Clerk, Council House, Walsall	,, 7
Banchory—Drill Hall	Kincardine Territorial Association	Walker and Duncan, Archts., 3, Golden-square, Aberdeen	,, 7
Treforest—Eighteen Semi-detached Villas		Gibson, Williams, and Co., Archts., Bank Chmbrs., Pontypridd	,, 7
Rochdale—Altering Departmental Offices in Town Hall	General Purposes Committee	W. H. Hickson, Town Clerk, Town Hall, Rochdale	,, 7
Chillerton—Pumping Station at Home Meadow	Shanklin Urban District Council	John Marsh, Clerk, Council Chambers, Shanklin	,, 7
Brighton—Alterations to Parochial Offices	Guardians	R. Burfield, Clerk, Parochial Offices, Prince's-street, Brighton	,, 7
Auchmacoy—Additions to House, Dorbshill		J. Ruxton, Architect, 84, Union-street, Aberdeen	,, 7
Keighley—Pair of Houses, Raglan-street		J. Haggas and Sons, Architects, North-street, Keighley	,, 8
Watford—Domestic Economy Centre, Grosvenor-road	Hertfordshire County Council	Urban A. Smith, County Surveyor, Hatfield	,, 8
Hereford—Secondary School, Widemarsh-street	Executive Committee	The County Surveyor, Shire Hall, Hereford	,, 8
Swinton, Manchester—Fireproof Staircase at Schools	Guardians	J. Murgatroyd, Architect, 23, Strutt-street, Manchester	,, 8
King's Norton—Shelter, Cotteridge Park	Urban District Council	A. W. Cross, Engineer, 23, Valentine-road, King's Heath	,, 8
Glencolumbkille, Co. Donegall—Block of Four Dwellings	Irish Lights Commissioners	H. G. Cook, Secretary, Carlisle Buildings, Dublin	,, 9
Cudworth—Alterations at Snydale-road School	West Riding Education Committee	The Education Architect, County Hall, Wakefield	,, 9
Banbury—Extending Post Office	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 9
Southampton—Additions to Pavilion, Royal Pier	Harbour Board	E. Cooper Poole, A.M.I.C.E., Town-quay, Southampton	,, 9
East Dulwich-grove, S.E.—Chimney Shaft at Infirmary	Southwark Guardians	A. W. Tribe, Architect, 120, Clapham-road, S.W.	,, 9
Gomersall—Works at School	West Riding Education Committee	The Education Architect, County Hall, Wakefield	,, 9
Valencia Island—Lighthouse	Irish Lights Commissioners	H. G. Cook, Secretary, Carlisle Buildings, Dublin	,, 9
Sherborne—School	Dorset Education Committee	The County Surveyor, County Offices, Dorchester	,, 9
Bryn'refail House		Evan J. Williams, 2, Orwig-terrace, Bryn'refail, Carnarvon	,, 9
Radstock—Lock-up Shop in Fortescue-road	Alexander Callander	Gibson and Hancock, Architects, Radstock	,, 10
Hull—Reading Room at Pickering Park	C. Pickering	Joseph H. Hirst, City Architect, Town Hall, Hull	,, 10
Beeston, Leeds—Cloth Warehouse at New Mills	John Hartley and Sons, Ltd.	A. Buttery, F.I.A.S., Queen-street, Morley	,, 10
Farleton—Filter House	South Westmoriand R.D.C.	G. B. Atkinson, Jasmine Cottage, Milnthorpe	,, 10
London, S.W.—Extending Post Office (First Contract)	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 10
Morval—Two Farmhouses and Two Sets of Buildings	Small Holdings Committee	S. G. Carnell, County Land Agent, Public Rooms, Truro	,, 11
Mytholmroyd—Bath-room at Burnley-road School	West Riding County Council	The Acting Divisional Clerk, Sowerby Bridge	,, 11
Chelmsford—Alterations to Trinity-road School	Education Committee	W. H. Pertwee, Architect, The Institute, London-rd., Chelmsford	,, 11
Bolton-on-Dearne—Forty-eight Houses, Highgate	Urban District Council	J. W. Wilson, Surveyor, Council Offices, Bolton-on-Dearne	,, 13
Margate—Flooring Concrete Hall	Corporation	E. A. Borg, Borough Engineer, 13, Grosvenor-place, Margate	,, 13
Banbury—Repairs to Caretaker's Quarters at Town Hall	Town Council	N. H. Dawson, C.E., Borough Surveyor, Town Hall, Banbury	,, 13
Gravesend—Open-air Swimming-Bath	Town Council	H. H. Brown, Town Clerk, 4, Woodville-terrace, Gravesend	,, 13
Dalton—Police Station	West Riding Standing Joint Com.	J. Vickers-Edwards, West Riding Archt., County Hall, Wakefield	,, 13
Belfast—Two Villas, Purdysburn Estate	Corporation Asylum Committee	Watt, Tulloch, and Fitzsimons, Archts., 77a, Victoria-st., Belfast	,, 13
Abercrave—Vestry and Classrooms	Carmel C.M. Church Trustees	R. S. Griffiths, M.S.A., Tonypandy	,, 13
Stockton-on-Tees—Schools in Yarm-road	Local Education Authority	J. Sanderson, 59, High-street, Stockton-on-Tees	,, 14
Harborne—Extending Station-road School	Birmingham Education Committee	J. A. Palmer, Secretary, Education Department, Birmingham	,, 14
Stratford-on-Avon—Additions to Hospital		William Henman, F.R.I.B.A., 19, Temple-street, Birmingham	,, 14
Bandon—Additions to Laragh House	Leslie Johnson, J.P.	W. H. Hill and Son, Architects, 28, South Mall, Cork	,, 14
Portsmouth—Married Soldiers' Quarters, Milldam Barracks	Secretary of State for War	The Director of Army Contracts, War Office, Whitehall, S.W.	,, 15
Caterham—Works at Asylum	Metropolitan Asylums Board	W. T. Hatch, M.I.C.E., Engineer-in-Chief, Embankment, E.C	,, 15
Southampton—Two Pavilion Blocks, Infirmary	Guardians	A. F. Gutteridge, Architect, 9, Portland-street, Southampton	,, 15
Manchester—Baths in Burton-road, Withington	Corporation	The City Architect, Town Hall, Manchester	,, 15
Rotherhithe, S.E.—Ash Receptacle at Infirmary, Lower-road	Bermondsey Guardians	E. Pitts Fenton, Clerk, 283, Tooley-street, S.E.	,, 15
Tottenham, N.—Coal Store at Fever Hospital	Metropolitan Asylums Board	W. T. Hatch, M.I.C.E., Engineer-in-Chief, Embankment, E.C	,, 15
Lancaster—School, High-street Estate	Education Committee	Arthur G. Bradshaw, Borough Surveyor, Town Hall, Lancaster	,, 15
London, E.C.—Die and Seal Department, Royal Mint	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 17
Stainland—Alterations and Repairs to Firth House Mills	Haigh, Wright, and Co.	C. F. L. Horsfall and Son, Architects, Lord-st. Chmbs., Halifax	,, 18
Rishworth—Cottage at Spa Clough	Wakefield Corporation	C. C. Smith, M.I.C.E., Waterworks Eng., Town Hall, Wakefield	,, 20
Fyfield—Extending Industrial and Truants' School	West Ham Education Committee	W. Jacques, A.R.I.B.A., 2, Fen-court, E.C.	,, 20
Brumby—Pair of Cottages		John Potts, 54, Fox-street, Scunthorpe	,, 20
Rishworth—Cottage at Green Reservoir	Wakefield Corporation	C. C. Smith, M.I.C.E., Waterworks Eng., Town Hall, Wakefield	,, 20
Mallow—Residence, Short Castle		W. H. Hill and Sons, Architects, 28, South Mall, Cork	,, 21
Birkenhead—Additions to Workhouse Main Block	Guardians	E. Kirby and Sons, Architects, 5, Cook-street, Liverpool	,, 21
Milnthorpe—Residence, Garage, and Motor Car Works	John Fawcett	John F. Curwen, F.R.I.B.A., F.S.A., 26, Highgate, Kendal	,, 23
Bath—Engine House, Midland-road	Corporation	W. H. Radford, C.E., Albion Chambers, King-st., Nottingham	,, 25
Swansea—Additions to Morriston School, Neath-road	Education Committee	A. W. Halden, Clerk, 9, Grove-place, Swansea	,, 27
Yarmouth, I.W.—Repairs to St. James's Church Tower	Churchwardens	Harry Mills and Sons, Yarmouth, Isle of Wight	No date
Shipley—Detached Residence, Staveley-road	J. R. Fyre	W. Wilcock and Son, Architects, 9, Leeds-road, Bradford	do.
Rowlands Gill—Four Cottages at Highfield	Burnopfield Co-op. Society	A. C. Wood, Architect, Burnopfield	do.
Patricroft—Renovating Premises	Mechanic's Perm. Building Soc.	J. Morgan, 16, Gwalia-terrace, Hanley, Staffs.	do.
Leeds—Picture Pavilion, Dewsbury-road		G. F. Bowman, Architect, 5, Greek-street, Leeds	do.
Easington—Business Premises	C. W. Powell	James Garry, F.R.I.B.A., 47, Church-street, West Hartlepool	do.
Buxton—Bungalow, Staden-lane	H. Perks	G. E. Garlick, Architect, Quadrant Chambers, Buxton	do.
Bingley—Detached Residence		Nunns and Bracewell, Architects, Bank Chambers, Bingley	do.
Adwick-le-Street—Factory Buildings		W. H. Wagstaff, Architect, 4, Priory-place, Doncaster	do.
St. Bees—Cloakroom, &c., at Schools	Cumberland Education Committee	J. Forster, Clerk of Works, 13, Earl-street, Carlisle	do.
Llanwrtyd—New Gasworks		D. Rees Edmunds, Solicitor, 9, Hall-street, Llanelly	do.
Leeds—Extension of Textile Buildings at University		Paul Waterhouse, Architect, Staple Inn-buildings, High Holborn	do.
Ashton-under-Lyne—Disinfecting Station	Corporation	Eaton, Sons, and Cantrell, Archts., Stamford-st., Ashton-u-Lyne	do.
Castleford—Offices	Glass Houghton Collieries, Ltd.	Garsade and Pennington, Architects, Ropergate, Pontefract	do.
Irthington—Cloakroom, &c., at Schools	Cumberland Education Committee	J. Forster, Clerk of Works, 13, Earl-street, Carlisle	do.
Kidwelly—New Gasworks		D. Rees Edmunds, Solicitor, 9, Hall-street, Llanelly	do.
Stranraer—Alterations at Academy school		H. and D. Barclay, Architects, 245, St. Vincent-street, Glasgow	do.
Shotton Bridge—House	Rev. E. Fenton	Stephen Wilkinson & Crowley, A.A.R.I.B.A., Newcastle-on-Tyne	do.
Macclesfield—Alterations at Infirmary	Governors	H. E. Hanrahan, Secretary, General Infirmary, Macclesfield	do.
Crook—Alterations to Dawson-street P.M. Church		T. W. T. Richardson, M.S.A., 57, High-street, Stockton-on-Tees	do.

ELECTRICAL PLANT.

Bacup—Cables	Corporation	Joseph Entwistle, Town Clerk, Bacup	Feb. 5
Sydney, N.S.W.—Arc Lamp Carbons	Municipal Authorities	The Town Clerk, Town Hall, Sydney, New South Wales	,, 6
Calcutta—Switchboards	Electric Supply Corporation, Ltd.	Francis R. Reeves, Sec., Salisbury House, London Wall, E.C.	,, 6
Glasgow—Wiring and Fittings to Slaughter Houses, Hill-st.	Corporation	W. W. Lackie, Engineer, Waterloo-street, Glasgow	,, 6
Melbourne, Australia—Ironclad Indicators (250)		The Deputy Postmaster-General, Melbourne	,, 7
Leek—Plant	Urban District Council	R. M. Carr, A.M.I.E.E., Electricity Works, Leek, Staffs	,, 9
Ipswich—Generating Plant	Corporation	F. Ayton, M.I.E.E., Manager, Ipswich	,, 9
Barnes—Plant	Urban District Council	C. S. Davidson, Engineer, Electricity Works, Mortlake, S.W.	,, 13

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THE BUILDING NEWS

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OUR ILLUSTRATIONS.

Disinfecting Station and Staff Dwellings for the City Council, Westminster, at Chelsea. Mr. John Murray, F.R.I.B.A., Architect.

Royal Institute of British Architects Soane Medallion Competition. Elevation of River Façade; Section of Gatehouse and Details. Design for a Gateway to a Capital City. By Mr. Prentice Mawson.

Royal Institute of British Architects. A Campo Santo on a Rocky Island. Prize Design by Mr. George Herbert Foggitt. Hon. Mention Design by Mr. W. G. Newton.

Rood Screen, All Saints' Church, Benhilton, Surrey. (The late Mr. L. G. Detmar, A.R.I.B.A., Architect.) Made by Messrs. Harry Hems and Sons, of Exeter.

Benwell Parish Hall, Newcastle-on-Tyne. Mr. Charles S. Errington, A.R.I.B.A., Architect.

Plan of London Bridge Improvement.

Cliff Castles and Cave Dwellings.

The Proposed "Desecration."

CORONATIONS—PAST AND POSSIBLE.

If London, in this 20th century, big as it is, yet belonged to the same sort of people, with the same sort of training, as those who filled its streets in the 15th century, it might be well to leave each district pretty much to its own individual devices on the Coronation day. English individuality has not quite expired, though it deals more now with the material side of things than with that with the imaginative one. The more prosperous it grows the less inventive it becomes. Like the thriving tradesman whom Pope commemorates, who had always had a pudding at his Sunday's dinner, all the inspiration he derived from wealth was this: that on the first day of the week "*two* puddings smoked upon his board." How very English! How characteristic of the modern spirit: how typical of that lack of judgment which will think it a great thing done, if a few more miles of streets are "decorated," as people call it, at this Coronation than at the last, and a few more million cubic feet of gas burned in staring, blinding illuminations! The little oil lamps of coloured glass our grandfathers liked, and which a few of us can remember, sparkled like jewels, were beautiful and varied in colour, and could be made into soft and admirable harmonies. But it is a rare thing to see them now: partly because it needs skill and taste to arrange them, and partly because when they are so arranged they are pleasant and quiet in effect, and burn nobody's eyes out at a mile, or even half a mile, away. Probably they are beyond the grasp of this generation, which is content with stock patterns and colours, and flashlight advertisements, ten thousand times repeated. And all this is after more than sixty years' "artistic" misleading of the people by lectures and museums and schools of art! A man here and there may have profited, and may still profit, by these appliances; but where are the workmen they have trained? Where are the men who can *make* something fresh? They ought to be to the fore in a great national function. But who hears any tidings of them to-day? Has soulless machinery quite superseded them?

One of Shakespeare's plays opens with a royal funeral—that of Henry V., in Westminster Abbey. But not one of them gives a prominent place to an English Coronation. The master dealt with live men and women, and not with scenery: and a Coronation scene on the stage must be largely made up of scene-painting and supernumeraries. Mr. Pepys, with his observant eye and his minute memory for what seem small matters, tells us a good deal about the "Coronaçon" of Charles II. on April 23, 1661; but, unfortunately, not very much of what was to be seen in the streets and amongst the multitude. He rose at four, and got to the Abbey, and, by favour of the surveyor, Sir John Denham, went into a great scaffold across the north transept, where he sat with patience "till eleven, when the King came in." The Abbey "floor was raised in the middle, all covered with red, and a throne (that is, a chair), and footstools on it"; and all the officers of all kinds, down to the very fiddlers, were in red vests. "At last comes in the Dean and Prebends of Westminster, with the Bishops, many of them in gold copes; and after them the Nobility, all in their Parliament robes, which was a most magnificent sight." At the high altar in the quire the King passed through all the ceremonies, which to his great grief, Mr. Pepys, like most in the Abbey, could not see. On the previous day his Majesty had come from the Tower to Whitehall, "the streets all gravelled, and the houses hung with carpets before them made a brave show. "So glorious was the show with gold and silver that we were not able to look at it, our eyes at last being so much overcome." After he was crowned, the King came into Westminster Hall with his crown on, and his sceptre in his hand, under a canopy borne by six silver staves, and little bells at every end. Before the dinner, Lord Albemarle had to go to the kitchen and eat part of the first dish that was to go to the King's table. Mr. Pepys seems to have dined on bread, which he ate at a stall, "as everybody else did what they could get." There was a squabble between the King's footmen and the Barons of the Cinque Ports for the possession of the canopy already mentioned, in which the barons seem to have had the best of it. The fireworks were not let off on the Coronation night; but "the City had a light, like a glory round about it, with bonfires." People drank the King's health on their knees in the streets, and Mr. Pepys "wondered to see how the ladies did tipple, and will never trouble himself to see things of state and show henceforth—being certain never to see the like again in this world." Yet, five years after he saw a still grander and costlier spectacle the Great Fire of London.

The Coronations of the earlier Sovereigns have not often been described in much detail by their contemporaries—at least, as far as the streets are concerned. Richard I. was crowned, as Langtoft tells us, "on a Sonenday at Westminstere." His attendants stripped him, before the ceremony, to his trousers and shirt, the last being left open between the shoulders, "on account of the anointing." Then Baldwin, Archbishop of Canterbury, anointed him on the head, on the shoulders, and on the right side and conjured him in the name of God, forbidding him to take the crown unless he were firmly resolved in his heart to observe all the promises which he had sworn. Richard having replied, the Archbishop then crowned him, and he was led by two bishops to the choir, whence, having assumed a lighter crown and robes, he proceeded to the Coronation banquet. While the feast was in progress, the rabble outside found a pretext for attacking the Jews, and gave out that as the King was a Crusader this was done by his command. Fires broke out in various parts of the city, and spread from the Jews' houses to those of the Christians. At last the rabble quarrelled over the division of the booty: the ringleaders of the riot were hanged, "to encourage the others," and Richard issued a proclamation in which he promised the Jews his royal protection. This king, after his captivity abroad, subsequently had a second Coronation in England.

King John was crowned at Westminster on May 27, 1199, after a show of popular election, the previous King having died without issue. At a later period Edward IV. had his title to the throne confirmed by the same sort of formality, and was then crowned at Westminster, after a solemn procession from the City, on May 26, 1465. Preparations were made at a later period for the coronation of Edward V.; but the Lords and Commons both refused to accept any of the late King's sons as their Sovereign, and the Duke of Gloucester was crowned as Richard III. on July 5, 1463. His duchess was crowned as Queen at the same time. They both received the Sacrament, "and divided the consecrated wafer between them." Henry V.'s coronation took place on April 9, 1413, which, being Passion Sunday, "the coronation feast was all of fish: eels in burneus, pike in herbage, crabs and lobsters, trout, codling, and fried place," but seemingly no salmon at all. Turbot appeared on the table at the third course, with sturgeon and whelks, "crévesse de l'eau douce" (perhaps freshwater crayfish), porperous roasted, and carp deoze; also halibut, gurnard, smelts fried, besides dates in compost, marchpane, and other confectionery. There was also an image of

St. Catherine (the queen's patron saint) with a wheel in one hand and a sword with this posie on the other:

[illegible]

Henry VI. was crowned [illegible] November [illegible] 1429, [illegible] nine years [illegible] he was crowned [illegible] Paris. We [illegible] kings and [illegible] by reckoning [illegible] Henry VII. [illegible] coronation, on [illegible] 1485, [illegible] one respect [illegible] Queen, who [illegible] Later. She [illegible] from Placentia [illegible] the Tower of [illegible] May in the Sheriffs' [illegible] the City Companies [illegible] barges [illegible] with [illegible] pennons and streamers. One barge, called the Mayor's barge, contained an immense [illegible] fraction, which spouted out streams of wine into the Thames. When, next day, the Queen rode through the City, bands of children, dressed as angels, were stationed in different places who sang hymns and songs as she passed; so that altogether, London at this coronation seems to have hit upon several new ideas.

But it was Henry VIII. who was particularly fond of pageantry and specially anxious about the details of his own coronation procession. It took place on June 22, 1509. The streets were hung with drapery and cloth of arras, except that the south side of Cheapside and part of Cornhill were hung with cloth of gold. The Companies and the civil dignitaries lined the streets. The King wore a robe of crimson velvet lined with ermine, a jacket of raised gold embroidered with diamonds, pearls, rubies, emeralds, and other large jewels. The knights and squires attending on him were in scarlet; the priests and clerks in rich copes, and the gentlemen and household servants also in scarlet. Katherine of Arragon sat in her litter, drawn by two white palfreys with trappings of "white cloth of gold." As the custom was through several reigns, the King stayed at the Tower of London for two or three days before the coronation, and on his day rode through the City to Westminster. In the case of Henry VIII. there were brilliant pausts and tableaux, which the King and Queen witnessed from a fair house hung with tapestries. In this palace [illegible] made a curious fountain and [illegible] castle at the top whereof was a [illegible] crowne imperiall embattled with [illegible] and pomegranates gilded." There were [illegible] heads [illegible] the mouth of which ran [illegible] wine white wine and claret. But it was only on the days of the [illegible] and in that of the coronation and bid not come up to the extravagant idea of Jack Cade which, of course, he never did), that for a year after he became King the streets of London should run nothing but red." On the second day of the [illegible] a company of men in green, like foresters, [illegible] brought in a pageant like a park, with green and white paling enclosing artificial trees, herbs, and vines, and also a number of live deer. When the deer of the park were spent, the deer ran into the palace, and greyhounds were let [illegible] to kill them, a very unsportsmanlike proceeding which was doubtless much to the taste of good Henry VIII.

Anne Boleyn's coronation was on June 1, 1533. The most notable part of it was said to be the pageants got up to honour her as she passed from the Tower through the City on the way to Westminster. In Fenchurch-street children dressed as foreign merchants welcomed her with addresses in French and English. In Gracechurch-street there was a representation of Mount Parnassus and the Fountain of Helicon, which rather inappropriately discharged Rhenish wine. In Leadenhall-street was a "type" whatever that may mean) and a heavenly one, and out of the "type" came a falcon all in white and sat upon the rose; after which, "there came an angel, with great melodie, and set a crown of gold on the falcon's head." On the Conduit in Cheapside sat the Three Graces, and the Conduit ran with wine. A little further on, Pallas, Juno, and Vesta were condescending enough to mingle with the City authorities, and the recorder presented the queen with a thousand marks of gold. The four Cardinal Virtues took their stand on the Conduit in Fleet-street, which also ran wine, as was the custom of the day. Perhaps, even at that distant period, much of it was of British manufacture. The four Virtues, when they sang, "made a heavenly noise." The coronation of Edward VI. was on February 20, 1546, when the king called, as history carefully relates, for the Bible, in addition to the three swords of State. Not much is told us as to the other formalities of the occasion, except that "one Argasine" came from the battlements of Paul's church by a cable made fast to an anchor by the dean's gate. At Queen Mary's coronation, "one Peter, a Dutchman, stood on the weathercock of St. Paul's" (of course, of old St. Paul's, which was destroyed by the Great Fire) "and made two scaffolds under him set with streamers and torches." The torches, however, would not burn, as the wind was so great. The Conduits, as had now become customary, ran with wine. Three pageants were displayed in Fenchurch-street by Italian merchants, one of them consisting of a lofty tower with an angel on the top, who lifted a trumpet to his mouth when ever a mortal trumpeter, concealed below, actually blew a blast. When, at Queen Elizabeth's coronation, she went in state from the Tower to Westminster, the Tower guns fired a salute as she passed into Tower-street. The statues of Gog and and Magog were removed for the time to decorate Temple Bar. The regular things were said in the procession about the maintenance of truth and the rooting out of error, and the queen now and then "held up her hands to heaven and willed the people to say Amen." On the following day, January 15, 1559, she was crowned at Westminster Abbey. The streets were now laid with gravel and blue cloth, and railed in on each side. All the bishops but one, Bishop Oglethorpe, of Carlisle, refused to have anything to do with the coronation of Elizabeth. The See of Canterbury was then vacant, so that the duty properly devolved on the Archbishop of York, but he declined to undertake it. After the ceremony her majesty changed her apparel, and was conducted from the Abbey to Westminster Hall, where she dined.

James I. was crowned on July 25, 1603. Because of the plague, there was no procession to Westminster, and for the same reason everyone, except the Lord Mayor, the aldermen, and twelve chief citizens of London, were forbidden by proclamation to attend the ceremony. There was no procession either, on February 5, 1626, for the same reason when Charles I. was crowned. This king wore a white dress, contrary to precedent. In 1633 he was crowned King of Scotland at Edinburgh, with great splendour, many pageants, and a triumphal arch, under which were symbolised characters representing the City of Edinburgh, Religion, and Justice trampling over Oppression. The usual wearisome speeches were made to the sovereign, which must have been tedious enough to hear, and would now be more tedious still to read. We have already referred to the doings at Charles II.'s coronation, with which this list began.

"There n'is no newe guise that n'is not old," says Chaucer in the Knight's Tale, talking for once into that French fashion of double negatives which some of his early critics accused him of using much oftener than he actually did. That many old fashions come back in time is what we all know; but which of the old ones we have glanced at, in street decorations, could fitly be revived for a new coronation, or can nobody devise a new one? A procession by water would be new enough since it is more than 400 years since the queen of Henry VII. came that way from the Tower to Westminster, and with a sailor King it would hardly be out of place. But how, if there were no other objection, could all the spectators find places? There are only the Embankment, the bridges, the houses on each side which face the river, and the street-ends which open on to it, and it is doubtful whether the iron bridges would be safe with such unprecedented crowds, which would be sure to cross from side to side of the bridge the moment the procession had passed. The bridges themselves, with their arches and parapets outlined in lights, and the riverside buildings with their towers treated in like manner, might be very beautiful at night. The City steeples, too, might be made fairylike if hung with small lamps, and the dome of St. Paul's magnificent; but, though it would be excellent and mostly new, and would find work for thousands of men who are unemployed, the country, we are told, cannot afford it. There are two ways, diametrically opposite, of looking at the question: the cultured man's way, and the contractor's way; and modern England always follows the contractor, puts a lot of money in his pocket, and gets nothing worth having in return. The contractor, like the manufacturer, is mainly a man of one idea. When he has once hit on something that the public will put up with, all he aims at and all he wishes for is to go on making that same thing for ever—miles of Venetian poles, millions of electric lights and gas lights and flags, distributed without skill or thought or invention along the thoroughfares he has to "decorate." His notion is "the same thing everywhere, and plenty of it," for that, of course, is "what pays." What he wants is not to make London admirable on this great occasion or to raise its standard of taste, or to raise it to anything more than a great mindless machine, but simply to make his own fortune. And the sordid part of the population will sympathise with him, and will not be very hopeful or very desirous that anything new or striking will appear. The contractor does not want decorations concentrated on important spots which is exactly what artistic people do want. This would require thought and good taste, and invention, which are all scarce enough in the England of to-day. What would suit the contractor is a uniform, mechanical, mindless expenditure of what money is to be got; so many miles of wearisome, stale stuff which nobody cares for—it takes a particle of delight in, at so many pounds per mile. This is what he calls "a good general effect along the line of route" good for *him*, no doubt. We all know what these good general effects are; and if these are all we can accomplish after generations of artistic training, then let us die, for we are not merely no better than our fathers, but not one tenth part as good.

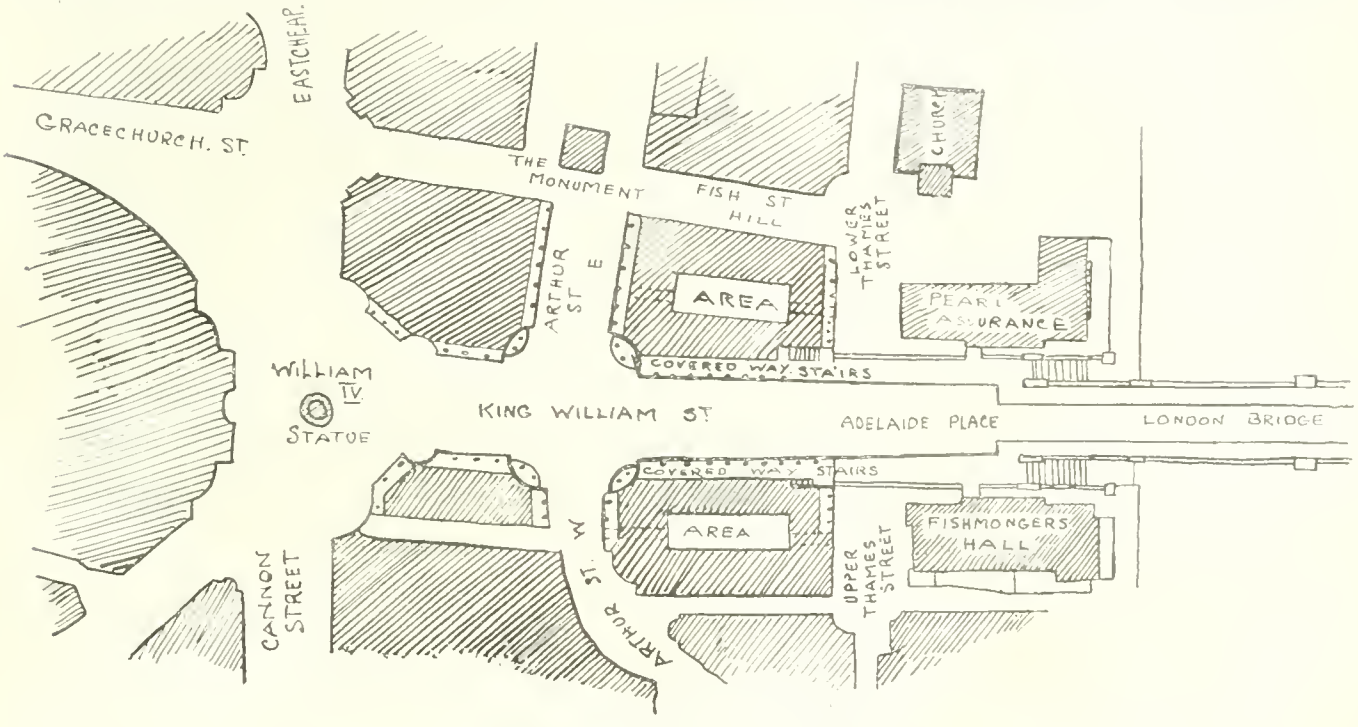
The first thing to do, it seems, is to keep the contractor where he ought to be. Like fire, he may be the best of servants in his right place; but out of it he is assuredly the worst of masters. How he got out of it, and came to be "the boss of the whole show" in street decorations, anybody with time and opportunity might do worse than investigate. That obviously is not his place. It may be the most profitable place *for him*, the place from which he may most quickly rise to personal honours and decorations; but it is not where he can serve his country best, even if he were capable of serving it as a decorator, which it would seem, from the results, he hardly ever is. What London wants is a number of competent men—young men, especially—each appointed to take up a section of the streets to be decorated, and to deal with them in their own way. And, above all things, it will not do to set a committee of "heavy fathers" over him. This is the standing national mistake. Before anybody with an idea in his head worth carrying out can set to work on it, he has to be held in and limited by ten or twenty rest, who has been privately decided on beforehand, and it may be they will soon cease, except for religious bodies and the like, who seem to be *super-conscientium*, just as a certain emperor once claimed to be "*super grammaticam*."

This Coronation seems destined for "leafy June," and instead of endless Venetian masts and the like, of which everybody (unless he is a contractor) must already have had much more than enough, we might, at least, in some sections of the London streets, have leaves and flowers as a background to the scarlet-clad figures who are to march past them. It is a rare thing to meet with anyone, not a scene-painter or an artist, who has any idea how completely a background may mar or make the success of a great ceremonial. If it mars it, the public press will never discover what is wrong: it will lay the blame on English unfitness to manage great effects. If, on the other hand, the background, with its contrasting tones and colours, proves the making of the whole thing, no one will find it out, unless perhaps a painter here and there amongst

not an unwelcome one to men "in populous cities pent." And late in June, when frosts are over for the summer, much of the Indian flora might be safe out of doors for a few days, and most of the Colonial; so that Indian and Colonial buildings might be treated accordingly. But such things take time, even in an age of hustle and bustle; and nothing better than costly failures and tedious splendours, which, as Mr. Pepys said, "we were not able to look at, our eyes at last being so much overcome," can be expected from the mere "contractor," who purposely drives preparations off till the last moment, and who, if his country were wise, would be driven off himself, and his place filled by a thousand better men, with their hearts and their inventive powers all in this great festival.

LONDON BRIDGE IMPROVEMENT.

Within the next two years, the Northern approach to London Bridge will be altered beyond recognition, if the improvement scheme at present under discussion by the



LONDON BRIDGE IMPROVEMENT.

highly respectable, but, for the work that is given them, densely stupid, people, to whom all ideas are a novelty, and who hate all novelties like poison. He pulls one way, and they pull the other—like ten hippopotami against one swimmer; and, of course, the hippopotami gain the day, even if they don't drown the swimmer. Yet there must be some court of appeal, seeing all men are fallible, and men with ideas are no less fallible than men without. Three artistic men of good commonsense would be enough for such a final court; and, given these, the directing artists could be searched for all over the country, and appointed, the sooner the better. Let them select, as far as possible, their own spheres of action, and then get to work, the sooner the better. They might be anybody with brains, with ideas, and with training, from R.A.'s down to working men; and the sooner they are selected, the sooner they can begin devising their different plans. We do not recommend a competition on paper. Paper competitions have a way of leading to the selection of some competitor probably no abler than the

the crowd; and all the honours and all the thanks will go to the prominent figures, who, with a different background, would have been hardly noticeable. And again, as to important buildings and spots for which prominence is desired, masses of flowers, not worn, wilted, and dusty, but growing freshly in earth, would eclipse by their brightness even the staring colours the chemist produces from coal-tar. Nobody, probably, will want to carpet the muddy streets of London; few people will hang their house-fronts with cloth-of-gold; but many people, even in poor neighbourhoods, could brighten them with flowers, large enough to be seen from below, and high enough up to be beyond the reach of the juvenile Nihilist, whether he was produced in England or abroad. And many flowers are scented, or used to be, till a foolish fashion grew up of growing scentless roses for their shape alone, and scentless mignonette plants merely for the bigness of their unlovely blossoms. A whiff of country scents, of roses, pinks, carnations, or even of meadowsweet, field-beans, fresh hay, and honeysuckle, would be a new thing, perhaps, at a Coronation, though

City Corporation, is carried into effect. It is proposed by this scheme to make a radical change in the existing conditions and to give the Northern approach a dignity and appearance, worthy of its position at the entrance to the city. The leases of the large block of buildings opposite Fishmongers' Hall, known as Adelaide Buildings, will shortly expire, and there is a feeling in the Ward—perhaps the most ancient and historic of them all—that the site should be advantageously utilised. The site has a frontage to the river, just above Fresh Wharf, and, from a commercial point of view is one of the finest on the Thames.

The accompanying sketch shows roughly the plan of rebuilding, and the treatment of the approach as a whole, which has been prepared by Mr. W. D. Caröe the architect to the Ecclesiastical Commissioners. The plan would necessitate the addition of an attic to Fishmongers' Hall, while the building to be erected on the site of Adelaide Buildings would be of such a style and character as to harmonise with the Classic features of the Hall of the Ancient Company of Fishmongers. A

general widening of the roadway would be carried out, and the footways made to pass beneath arcades. At the junction of the two Arthur streets, it is proposed to form a circus, while as a result of these alterations and improvements, the handsome church of St. Magnus the Martyr and the Monument will be quite visible from King William-street and Cornhill-street. The present [illegible] subways leading down to London Bridge will be entirely done away with, and a subway to London and Upper Thames-street will be in keeping with the rest of the scheme.

If Mr. Cato's suggestions are carried out, the present unsightly area will be transformed into a dignified and impressive picture of Classic design. Again, London Bridge, by its natural position, is one of the best commercial centres for merchants and shippers in the city, and the increase in business which would undoubtedly accrue from these alterations surely justifies their expense.

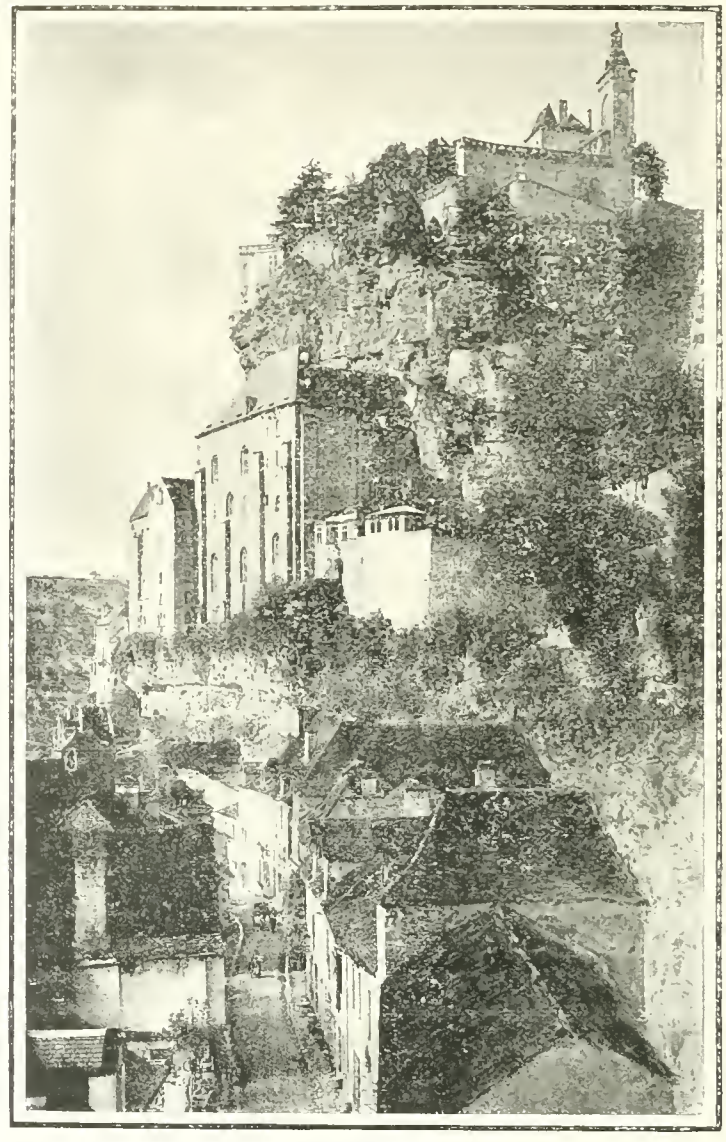
CLIFF CASTLES AND CAVE DWELLINGS.*

Whether, indeed, the first homes of men were in the chalk we are not so sure as is Mr. Baring Gould. His arguments, to say the least, seem to us a little incongruous. On p. 19 he founds his evidence on the Garden of Eden, "undisputably on the chalk," where man found "all his first demands supplied." Three or four pages further on he frankly accepts the evidence patent to most of us that man was contemporary with the mammoth, and that it has entirely upset the chronology which postulates "that man was created 4,004 B.C." We who believe unhesitatingly with Viollet le Duc, that in the "habitations of man" we may trace more surely than by most other evidence his development and progress, are disposed to look, even in Asia, for other indications of the gradual adaptability with which man learned to seek protection from the weather and from his enemies, suiting his needs to circumstances, and reaching here and there, as in Greece, ideals of form and beauty which remain the unequalled and unapproachable traditions of the past.

That, all the globe over, the cave or cliff cavern has largely furnished the dwelling of the harassed and the less enterprising of mankind is, of course, true; but that "a merciful Providence" had much to do with it we doubt, or that "the last men, with the instinct implanted in them from the first and never eradicated, will fly to the earth as a hiding-place just as a frightened child flies to the lap of its mother," seems to us a little unlikely—hardly less so than that they may fly to the moon in some era when aerial travel offers possible escape from some terrestrial cataclysm. That, however, is a speculative contingency, as nebulous as Mr. Baring Gould's conviction that all men were troglodytes once, and that they will some day become such again. More to the purpose is the well deserved recognition of the fact that Mr. Baring Gould has compiled a most interesting record of the numerous cave and cliff dwellers of all times, and if, like Herodotus of old, he sometimes accepts and repeats stories and draws inferences therefrom with something like childlike faith and purpose, nobody will deny the patent industry with which he has collected his facts, and the skill with which he has woven them into his interesting narrative.

It is, no doubt, true, as Mr. Baring Gould says, that even to-day there "is an underlying vein of the savage in all of us," and that many of us would delight to play Robinson Crusoe. The rich man goes out to Africa to shoot game; the poor man goes on tramp. Here and there, indeed, in England, like the man who died at Market Drayton only last May, he dies by the roadside near the mouth of his cave, in spite of any local sanitary by-laws, which with most of us are possibly more potent than the quotations of Mr. Baring Gould from the prophecies of Isaiah and the Apocalypse, which he deems "significant." The ordinary middle-class man, we suspect at any rate, in crowded cities, or where lodging-house-keepers are making hay at the seaside in the season—will often regard regretfully the holes in the cliffs, of whose former tenants Mr. Baring Gould tells such interesting stories. If so, the dull times in the building trades will continue and increase; but ground-rents, even of "holes in the rocks and caves in the earth," will go up accordingly.

From perhaps still more formidable enemies, doubtless the Mediæval troglodyte of Europe had but too dire need to shelter himself. Those of us who believe in "the good old times," and that the world grows worse and worse each century, may read with profit Mr. Baring Gould's well written summaries of the state of society from the dawn of the Christian era right down to the 18th century, which drove men, women, and children into shelter in the bowels of the earth, or the inaccessible fastnesses of the rocks, from the hideous and implacable cruelty, not merely of the Hun and the Saracen, but from models of clemency and probity like Vespasian, and patterns of chivalrous sanctity like the returning Crusaders. Our own Sovereigns were not a bit better. That "meek usurper" Henry VI., or his adherents, possibly drove more outlaws into "robber-dens than Humphrey Kynaston, who for years made his rock-refuge in the cliff of Ness the base of his predatory operations." Really, of all Mr. Baring Gould's stories, the only pleasant episodes concern the habitants of the rock hermitages—Christian hermits, of course, for he has no patience with Buddhist recluses, of some of whom he draws harrowing pictures, enforcing the moral with the dictum of St. Teresa, whose vision of hell was not flames and torture, but "being planted opposite a blank wall, on which to gaze through all eternity." The comparatively short chapter on Subterranean Churches is also interesting. The book is well illustrated, most of the examples being well chosen and adequately represented. We reproduce two—one a castle at Habichstein, Bohemia, formerly belonging to Count Wallenstein, but now abandoned owing to the falling away of portions of the rock on which it was erected; and the other a picturesque group of chapels at Rocamadour, in France, in the Department of the Lot, clinging to the rock or dug out of it. The people there assure the visitor that



ROCAMADOUR.

* "Cliff Castles and Cave Dwellings of Europe. By S. Baring Gould, M.A. London: Seeley and Co., Ltd., 38, Great Russell-street, W.C. 12s. 6d."

HABICHSTEIN, BOHEMIA.

Zaccheus spent the last of his days there, having changed his name to Amator. Pope Martin V. says this was so; but his Holiness seems not to have found it out till 1427, and the story is, as Mr. Baring Gould points out, probably an appropriation from Lucca.

Taken as a whole, the volume well deserves a wide circle of readers, and will add to their obligations to the author, whose competence to instruct and interest is so admirably seconded by the painstaking research he undertakes in connection with his subject.

THE ARCHITECTURAL ASSOCIATION.

The fortnightly meeting of the Architectural Association was held on Monday evening, the President, Mr. Arthur Keen, F.R.I.B.A., in the chair.

GREEK BUILDINGS.

Professor W. R. Lethaby read a paper on this subject.

The lecturer dealt in detail with the origin of Greek architecture, and showed the continuity of Greek building customs from a very remote antiquity, dealt with the implication that nearly all was tradition, and next to nothing original design, and then examined some of the building customs. He showed that early walling was of crude brick or rubble strengthened by beams and posts of wood. Burnt brick is found in Crete. Fine ashlar masonry was built in Crete at least 2000 years B.C. The interior walls were covered with plastering. If temples were not built of marble, and comparatively few were, the masonry was covered by a thin coating of very fine plaster rubbed down to a smooth face to take the painting and gilding. Plastered temples were fully coloured with washes and ornamentation. Marble temples were part coloured and picked out. Even the figure sculpture was heightened with gilt bronze and painting. Greek mouldings were very few. There is the ovolo or echinus of the capital, and a similar roll or cushion which seems to be an essential part of a base. The Egyptian cavetto is found in terracotta roof-casings of an early date. Besides the main line of development into the mature marble architecture of the fifth and fourth centuries, there must have been several collateral traditions arising out of wood and crude brick construction. Even in the days of Vitruvius brick meant sun-dried clay, although burnt brick had been used in Egypt and Crete, and roofing tiles had been fired from an early period. This use of a material not impervious to rain seems to have led to the sheltering of the side walls by spreading the roof on to an external colonnade, originally a row of wooden posts. The walls were also plastered. A further step with this type of building was to extend the use of casings like the burnt tiles of the roof. In the Palace of Knossos there is a staircase rising in five returning flights. At Selinus the temple has a spiral turret stair. Careful drainage works were executed at Knossos with socketed pipes, and excellent inspection traps of the fourth century have been found at Priene. Ample evidence for large windows divided by mullions has been found in Crete. There are windows of the fifth century in the Propylæ at Athens, and some delicately ornamented fragments of window architraves from the Erechtheum are in the British Museum. The Tholos at Epidaurus also had windows. A late relief at the British Museum shows a two-light window divided by a mullion. Screens of metal or pierced lattices in slabs of marble were largely used. The spaces between the columns of temples were frequently enclosed in this way. Greek doors were of wood, bronze, or stone. The wood doors seem to have been panelled and of quite a modern type; they were studded with bronze nails and inlaid with ivory and ebony, or had panels of carved ivory and gold. The marble doors must have been delightful things; at the heel they were wrought with a globular pivot which worked accurately in a cavity. Heavy doors were made to open over metal quadrants inlaid in the pavement. The open doors folded flat against the wall, with a little flap to cover the ends exactly like good modern drawing-room shutters. The Greeks restricted themselves in the main to two types of columns, but there was much freedom in the use of them. A few years ago it was thought that the caryatide supports at the Erechtheum were a freak of design, but they were in use in the sixth century, and probably had even then a history, for the further we go back the nearer we got to a time when statues and pillars coalesce, and when the pillar was itself a sacred thing. Another very curious architectural member is the acroterion, which was set on the gables, sometimes one, and sometimes three. These were not late ornamental additions, but they seem to have been essential and important features from an early age. The developed form is usually much in the shape of a lyre with two strong horn-like branches, one on either hand, turning into scrolls and palmettes. It seems possible that they may derive from horns of consecration. Roofs were either covered with tiles—that is, large pantiles with covering rolls, or by marble copies of the same, wrought and adjusted with amazing precision. In the great period of the fifth century the aim after a perfect type led to standardising arrangements and forms and endeavouring to perfect them along a very straight line. But before the fifth century there are very wide variations in even the simple Doric type. Some temples had all the metopes sculptured, some only those at the ends. In planning and proportion there was constant change. These are varieties of type, but in the architecture of Ionia variation of detail was aimed at in the same building. In the sixth-century temple of Diana at Ephesus all the base profiles are separately designed, the shafts have different numbers of flutes, some even being narrow and wide alternately, and the Ionic capitals are varied like those in a Gothic church. In the much later Apollo temple near Miletus there is a similar intentional variety of details. There is no doubt that the Greek builders delighted in setting out their buildings and their several parts in dimensions which had relations one to another. The idea could only apply to simple buildings like a temple. At the bottom it comes very much to a liking for setting out with big dimensions rather than with small ones. As the building was to be perfect, every part was related, in theory, to every other part, and a unity was supposed to result because accident was excluded. The real proportions of a structure were, of course, determined by tradition, purpose, cost, situation, and materials, the rest was a slight modification superimposed afterwards, a getting rid of the half-inches, as it were. A lot of time has been spent in trying to elucidate Greek proportions, for the most part time wasted. The idea of looking for such proportions has been a most disturbing factor in the study of Greek buildings, and we hardly have accurate dimensions of any one in feet and inches, because the student was set on evolving some scheme of measures in the modulus of the diameter. Simplicity, cleanness, accuracy, repetition, the eye can estimate, but it takes no heed of the accuracy of the relation of eight to one, or the same with 2in. added or taken away. It is quite different with the modifications by curvature and other adjustments; here we have something tangible, if subtle. These modifications may be used to bring about unity. If the eight columns of a portico incline towards the axis, and there is some adjustment in the spacing, you do not have one factor repeated eight times, but together they make up one whole thing—a portico. Curvature of lines, again, furnishes an intermediate between the straight and the rounded, betwen cornices, columns, and sculptures. It takes off the hardness. It will correct any look of sagging in horizontal plans, and it varies the lighting on surfaces. Such adjustments are most natural in a highly refined school of architecture, and need no explanation. Greek architects seem to have been a queer lot of stonecutters,

THE WOODWORKER

SCREENS

PANELLED WORK

and most charming buildings of its kind that we possess from the point of view both of environment and design. The detail here is still Gothic, though the imported influences were even here beginning to make themselves apparent in such details as the pendants and brackets. Some, if not all, of the buildings were designed and executed by Richard Dale, a carpenter, who was clearly still under the influence of the English tradition, though the foreign influence was beginning to have its effect. The porch to the school-house at Weobley was the work of Robert Abel, who was responsible for a large amount of timber-building in that district. The half-timber work of the home counties was never elaborate, as in the West; the coved soffits, cusping and curved braces, worked into patterns, are not to be seen here, but simply the vertical and horizontal timbers and the curved brackets to the eaves. The half-timber work in England practically ceased in the seventeenth century, giving way to structures built of more permanent materials, such as brick or stone.

INIGO JONES AND THE RENAISSANCE.

After the Jacobean era a great change came over English architecture, brought about by the genius of one man, Inigo Jones, to whom we owe the introduction of the Renaissance proper, which altered the whole trend of our art; and he marks also another important epoch, which is the severance of the architect from the artificer. The type of woodwork and carving began to change from this date, the Classic treatment gradually becoming the accepted style, and it is wonderful to think of the possibility of such an entire change of type in one step. The character of panelling generally changed from this time; the panels became very much larger and the mouldings more elaborate, and what was merely a wooden wall covering in the earlier days became one of the most important features in the general scheme of decoration. One very important factor in woodwork which assisted much to change its character about this time was the employment of new kinds of timber. Oak had been the almost universal material, varied occasionally by the use of chestnut, up to the seventeenth century, in structural and decorative work. Rarer woods were doubtless used in furniture and smaller fittings; but after that time walnut and then mahogany came into favour, and softer woods with less pronounced grain were utilised for the carved work. It is obvious what an effect such a change in material must have on the methods and results of the wood-carver's work. The flat strap work and the carved ornament in low relief of Elizabeth's time gave way by degrees to the charming Classic designs and technical "tours de force" of Grinling Gibbons and Cibber, whose treatment of floral swags and pendants was wonderful in its truth to nature and technical skill. But before proceeding to discuss the work of Wren's time, we must not forget the connecting link between him and Inigo Jones—namely John Webb, who, as Jones's pupil, worked with him on many of his buildings, and carried out others of his own in very similar style. It seems extraordinary to us that at the time that Jones and Webb were carrying out such typical Renaissance work, woodwork of a Jacobean and even an Elizabethan type was still being actively executed; but it must be remembered that this Classic work directly inspired from Italy was very restricted, its influence being confined to one man and his pupils; but with the advent of Wren and his school the knowledge of Classic art was very widely disseminated, and the older types of work which had grown up in the country and been handed down traditionally from father to son among the English builders ceased to continue. In the hands of this school the treatment of woodwork was entirely changed, and a general composition was required in lieu of isolated features connected by a certain amount of wooden wall covering without much incident. During Wren's time we noticed the beginning of specialisation in the trades. Before Jones's time the architect, designer, builder, and tradesman, to use the word in its original sense, were one and the same. He then lifted the architect to a separate position, and in Wren's time not only were the various trades strongly defined, but the carver began to apply himself to work in some special material, such as Gibbons to woodwork, and Cibber to stone, and for the time being the resulting work was of the best, but afterwards slowly deteriorated.

THE DISSOCIATION OF COMPETITIVE DESIGNS AND TENDERS.

By R. W. Vawdrey, B.A., A.M.I.C.E., M.C.I.

The following is an abstract of a paper under the above title which was read by Mr. R. W. Vawdrey at the fourteenth ordinary general meeting of the Concrete Institute, held on Thursday, February 2, at 8 p.m., at Denison House, 296, Vauxhall Bridge-road, Westminster, S.W.

It was, said the author, continually being forced upon the notice of all those engaged in designing in reinforced concrete that the condition of the industry at the present time was very far from being such that the best work in design was the most successful or the most remunerative. In fact, he went so far as to say that a very considerable premium was placed on slovenly or reckless work as compared with conscientious, careful, and well-thought-out designing. He proposed, therefore, to deal with the subject in the following order:—(1) The description of the existing conditions; (2) the causes which have led up to them; (3) what he believed to be the remedy. He commenced by giving a few typical examples of what he considered unsatisfactory competition. From these it was seen that the specialist had usually to undertake the following work free of charge, and, moreover, to do it at the same time that a large number of his competitors were doing exactly the same thing:—(1) To prepare preliminary designs for the structure in accordance with the general conditions required by the engineer or architect in charge of the work. This often necessitated the specialist's obtaining information as to the site, nature of foundations, etc., at his own expense. (2) To prepare lists of quantities upon which contractors can tender, and to be financially responsible for the accuracy of these quantities—i.e., be prepared to pay the value of any omissions which may occur. He had also to accept financial responsibility for the stability of the structure. To the first of these items, in itself, there was, of course, no objection, as it is the work for which a specialist exists, though all the necessary information as to the site, etc., ought clearly to be supplied by the engineer or architect. The grievance lay in the fact that the specialist should be asked to do it for nothing, and at the same time that a large number of his competitors were doing the same thing. Given certain conditions, any number of equally competent and experienced designers would generally arrive at more or less the same result. The design, therefore, gained very little by such competition, while the designers lost a great deal. The second requirement, however—i.e., the preparation and guaranteeing of quantities at a preliminary stage of the work—was most objectionable, and was due entirely to the necessity, when the present methods were adopted, of enabling contractors to tender in competition before any particular design had been chosen. It was, no doubt, often advantageous, from the point of view of the prospective owner of a structure, that he should be able to invite competition in design as well as in price. Yet it was seldom that architects were asked to prepare competitive designs for any but large and important public buildings, and, so far as he was aware, to invite tenders for the construction of a building which had not yet been designed was absolutely unheard of when any material other than reinforced concrete was being considered. The most that was required in such cases, even when competitive designs were invited, was for an architect to produce his scheme as a whole, on the understanding that the successful competitor would be subsequently employed to carry out the work, or that the successful design might be purchased at a fixed price. But the case of the reinforced-concrete specialist was far different. He was invited not only to prepare a design, but to do so in sufficient detail to enable a number of contractors to tender for its construction, and it was for this purpose that it was usually necessary, in addition to the preparation of the design, to issue complete quantities. This was detailed work which ought not to be done until after the adoption of a particular design, and which should be paid for by the client, as it would be in almost any other circumstances. The specialist's grievance, however, did not end here. He was not only required to prepare quantities, but was also compelled to make himself financially responsible for the accuracy of his quantities and for the stability of the structure. An individual engineer or architect, designing under ordinary circumstances, was, of course, responsible for the accuracy of the quantities or designs which he produced; but, unless he could be convicted of culpable negligence, it would be unheard of to compel him to pay the contractor who might subsequently carry out the work for any portion which was not included in the quantities issued by him. We now came to the reason why this unsatisfactory state of affairs existed to a far greater extent in reinforced-concrete than in other classes of engineering or architectural work, such as steelwork, brickwork, masonry, etc. Briefly, it appears to be twofold—first, because reinforced concrete was of far more varied and general application than the other materials mentioned; and, secondly, because it was far more intricate in design. A reinforced structure had to be designed not only externally, but internally. The calculation of external dimensions of a beam formed only a small portion of the whole amount of designing which was required. It was the quantity and arrangement of the steel in the inside of the beam which formed the crux of the question; and for this reason the design of a reinforced concrete structure might be more nearly compared to the design of a piece of machinery than, let us say, to that of a masonry retaining-wall. Reinforced concrete differed entirely from anything that had preceded it. It was not a machine which could be manufactured and sold by those who have made a special study of it, nor was it a material the knowledge of which was simple and practically universal. It could, however, and eventually must be, used by almost all classes of engineers and architects, yet, unlike any other material of general application, its scientific use necessitated an amount of attentive study, and, above all, of practice, which could only be obtained by one who specialised in the subject. The ordinary constructional engineer or architect must therefore reconcile himself to the necessity of consulting a specialist if he wished to use the material in the best possible manner. The author supposed it was hardly necessary to say that in the use of the word "specialist" there was no intention to differentiate between an individual engineer and a commercial firm. The word was intended to include any man or firm who had given special attention to and had a large amount of experience in the design of reinforced concrete. *The Remedy.*—It was the underlying objection to the necessity for a specialist which had led to the confusion of the specialist designer with the contractor. This was, in his opinion, the root of the evil, and the remedy appeared to be in a dissociation of competition in design and competition in price. These were now almost invariably combined in one. If this combination could be avoided, he was convinced that it would be the better for the specialist designers, the architect, or engineer, and the owners of reinforced concrete structures alike. No doubt there might be many ways of obtaining the desired results; but the procedure which the author advocated was as follows:—When it was decided that a particular structure should be carried out in reinforced concrete, in all ordinary cases one reliable specialist firm, and one only, should be asked to prepare preliminary designs and

an estimate of cost, on the understanding that if that appeared satisfactory that firm should be employed to prepare complete working drawings for a definite fee, previously arranged, just as such drawings would be prepared by the engineer or architect himself if the material were brick or masonry or mass concrete, for which no specialist was necessary. When these drawings had been [illegible] and approved, and not before, tenders for the construction of the work should be invited from contractors. But [illegible] exceptions it might be [illegible] competitive designs for, as we say, an important masonry bridge, such might be in the case of a concrete structure, and a few firms should then be invited to prepare designs in competition. Where designs were invited in competition, a sum should be provided for payment to the unsuccessful competitors, as was frequently done in architectural competitions.

Discussion ensued, in which the following took part: Mr. C. F. Marsh, M.Inst.C.E., Mr. G. C. Workman, Mr. C. H. Colson, M.Inst.C.E., Mr. G. Corderoy, F.S.I., Mr. W. A. Haskins, Mr. L. Serrailher, Mr. T. B. Shore, Mr. E. F. Etchells, Mr. E. P. Wells, J.P., and Mr. Alexander Ross, M.Inst.C.E.

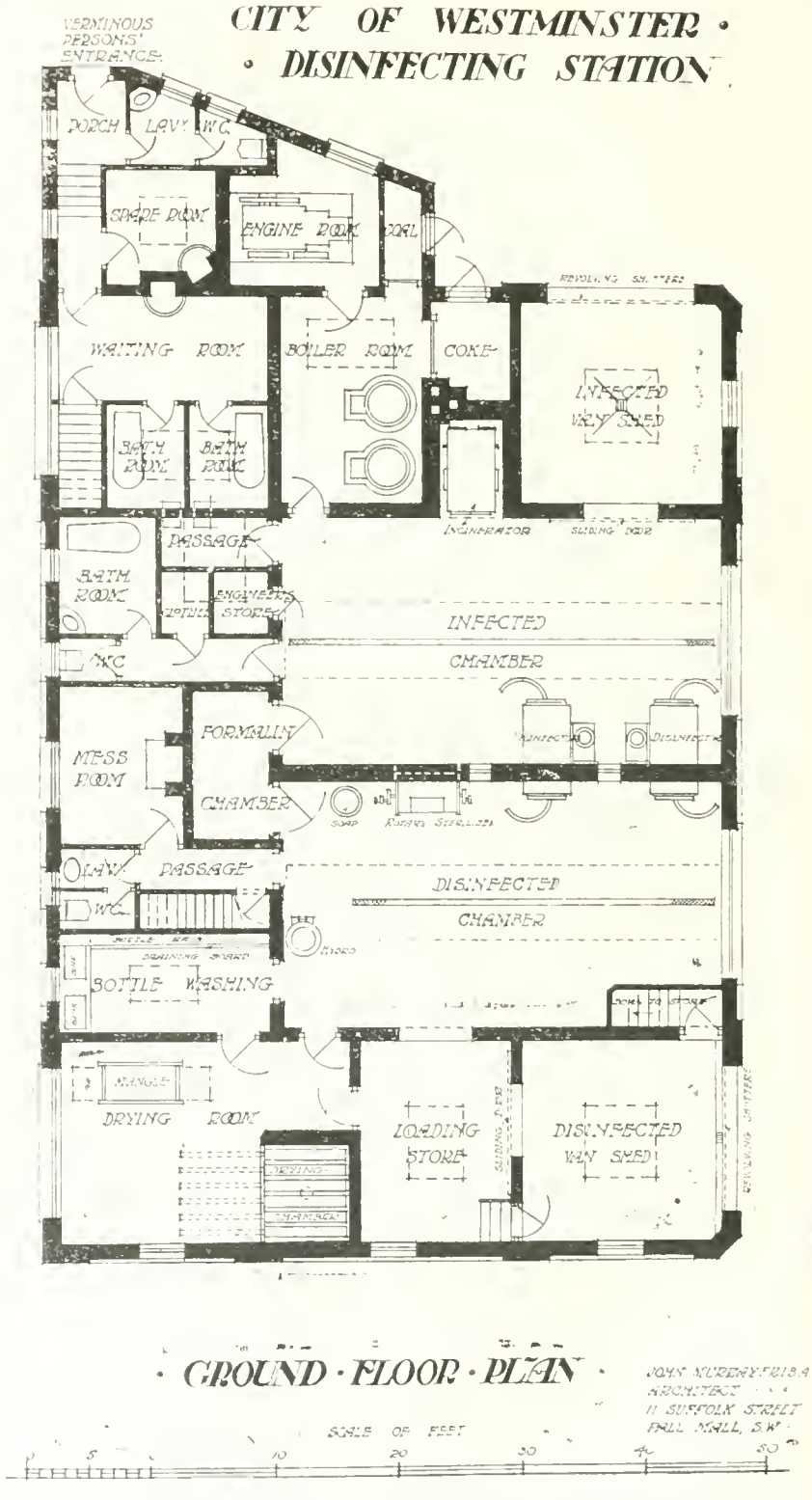
CITY OF WESTMINSTER NEW DISINFECTING STATION, HIGHWAYS OFFICE, AND STAFF DWELLINGS, GROSVENOR CANAL, CHELSEA.

[WITH ILLUSTRATIONS.]

This site on the Grosvenor Canal property is in an open position, well away from dwellings, and is approached both from the Chelsea Embankment and Gatliff road. Mr. John Murray, F.R.I.B.A., is the architect of the buildings, which comprise two blocks, one containing the disinfecting station, the other residences for the lockmaster, some of the disinfecting staff, and other employees, also an office for the highways department. The builder was Mr. C. F. Kearley, of Great Marlborough-street, whose tender of £9,921 was accepted out of fifteen firms competing. Messrs. Goddard, Massey, and Warner carried out the erection of the necessary fittings in the disinfecting chamber.

Externally the plinth of the station building is faced with red pressed bricks, the upper part with Crowborough and red-brick facings, red gauged arches, and Portland stone dressings. The interior is faced to a height of four feet with white glazed bricks, the walls above of all the rooms and the ceilings of the infected and disinfected chambers being lined with white tiles. The following accommodation is provided in the building: An "infected" van shed, for unloading infected articles. An "infected chamber," 36ft. by 20ft., for the reception of infected articles which will be placed directly into the disinfecting apparatus. A "disinfected chamber," 36ft. by 20ft., into which the goods which have been disinfected are discharged from the disinfecting apparatus. A loading store and "disinfected" van shed, from which the disinfected articles are despatched. A formalin chamber, accessible from the "infected" and "disinfected" chambers, 12ft. by 6ft. 3in., for the disinfecting of furniture and such articles as cannot be submitted to the action of steam; it is provided with a Ligner's apparatus for the generation of formaldehyd gas. A drying-room, 23ft. 6in. by 16ft. 6in., containing drying horses and a mangle. A bottle washing room, fitted with sinks, washing machine, and special shelves. Separate bathroom, lavatory, and messroom accommodation are provided for the staff. Store rooms in basement. A special and separate department is provided for the reception and cleansing of verminous persons. The verminous clothing is placed in airtight receptacles between the two bathrooms and the "infected" chamber, and from thence placed in the disinfectors and returned from the "disinfected" side to the bathrooms, the departments being connected by a basement passage.

Two steam disinfectors are provided, both having been removed from the council's other stations. The apparatus has an oval chamber, 7ft. long, 6ft. high, and 3ft. 7in. wide internally, with double walls forming a jacket round, and steel framed doors at each end. The object of the jacket is to heat the contents of the disinfecting cylinder before the steam is turned in, to prevent condensation and to assist in drying the contents after the steam has been withdrawn. Articles to be disinfected are placed inside the apparatus, and the air is extracted. This is to facilitate the penetration of the steam which is subsequently admitted under a pressure of 20lb. and at a temperature of 259° F. After the articles have been subjected to this for a sufficient period, the steam is allowed to escape and a second vacuum obtained, this being broken in its turn by hot pure air. Articles which are partially or wholly made with leather and furs, silks, letters, etc., cannot be subjected to steam without damage. These may be treated in the same machine either with dry heat alone or with formaldehyd gas. A special appliance is provided for the introduction of this gas, which may also be used in conjunction with steam. To each apparatus is attached a recording pressure-gauge, fitted with a chart on which a diagram of every operation is automatically registered. These charts are preserved, and afford a means of ascertaining the treatment to which the articles have been subjected. Articles of clothing, bed-linen, or which have been soiled with discharges, require to be soaked in cold water and washed before exposure to steam, which would fix any stain. A washing-machine has therefore been added. In many cases treatment therein will be sufficient disinfection, and on removal the washed articles will be placed in a hydro-extractor

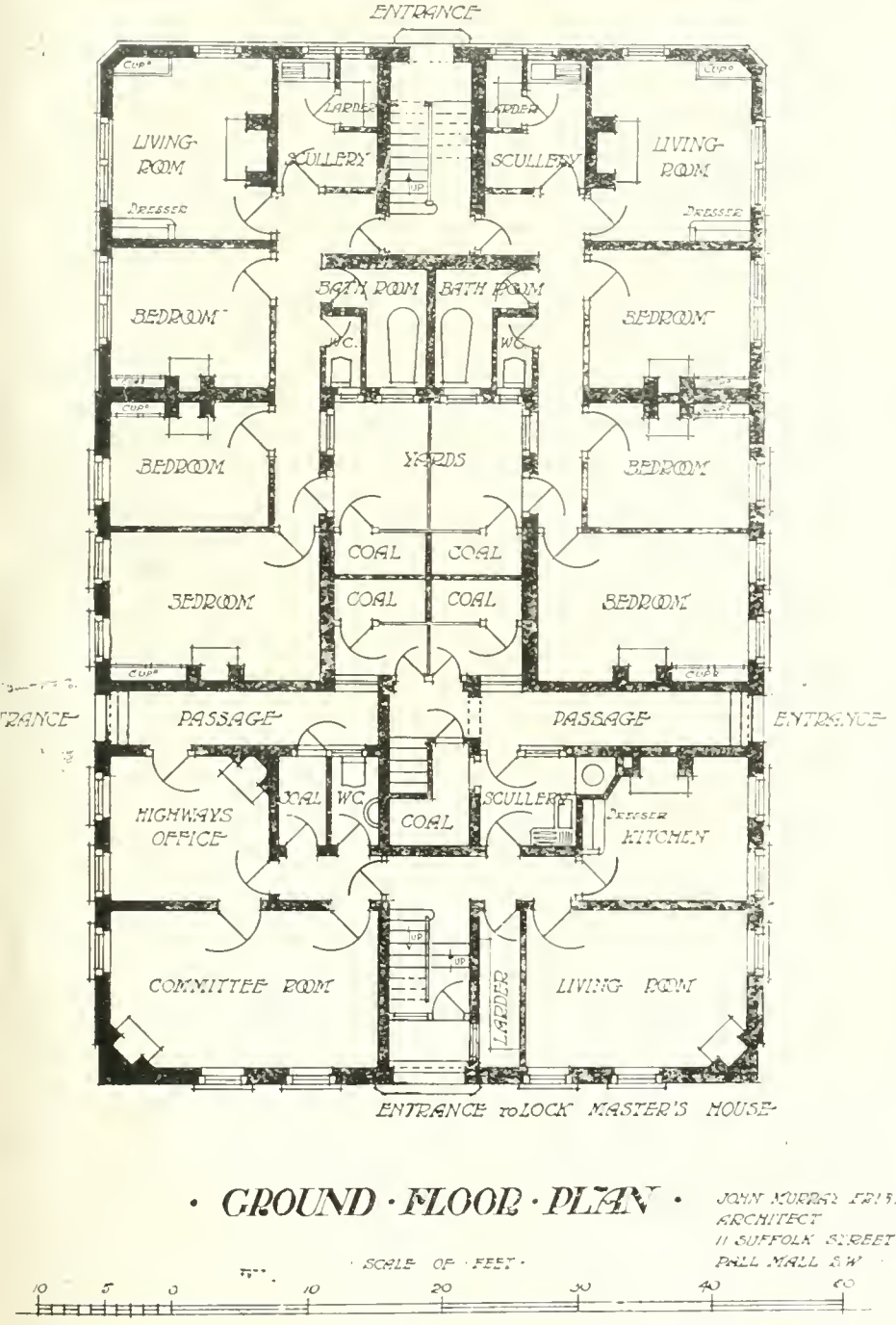


and afterwards in a drying-closet. For furniture and large articles a special room has been provided, in which formaldehyd, sulphurous acid gas, or other disinfectant may be applied.

The incinerator furnace is new, and is for the destruction of mattresses, clothing, etc., which are worn out or too filthy to clean. It is constructed of steel plates covering side and top, the interior being built up of fire-brick lining. It consists of a fire-grate, ash-pit, baffle wall, and flue. The smoke and fumes from articles burned are destroyed by being passed through the fire-grate. Power for driving the various machinery and plant is obtained by means of a horizontal steam-engine, driving by belt on to a main shaft extending the length of the building. Any machine may be started or stopped independently.

In erecting the dwellings for the staff and highways office, the materials used externally are similar to those in the disinfecting station. The mansard roof is covered with green slates, and the elevations are of a Georgian character. The block contains an office for the highways department, and seven dwellings with a central area, four of the dwellings being for disinfectors, two for highways employees, and one for the lock master.

CITY OF WESTMINSTER · · · · · DWELLINGS FOR STAFF



· GROUND · FLOOR · PLAN ·

JOHN MURRAY F.R.I.B.A. ARCHITECT 11 SUFFOLK STREET · PALL MALL S.W.

· SCALE OF FEET ·

10 5 0 10 20 30 40 60

There are four separate entrances: the west one for the disinfectors gives access to four flats, two being on the ground floor and two on the first floor over, connected by an artificial stone staircase, from the landings of which the four flats are entered. Each flat contains living-room, 13ft. by 12ft., fitted with range and gas-stove; scullery, 9ft. 6in. by 7ft. 9in., with sink and coalbox, and the larder adjoins; three bedrooms, the sizes of which are 16ft. by 11ft., 12ft. by 10ft. 6in., 12ft. by 9ft.; bathroom and w.c. On the flat asphalted roof over there are two common washhouses, each fitted with a copper. The entrance at the opposite or east side, facing the lock, gives access to the lockmaster's dwelling, containing on the ground floor, sitting-room, 20ft. by 11ft. 6in.; kitchen, 12ft. 6in. by 10ft. 6in., fitted with range and gas-stove; scullery, 7ft. 3in. by 6ft. 9in., with copper and sink; coal cellar and larder. An artificial stone staircase leads to the first floor, which contains four bedrooms, two being 20ft. 3in. by 12ft., one 16ft. 3in. by 11ft. 6in., and one 12ft. 6in. by 11ft. 6in.; bathroom and w.c. The entrance on the north side gives access to another artificial stone staircase, which leads up to two flats situated on the second floor over the lockmaster's rooms, each containing living room, 16ft. by 11ft. 3in., fitted with range and gas stove; scullery, 6ft. 9in. by 10ft. 9in., with sink and coalbox; three bedrooms, 11ft. 9in. by 12ft., 13ft. by 12ft., and 12ft. by 6ft. 9in.; bathroom and w.c. The entrance on the south side gives access to the highways office, 12ft. by 10ft. 6in., and committee room, 20ft. by 11ft. 6in., with lavatory and coal cellar adjoining. The central area is divided into four parts with a coalbox in each. The floors throughout are steel and concrete, the sculleries, bath rooms, w.c.'s, and corridors being finished with cement, and the floors of all other rooms are covered with deal boarding, bedded solidly in pitch and tar on the concrete. The walls internally are plastered. There are cement dados in the passages and living-rooms, and all the walls are finished in duresco. Hot water is laid on from the range to the bath and sink in each dwelling. Gas is laid on throughout and slot meters are provided. The dwellings are in telephonic connection with the city hall, and there is an extension from the foreman disinfector's room to the disinfecting station.

THE TOWN-PLANNING EXHIBITION AT CROSBY HALL.

A Cities and Town-Planning Exhibition was opened on Monday at the re-erected Crosby Hall in More's Gardens, Cheyne Walk, by the Right Hon. John Burns, M.P. The exhibition is on a smaller scale than that arranged at Burlington House in October last, under the auspices of the R.I.B.A., reproductions being shown in place of the large original plans. It is displayed in three distinct sections. In Gallery I., a temporary iron shed adjoining Crosby Hall, is hung a selection of typical town-planning schemes, those to the right of the entrance illustrating central streets and boulevards, and those to the left suburban schemes and garden villages. The large Gallery II., in the hall itself, is occupied with examples of city surveys preliminary to town development, the place of honour being given to the survey of Edinburgh, which has been extended since on view at Burlington House. This is accompanied by examples of the beginnings of surveys of such representative cities and towns as Salisbury and Oxford, by indications of the survey of industrial cities, and by an outline survey of the past, present, and future possibilities of Chelsea. On this floor also are shown schemes for city Utopias. In the third gallery, in the basement, is an incipient and necessarily imperfect attempt at an index-museum of the present position of the movement.

In inaugurating the exhibition, the President of the Local Government Board said that the exhibition was another manifestation of the growth of the movement, which in the last four or five years had spread more rapidly than any that he had seen in his long public life. He commended Aristotle's definition of a city, "A place where men could live a common life for noble ends." As one of the authors of the Housing and Town-Planning Bill, he could tell them that within the last month he had provisionally approved of the promotion of one town-planning scheme and was holding two other inquiries, the total area involved being no less than 10,000 acres. Beyond

CONVENTION OF AMERICAN ARCHITECTS

The sixty-fourth annual convention of the American Institute of Architects was held at San Francisco from January 17 to 21. Over 200 members and architects attended the evening reception on the opening day held in the Colonial Room of the Fairmont Hotel, and during the evening many words of praise for San Francisco's architects were heard for their part in the rehabilitation of San Francisco. The President, Mr Irving K Pond, of Chicago, in his annual address dwelt upon the accomplishments and needs of the Institute at length. In the course of his speech he said: "It is the province of the Institute to deal broadly and in detail with the principles underlying the science of building and the ideals underlying the art of design. To these is added, by the very character of the work, the necessity of taking cognisance of the ethics of business, for the Institute like the architect, cannot to-day, even if it would, withhold from intimate contact with the everyday current of commercial endeavour, but must be a factor to the great world of affairs. Commercial instinct gives way in the best cases to business idealism, but this is better than weakens the business integrity of the high-minded practitioner."

Subsequently, the board of directors was read by Robert Sturgis, of Boston and showed a membership of 1,084, as follows: Fellows 414; associates 664; honorary 7; corresponding members 86.

Twelve new chapters have been organised during the past year, one in New Orleans, the other in the State of Indiana. At the last convention the class of members was increased, and it was hoped the world at large would ample interest about all the annual business of the Institute. After paying into the reserve fund 1,624 added the amount ordered by the last convention and settling bills inherited from the last two years, which aggregated $6006.61. Such payment will not be necessary during the current year.

The æsthetic contribution of the evening was a paper on "Allied Arts" by Louis C Mullgardt, of San Francisco. The essayist treated largely of colour in architecture and in the course of his paper he said: "Perhaps we would find, upon investigation, that the cause of our present day architecture, usual, recently acquired. Some people wear red underwear, not because it is red, but because it is flannel. Thus it may be that we have inadvertently acquired some of the best use of colour in architecture because we want the material and the colour was unpremeditated incident to the result."

Mr Robert A Cram of Boston moved the reference back to the committee on education the necessity of spending a considerable number of days of architects in the country, the bringing into membership of the Institute itself of such architects as will command, wherever they may be, universal recognition as the representative and definitive expression of the architectural profession in the United States.

Much discussion arose upon a report submitted by Mr Frank Miles Day of Philadelphia, chairman of the committee on competitions, and read by Mr R Clipston Sturgis. The report sustained the new rule of the Institute that it shall be held unprofessional for any member to take part in any competition the programme of which has not received the full approval of the Institute.

The following were announced as nominees for officers of the Institute for the ensuing term: For president, Irving K Pond; first vice president, Walter Cook; second vice president, E M Wheelwright; secretary and treasurer, Glenn Brown; for directors, R S Hebbell, Thomas R Kimball, William B Mead, Milton M Medary, D H Perkins, A F Rosenheim, I C Young; three directors to be elected.

An historic table, famed as the one upon which the ratification of the Treaty of Ghent, which closed the War of 1812, was signed by President James Madison and a commission of which Henry Clay was one of the members, was lent by Mrs Alfred Hunter Voorhies, of San Francisco, to whom the table has descended, to the American Institute of Architects, for use during the convention.

THE EVOLUTION OF FIRE RESISTING CONSTRUCTION.*

By Wm Woodward, F R I B A (Fellow).

To the outside observer buildings are now erected apart from questions of architectural style and taste for the absence of them) much as they used to be; but the professional man knows that, to employ a well known expression, a "sort of" revolution has during the last fifty years or so taken place in fire resisting building construction. It has been truly said that there is nothing new under the sun, and I have little doubt that, if we could get at the beginnings, we should find that Noah's Ark was not entirely free from some kind of metal, although we know that there was no necessity for protection from fire so far as that particular structure was concerned. There is a passage in Revelation which reads: "And he shall rule them with a rod of iron, as the vessels of a potter shall they be broken to shivers, even as I received of my Father." This, I think, shows clearly that iron tools were in existence in those days. As early as 1865 we find Mr George Godwin reading a paper on the "Nature and Properties of Concrete" and on the architectural treatment of it. He showed how concrete had been used largely as a building material by all the principal civilisations of antiquity; how Alberti had described wall made of it, nearly in the same way as is done now, by moulding between boards; how Pliny had described cisterns made of it; and how many of our principal buildings, including St. Paul's and Westminster Abbey, stand upon concrete foundations dating from Roman and Saxon times. One wonders what our cathedrals would be like if the 12th and 13th century cathedral architects had known the uses and values of steel. They knew the value of iron tie rods, or we should not have so many as we have left to us of the beautiful monuments of their scientific and artistic achievements. The arcas of the points of support and the buttress resistance to thrusts of roof and vault are light enough as they are; but these grand old constructors would have probably, to an even greater extent than they have, afforded ground for wonder and admiration. Their grouped shafts in nave and aisle might have, for aught we know, presented to the eye the naked steel, and we should have thereby lost the beauties of Purbeck marble and stone. Or they might have encased their skeletons in Purbeck or stone, and thus deceived the innocents abroad, much as they have been deceived by the subsequent discovery that what they had thought to be fine stone vaulting was really wood made to imitate stone. The Italians are past masters in the art of these deceptions.

Even the clever modern critic has been deceived over Crosby Hall, for after all the abuse of the "Vandals" who did not mind its destruction, some of us know that most of the roof pinnacles, which were supposed to be oak, were really cast iron grained to imitate that material, and that really very little of the old work remained. These pinnacles call to mind the caustic observation of Bismarck at the Berlin Conference that one of our statesmen was a "lath painted to look like iron." We know what terrible adjectives have been hurled at the engineer and architect of the Tower Bridge because its skeleton steelwork is encased in masonry; but I have always been at a loss to appreciate the adverse criticism. The majesty of their bridge has, to my mind, been vastly increased by this casing, and there is, I think, no more ground for adverse criticism of the bridge than there would be as regards the encasing of our own skeleton anatomy with human flesh. Evolution is sometimes slow in its working; but the evolution of fire resisting construction in our buildings cannot be said to be of prolonged growth. It was the knowledge and appreciation of the uses and value of concrete, as much as the uses and value of steel, which gave rise to that nepotism in their combined uses which has culminated in what we know as ferro or reinforced concrete construction. In 1854 architects were keenly discussing the construction of concrete floors, roofs, and walls, and their experiments led, no doubt, to a liking for the material as fire resisting; as one which could carry very large unsupported areas, and which was cheap. There seems to have been at that time some difference of opinion as to the embedding of iron in the concrete, and as to its employment as a finished material in architectural decoration; but there does not appear to have been any difference of opinion on the fact that concrete as a constructive material, whether with or without iron reinforcement, depends to a very large extent indeed upon the care with which it is mixed, and that no supervision can be too great to insure strict compliance with this absolute condition.

Many years before 1854 Fox and Barrett's fire resisting floors, and the various kinds of similar floors as regards fire, were in vogue, and such firms as Homan and Rodgers and Dennett and Ingle were paying great attention to this important subject of fire resisting construction, and French architects and engineers especially were devoting their labours to the same end, and although the French methods differed from ours in detail, much the same ideas prevailed, except that the French construction was always much lighter than ours: they took greater risks, and yet I have not heard of a case of failure in Paris due to collapse of a floor by reason of insufficient strength per foot superficial.

I find an interesting statement made by Mr Wyatt Papworth at a meeting of the R I B A in February, 1854, when the French and other methods of constructing iron floors were under discussion. An obelisk erected in 1776 on Putney Heath, by order of the corporation of London, commemorated the satisfaction felt by committees of that body with experiments made in 1776, described in a pamphlet printed in 1785, and entitled "An account of the invention and use of fire plates for the security of buildings and ships against fire." The resistance to fire was accomplished by applying the fire plates above and below the timbers with dry sand or rubbish between

* Read at the Ordinary General Meeting of the Surveyors' Institution, held on Monday, Feb. 6, 1911.

them. A room was filled from floor to ceiling with faggots and pitch and tar, and the result seems to have been most satisfactory as a prevention from fire. The inventor's experiments, however, showed that "the only way to check a fire was to prevent the access of air; for flame would inevitably calcine such materials as concrete and plaster." Fifty years ago, as some of us can remember, we knew very little indeed, comparatively, of concrete for constructional purposes; but architects were even at that period beginning to test and study this form of construction. I have little doubt that we shall some day discover that the Egyptians knew all about ferro-concrete, and that the tomb of a departed Pharaoh owed its preservation to a mixture of iron and concrete. To prove that fifty years ago architects began to seriously consider concrete construction, I find that Mr. T. H. Lewis, on December 14, 1857, read a paper at the Royal Institute of British Architects on some experiments upon concrete. Those experiments were directed to the suggested sensible loss in bulk of the ballast independently of that of the lime, and that the materials, after being mixed together, expand considerably. Mr. Lewis stated that this idea of loss of ballast was so prevalent that a respectable builder asked him to allow, in calculating the price of the concrete, one-seventh more ballast than the concrete cubed to. The general result of the experiments with lime concrete was "that the whole mass, made into concrete, occupied precisely the same space as the dry ballast—viz., one cubic yard, all the bulk of the lime and water (being about two-fifths of the ballast) being lost, but none of the ballast itself. The surface was carefully levelled and thin boards tacked over so as to ascertain if there were any expansion in the setting, but none could be perceived. The weight of the mass was 27cwt." Then, on June 5, 1871, two papers were read before the Royal Institute of British Architects, with Mr. Edward I'Anson (a past-president of the Surveyors' Institution) in the chair. One paper was on the use of Portland cement-concrete as a building material, by Mr. Thomas H. Wonnacott, in which he speaks of the "novelty of the material." Mr. Wonnacott dealt with concrete in walls, and he opined that it was to a great extent incapable of artistic treatment, except at great cost for moulds, patterns, etc., adding that he was persuaded that neither brick nor stone had anything to fear from competition with it. I am surprised to find Mr. Wonnacott stating he had not found that, although as he himself says, it may appear strange, "a larger proportion of cement than one in eight increases the strength of the concrete. On the contrary, it appeared to diminish it." For ordinary walling Mr. Wonnacott found one in ten sufficiently strong, and that "in engineering works, in Copenhagen twenty to one was the proportion used," and further that he was informed by an experimenter that he had gradually lessened the proportion of cement to "one in twenty four, and found it then make fairly strong work." This proportion would rather startle the engineer and architect of to-day, and I am not surprised to find Mr. Wonnacott saying that in such a case the "conditions must have been exceptionally favourable," and the "dispersion of the cement among the mass perfect." This perfect dispersion of the cement I shall refer to later on when speaking of reinforced concrete.

The second paper aboved referred to was read by Mr. (afterwards Sir) A. W. Blomfield on "Concrete Building." It was confined to the consideration of concrete in walls constructed in situ, by filling concrete into cases or moulds, made to shift to the various heights and positions as the work proceeds. This system has, we know, since been very largely adopted. Mr. Blomfield confined his remarks principally to the limits which the material imposes on architectural design and decoration, and I think we shall all be in accord that at present no form of concrete exposed externally as concrete can take the place of stone or brickwork for architectural treatment, and Mr. Blomfield very sagaciously says that nothing can be done in the way of artistic treatment so long as the only aim is to show how well concrete walls can be made to imitate some other material and some other method of construction. Mr. Blomfield quite rightly protests against the idea of a concrete arch, and that it would be as rational to scoop out the underside of a York landing or a Portland stone lintel into an arched form to increase its strength as to mould a mass of concrete into such a shape with the same object. There can be little doubt that forty years ago fire-resisting construction in floors was greatly in favour, and Mr. Blomfield predicts that its capabilities in that direction "without any adventitious aid of iron girders or other supports over considerable areas, has ever yet been properly tested." We know the gradual increase in later days of unsupported areas of concrete in floors; but bearing in mind the great importance which should be attached to the mixing of the concrete, I do not think it would be wise to push this increase in unsupported area too far. Mr. Edward I'Anson in summing up the papers made one or two useful remarks, which are quite as useful to-day. He was convinced that unless thorough dependence can be placed upon the honest and conscientious execution of the work by the contractor, concrete is a dangerous material to use, inasmuch as a small percentage of inferior material in Portland cement would cause the ruin of the entire work. Mr. I'Anson testified to the great desirability of not using cement too newly made, and mentioned that the Metropolitan Board allowed concrete buildings to be used in London, but insisted upon a considerable amount of iron hoop bond, and would not allow concrete walls of less thickness than brickwork. So that at this date "reinforced concrete," in the shape of hoop iron bond and concrete, was adopted. Then in April, 1876—with Sir Gilbert Scott, R.A., President, in the chair, a paper was read at the Royal Institution of British Architects by Mr. Alexander Payne on "Concrete as a Building Material," and this was principally dealing with it ornamentally for the fronts of buildings and avoiding ugliness. Mr. Payne observed, and this is an important matter in dealing with concrete and iron combined, that once you bed iron and keep it from the air, you entirely protect it from rust and oxidation. Mr. Payne laid it down as an axiom that concrete offers unusual facilities as a material for walls, etc., "from the readiness with which iron or other ties can be embedded in it in any direction to resist any thrust or tendency to separate in the structure." Mr. Payne showed a design for a street façade in iron and concrete; but I cannot say that it would induce me, personally, to substitute concrete for stone or brick. Mr. Payne would not imitate the projections of stone and brickwork, but would obtain as large wall spaces as possible and as few projections, ornamenting the work instead by indentations, calling to recollection the magnificent ornamentation of the Alhambra and of the Mohammedan buildings of India. Mr. Payne went so far, in his intense admiration for concrete, to advocate the panelling of the interior of an apartment, and "do away for once with the everlasting wall-paper," and he practically described ferro-concrete when he proposed to "use iron embedded in concrete for the purpose of giving tensile strength to prevent fractures caused by thrusts of arches, vaults, etc., instead of opposing them by buttresses, as is done in brick or stone."

The above paper was followed by an interesting discussion. Mr. W. H. Lascelles referred to warehouses gutted by fire, where lintels consisting of concrete with pieces of iron, 3in. by ½in., embedded in the centre, were not affected by the fire, although the sills and other parts were. The concrete was mixed in the proportion of one of cement to six of breeze. Mr. P. Brannon was a great believer in iron and concrete, and he made window-heads by bedding rods of angle-iron and dispensing with any framing or bressummers. He had then put in concrete doors in St. Paul's Cathedral, under Mr. Penrose, "in order to render fireproof that portion of the dome to which the public have access." Mr. Brannon had then built some cottages in Derbyshire where the concrete walls were made with the "slag of furnaces ground with selenitic lime," the compound being "nearly as good as Portland cement concrete." Mr. Drake, at the same meeting, was most earnest in his partiality for concrete in floors, roofs, and staircases, and he asserted that good Portland cement concrete, or good selenitic concrete, or good lias lime concrete, correctly treated, "will never either contract or expand in the smallest degree after having once set." Mr. J. Tull stated, at the same meeting, that slag from the blast furnaces was an excellent material because it is easily crushed, and furnishing in the crushing a sharp grit. He did not approve of iron in concrete floors. His first attempt was with an upper floor, 19ft. by 13ft., without any iron joists; his second attempt was with a drawing room floor, 40ft. by 16ft., and he contended that that floor is stronger without iron than it would be with it. The thickness of the floor was 11in. reduced to 4½in. in the middle, and he believed there was not a crack or blemish to be found in the whole. Major Seddon, Royal Engineers, made some important remarks on concrete. He was not so much afraid of the work being scamped, as of failures arising from the ignorance of the contractor or his workman. He had a slab of concrete made 6in. thick and 14ft. 6in. by 13ft. 6in. clear of the supports, which were 14in. brick walls, and after twenty-one days setting, eighty men marched on to it, who marked time at the quick and double, and then jumped upon it all together, without having any effect whatever upon the concrete. The whole of the unsupported part of the slab was then loaded with bricks, until an evenly distributed load of ten and a half tons was piled upon it, when it gave way suddenly. The major stated that no iron whatever had been used in any of the concrete floors designed by him, as he "preferred using iron where he knew what work it was doing within certain limits," whereas, "when iron is embedded in concrete, no one can determine the relative proportion of the work which falls to the share of the iron and the concrete respectively." Mr. Aitchison was desirous that experiments should be tried with and without iron, "to show whether any or what additional strength is gained," and Mr. Arthur Cates made some interesting references to the work of Mr. Brannon by which the cupola of St. Paul's was made fire-resisting. Mr. A. Payne (the author of the paper) agreed with Mr. Charles Barry that "if concrete fails it fails suddenly and disastrously." It will be observed that I have generally used the term "fire resisting" instead of "fireproof," as examples of large fires prove that at the present moment there is nothing which has been invented to make a building "fireproof." The most we can do is to so construct our buildings as to minimise as much as possible the risk from fire and smoke. The London County Council General Powers Act, 1909, now enables skeleton-framed structures to be erected, at the same time permitting the reduction in the thickness of external walls in force under the Act of 1894; and so far as I have been able to judge, the anticipatory objections to the provisions of that Act have been modified, and it seems to work well and does not entail those delays and interferences which some members of the profession thought would be likely to arise.

We may now conclude that fire-resisting material has come to stay with us, and I think we may congratulate ourselves on the practical immunity from accident as regards that construction in this country. Before coming to the most modern of fire-resisting constructions, viz., "Reinforced Concrete," I propose to say a few words on other methods. There is the plain and simple rolled iron or steel joists, some 3ft. apart, filled in between with concrete or breeze and Portland cement: this demands centering, and at times trouble is caused by the exudation of moisture just where it is not wanted. One of the early floors, which still holds its own, is what is known as "Dennett and Ingle's." The steel joists are from 4ft. to 10ft. apart, according to the particular

form of construction; in some cases the concrete is with arched and in others with horizontal soffits; each method lends itself to either joists on plates bearing on the concrete, to wood block flooring, and to soffits either plastered on the concrete direct, or with ceiling joists and lath and plaster in the usual way. The material is concrete composed of [illegible] and gypsum and broken brick [illegible] and cement and an aggregate of [illegible] and gravel. This method demands [illegible] centering. Messrs. Dennett and Ingle recommend the avoidance of [illegible] as an aggregate as being unsuitable, either from the point of view of strength or fireproof qualities. Messrs. Dennett and Ingle instituted a series of experiments for the encasement of stanchions, columns, and girders which proved to be most successful. Many buildings where Dennett and Ingle's construction was used have caught fire, and I believe that in every case the fire was localised in consequence of this form of construction and much valuable property saved. Amongst the many buildings provided with Dennett and Ingle's floors are the Foreign Office, Royal Courts of Justice, St. Thomas's Hospital, National Gallery, asylums, and theatres. We then get to the various forms of fire resisting floors consisting of brick or tile arches between iron or steel joists; different forms of terracotta laid on the joists and carrying concrete, such as the Frazzi floor—all doing away with the necessity for centering—which is an important matter, not only on the ground of expense, but for the fact that centering keeps back moisture and rather lends itself to careless filling-in on the part of the workman. The terracotta of these patent floors is made so that it can easily and accurately be laid in lengths between the steel joists and the soffits plastered afterwards. The objection to them is that the terracotta is somewhat brittle and fragile in substance, and requires care in handling and in knocking nails in it. These floors are, however, commendable, and are being made—and the system is also much used in partitions—so that nails can be knocked in the terracotta without enlarged fractures. I think also that they are as fire-resisting as could be wished. Speaking generally, with reference to fire-resisting construction, it is to be regretted that England does not "wake up" more rapidly and bring itself up to the German excellence in steel work. For example, I believe England cannot roll a steel joist with a depth equal to that attained by the Germans; but I think with regard to cast iron, England holds its own. The perfection to which cast iron stanchions are now brought, and the enormous weights which they carry, lead one to question whether their continued employment is not superior to steel as regards weight in compression, and that, combined with ordinary steel joists, with either one of the patent floors or ordinary concrete, filled in, to my mind brings us as near the perfection of fire-resisting construction as we can hope to attain. I should like to mention in connection with this the name of Messrs. H. Young and Co., of Nine Elms, who are able to turn out magnificent cast-iron work and also framed steel work; and I cannot help referring in this connection to the excellent way in which the iron and steel work was carried out at the Piccadilly Hotel and other buildings under my supervision. We have all had to do, too, with *wood floors*, and there are still men left who would prefer—in cases of big fires, where the "devouring element," as the penny a liner says, has got strong hold—a solid wood floor to all the steel and concrete floors ever invented. Some years back exeprirments were made with solid wood floors—i.e., wood joists of the usual scantlings, laid close together, side by side, and I think the result of such tests was that these floors would stand concentrated heat better than the steel and concrete floors. I remember watching a fire some years ago where the building had a canted angle, and the supporter at each point consisted of a fir post 9in. by 9in. The building was completely gutted; but the fronts were intact, due, I think, to the wood supports, which stood the fire well, and when I inspected them the following day I found that their centre parts had been consumed to within about 3in. I doubted very much whether steel stanchions or iron columns would have been left to tell the tale. We all know, too, that the most deceptive fire resisting material is stone or granite in staircases, and stonework generally, brickwork and concrete being far more reliable. The evolution, though, of fire resisting construction in the form of reinforced concrete may be termed a revolution; because not only do we get it in floors and walls, but in pillars and girders. That too much care and attention cannot be given to any form of construction or the employment of any material which will minimise, if not abolish, the risk from fire goes without saying; and it is this dread of fire in buildings which necessarily alarms those upon whom falls responsibility in case of deaths or injury from fire. Recent occurrences in business premises make one tremble at the thought of fire where women and men sleep in brick houses, and where we know that an outbreak must result in a sad list of deaths. The London County Council have from time to time initiated legislation having for its object the relief of such risks, and they have by a recent Act permitted the use of steel-framed structures, which will encourage their use and lead to filling in with fire-resisting material, and so gradually tend to lessen these too frequently recurring accidents. Enormous strides have recently been made in the manufacture and use of reinforced concrete for all sorts of purposes besides building construction—viz., bridges, staircases, etc.—and, personally, I place considerable reliance upon those engineers and architects who have made the subject a study. I know it is said that "prejudice vanishes when knowledge comes," and if I am at the moment prejudiced against the use of reinforced concrete, it must be put down to my ignorance and to a conservatism which should be absent when dealing with inventions. Frenchmen may be said, I think, to have been the pioneers in this form of fire-resisting construction; but an English architect, Professor C. N. Reilly, has just constructed a church, at Shacklewell,* throughout practically of this material, and both in design and appearance, from the illustration I have seen, it does not present any feature of ugliness. I could sleep comparatively happily in a building where the walls and floors are of this material, but a little nervousness would creep over me if I knew the piers or vertical points of support were of concrete with embedded steel, and that nervousness would be alarmingly increased if I knew that the girders, with a bearing of, say, 30 or 40ft., were relied upon to prevent collapse. It would be no comfort to me to be told that provision had been made for ten times the load which could ever be put upon the floor, and I should begin to think of a few matters which tended to upset my equilibrium. We all agree that in the first place great reliance is placed upon the Portland cement used. It should not be too fresh, it should be most finely ground, and it should be laid out on a boarded floor and turned over for a few days before it is used. Is this always secured? Then the proportion in which it is mixed with the aggregate is of moment. Is this always attended to? Of course, in all concrete work great care is required, and strict supervision necessary; but in the modern work I am afraid the limits are being pushed a little too far. The specification and drawings may be perfect, but the safety of the structure depends upon the mixing of the concrete and the proper and regular embedding of the steel or iron work. Now this mixing is left, as a rule, to labourers, and although the specified quantity of steel and aggregate may be there, if more of the Portland cement finds its way into one part than should be, and less, therefore, in another part, I should certainly get nervous if a moving load with consequent vibration were brought to bear on the girder. I am also not clear as to the effect of the concrete on the steel or iron reinforcement. An essential is, of course, perfect dispersion, and from my experience this would in the ordinary way be very difficult to attain. Then as to expansion and contraction. Some authorities say there is none in this reinforced concrete, but whether that be so or not, is expansion, or contraction, if they do take place—and I think in many cases they do—equal? I mean does the concrete go with the steel, and the steel with the concrete, or does each go its own way? If they do go their own way, then risk is at once present. Then does the steel or iron oxidise? We are told they do not; but we do not know, and I suppose we must wait and see. Directly one of these concrete girders yields to any appreciable extent, then I anticipate complete collapse; concrete is not elastic, and metal is; and, taking into consideration the few above-named queries, the result, perhaps, of a highly strung and over-nervous temperament, and without wishing in any way to place my views in opposition to those distinguished architects and engineers who are so freely using this reinforced concrete, I would wish to make this paper perhaps a little useful by concluding with a few words of caution, which may or may not be acceptable. First see that you specify the best English Portland cement, and then see that you get it. Let Belgium and Germany keep their Portland cement for themselves. Then see that your Portland cement is not used too fresh, and that it is turned out of the sacks on to a boarded floor for, say, three days, and turned over two or three times in the interval. Then determine as to your aggregate. Avoid burnt ballast, but do not be afraid of well and evenly-broken brick mixed with stone ballast, or breeze, quite free from particles of coal. Then do not mind spending a little money on reliable clerks of works. A hundred pounds or so in salaries to such men, simply to supervise the mixing of the materials and the proper disposition of the reinforcement, will probably save many thousands of pounds and many lives. The evolution of fire-resisting material may apparently know no bounds; it has at the moment culminated in reinforced concrete put now to all sorts of uses. I am only concerned in buildings, and as regards these buildings, I should be sorry if a word I said here led to any diminution of the use of reinforced concrete; and I hope that we shall have to-night a good discussion, and that I shall hear enough to make me sleep comfortably at home in an Early Georgian house where the joists are of deal, 9 by 2, with a 16ft. bearing. But, Mr. President, may I say one final word to architects (I leave engineers to take care of themselves)? Do not tremble at your floors and roofs; be very confident about your walls; be a little over-careful with your piers or other vertical supports; but—but, be over, and doubly, and trebly, anxious about your girders.

* Illustrated in the Building News of Dec. 2, 1910.

Mr. John Davies, the road-surveyor to the Conway Rural District Council, tendered his resignation on Friday. A couple of months ago an application for an advance of salary received from him was declined by the council. He is paid at the rate of 30s. a week, out of which he has to pay about 5s. a week for travelling expenses.

The new workmen's social club premises at Cambois were opened on Saturday. The building has been erected by Messrs. Robson and Waddle, of Blyth, from the design of Mr. John Goulding, architect, also of Blyth, and the cost approximates £3,000. The equipment includes refreshment-rooms, billiard-room, bathroom, caretaker's quarters, and a hall to accommodate 200 persons.

It is the prevalent impression that the fibre of timber becomes dead after several years' use, and that old pieces should be replaced regardless of their apparent soundness. In the *Engineering News*, C. P. Buchanan describes some experiments on bridge timbers which had been in service for 25 years. The results of his tests showed that the timber was then stronger than specially selected pieces about a year old which he and his master carpenter both passed upon as first-class stock. Consequently it is Mr. Buchanan's view that it sounding, boring, and cutting fail to show any change in the cellular structure of timber, that the timber is sound, and that in general, up to the time such evident cellular changes set in, the strength of the wood increases.

CURRENTE CALAMO.

The announcement with regard to the Soane Medallion award, in the letter from the Secretary to the R.I.B.A., which appears on another page, can hardly be regarded as completely satisfactory. The circumstances may or may not be exceptional. In all fairness to those responsible, to Mr. Prentice Mawson, and to the other competitors, we disclaim any desire to comment on them; but we do suggest that in future competitions it should be the duty of those responsible for the awards to discover whether competitors have "failed to comply with the conditions" before making their selection, and then, for some reason not definitely stated, withholding the prize altogether, and allowing the competitor to whom it has been awarded to "withdraw from the competition." In some other respects the arrangements with regard to the Institute prizes and studentships seem to need revision.

Mr. William Woodward's paper read last Monday night at the Surveyors' Institution on the evolution of fire-resisting construction is a practical and interesting summary. We do not know that it much matters if, as Mr. Woodward thinks likely, we shall some day dig up a dead Pharaoh done up neatly in a mixture of iron and concrete, or whether Noah's Ark was reinforced with metal; but we do know that we have had reliable methods used and tested by competent architects and builders much longer than a good deal of the fuss made about some modern systems would lead many to imagine.

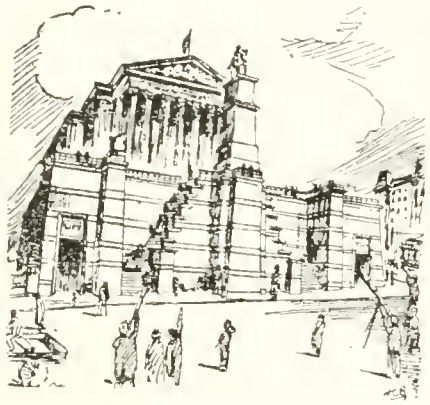
One of these, as Mr. Woodward reminds us, is Dennett and Ingle's, which, as he says, "still holds its own," simply because it is unsurpassed when properly used. With our own experience of its invariable reliability and its perfect success as a fire-localiser in every case where it has been used and a conflagration has occurred, we should think as many times as Mr. Gladstone used to do before trying in its stead some of the more bepuffed and less intelligently conceived systems. We see things done by the users of some of these which sometimes make us wonder whether those who seem satisfied are at all familiar with Messrs. Dennett and Ingle's cautions as to unsuitable aggregates, or their well-known and most valuable series of experiments for the encasement of stanchions, columns, and girders, which Mr. Woodward recalls.

Mr. Woodward's concluding reminders are very much to the point. If an architect *will* use German or Belgian Portland cement, or is too careless to see that he gets the really best English, and the client is too stingy to pay a reliable clerk of works to make sure the materials are properly mixed and the reinforcement properly disposed, he must not shirk appearance in the witness-box at an inquest some day. As to expansion and contraction, and if they do take place; whether the concrete goes with the steel or each its own way, and whether steel or iron oxidises, we agree with Mr. Woodward—we must "wait and see." We fear sometimes we shall "see" sooner than some, who are so cocksure about many things that seem at least hardly proved yet beyond doubt, will relish! May much such common-sense as Mr. Woodward reinforces an open mind with keep us all harmless!

Perhaps the Liverpool King Edward Memorial Committee may be pardoned for wondering whether it has gained much by calling to its counsels the distinguished architects and artists who undertook to offer suggestions for improving Mr. Goscombe John's scheme for erecting an equestrian statue to the late King in front of the southern portion of St. George's Hall, inasmuch as there is a division of opinion among those consulted, while some outsiders still object to the scheme altogether.

There has already been a good deal of controversy about the matter, as our readers are aware. Impressed thereby, the committee called to their aid Mr. Norman Shaw, R.A., Sir Aston Webb, R.A., Mr. John Belcher, R.A., Mr. Thornycroft, R.A., and Mr. Reginald Blomfield, A.R.A. Mr. Norman Shaw made suggestions for improving Mr. Goscombe John's scheme, which the sculptor accepted. A large model was then prepared, and this was approved by Mr. Belcher and Mr. Thornycroft, but was objected to by Sir Aston Webb and Mr. Blomfield. The memorial committee, however, have unanimously adopted the scheme, and have asked the finance committee of the corporation to carry out the alterations and street-work necessary to provide the site. The finance committee, it is understood, favours the scheme, and will consider it finally next week.

THE PROPOSED "DESECRATION."



"The statue is proposed to be erected at a height of 45ft. above the pavement, and to project into the street 11ft. The steps are calculated to seat 350 'Willies.'"—*Liverpool Daily Post and Mercury.*

Among others who differ with regard to the model prepared are Mr. Thomas Brock, R.A., who objects, and Sir George Frampton and Sir L. Alma Tadema, who approve. The Liverpool Architectural Society has passed a resolution of protest, and a similar communication has been sent by twenty-three other architects, headed by Mr. Leonard Stokes, the President of the Institute. Is it quite certain that these gentlemen and others who object really understand the proposed scheme? We ask because we notice that obvious exaggeration is already rife. Our local contemporary, the *Liverpool Post and Mercury*, published a "humorous" sketch on Tuesday, in which lifts and telescopes figured, and with "steps calculated to seat 350 Willies." Let us remember, in bare justice to the people of Liverpool, that it is a case of three for to two against of the certainly eminently capable five gentlemen asked to advise them, and that they may fairly ask in what representative capacity some of the rest of the remonstrants appear.

"Death in the Pot," the text of Mr. Arthur J. Martin's address on Monday to the Sanitary Engineers, is rather a far cry. If you *will* have your coming wives and mothers out at work all through their teens, it is hardly likely they will bother to add cookery to the many other trades they are expected to learn when they get married. Let us be thankful to Sir Joseph Lyons and his fellow entrepreneurs for the million that the "cookshops," anyhow, are better. Perhaps if we had more such organisation and high aptitude as food-providers, even if the reviled "community" took the job on, we should not come to much hurt. Anyhow, the sanitary engineer had not much chance till the citizen took up his responsibilities collectively. Does Mr. Martin suppose London would be better armed against cholera with every man's own privy in his back-yard again, instead of the great system of sewerage that made it comparatively sweet and wholesome?

Is it too much to hope that our municipal authorities in London charged with the care of trees in public thoroughfares may be induced to take the advice of a competent arboriculturist before they are all spoiled irretrievably by "pruning" of the "knobs of chairs and pump handle" sort? We confess we sympathise with Mrs. Alice Westlake, who writes to the *Times* from River House, Chelsea Embankment, to protest against the recent mutilation of the planes there, which have been subjected during the last weeks to ruthless treatment, large branches on every side being bodily cut off, till the avenue looks like a miserable row of clothes-pegs. Now the borough council are proposing to treat the trees in Tite-street, adjoining the Embankment, in the same way, though the majority of the inhabitants have petitioned the council to leave them untouched, as a previous pollarding left them for a summer without leaves.

The Moderates of the County Council were unpleasantly reminded on Tuesday of one of their election pledges. Both at the last and the previous election one of their most familiar cries was "London work for London men," and the Moderate candidates, with remarkable unanimity, promised that all work required by the Council should be done by men residing in London. A return has been presented showing the value of furniture and joiners' work purchased each year since 1905 from firms in the county of London and in the provinces, and a motion that this be not received gave an opportunity of showing that the authors of the famous election cry have only given the London joiner 33 per cent. of the work, as against 57 to 67 per cent. which he got from the Progressives.

Our Latest Testimonial. — "Pecksniff, Jun." writes: "I like your new page of notes in your last issue—especially the heading. Give us more 'Currants and Calomel'!" Ah, well, as the poet said:

> 'Tis something 'mid the dearth of fame,
> When preaching to the coming race,
> To feel the blush at praise, not blame,
> Ev'n as one writes, suffuse one's face!

Preparations for the investiture at Carnarvon of the Prince of Wales are being made at the Castle by the staff of H.M. Office of Works. Among the more important alterations will be the erection of a flight of steps beneath Queen Eleanor's Gate, which is the most conspicuous feature of the south end of the building, and which stands at present at a great height from the ground.

MR. J. G. JACKSON, R.A., ON WINCHESTER CATHEDRAL.

[illegible] Mr. Jackson did never before had [illegible] to underpin an [illegible] and it was unfortunate that [illegible] could have occurred to one of the largest in Europe. Previously there had been [illegible] city's chief water; but the whole of the new foundations were laid some 10ft. below the high water mark. That had been a very difficult task indeed. The possibility of continuing and completing the work was the question now, and they could not stop with that answer. It was also most important not to lose their order, Mr. Walker, because upon the careful performance of his work everything depended. As they could be reminded, the evidence that within the last few years £70,000 had been got together to retain a picture, and £40,000 for another picture in order that they should be kept in this country and be placed in the National Gallery; but he submitted that the fate of Winchester Cathedral would be infinitely more regrettable. The question would be probably raised that there was nothing to see for the money expended, but the reply to that was, There is the Cathedral itself, which would not be there if those steps were not taken.

[illegible] Contract to be let for [illegible] Parish Church at Hoylake to Messrs. W. H. Sandbach & Son, 31, Kearsley-street, Bootle.

The Carnegie Free Library at Hoddlesden was opened last week. It has been built at a cost of £2,538, a site given for the purpose, the architect being Mr. H. Stead, of Hoddlesden.

Mr. Isaac Edwards, architect and estate agent, Dewsbury, has accepted the appointment of land valuer under the Finance Act for Carnarvonshire and Anglesey. The appointment is worth £350 per annum, rising £750.

A moving staircase is being built at the Earl's Court Station of the District Railway. The stairs will be 4ft. each step having a width of 18in., and as they are in motion it is intended that the occupants shall walk up them while they are in motion at a rate of 100ft. per minute. This gives a continuous flow of passengers instead of the intermittent service now provided. The escalators have been erected at Earl's Court at an interchange between the District and Piccadilly Railway stations. The installation is an experimental one, and hence its price, popular with the company's intention to put the moving staircase into stations where required. The capacity of one escalator is equal to 16 lifts.

The Town Improvement Committee of the Newcastle-on-Tyne Corporation are considering their consideration to the report of the City Property Surveyor, Mr. T. H. Hedley, upon the proposed rearrangement of the hall. The report was published a fortnight ago, May 1291. It embraces three proposals. The first scheme of alteration does not bring within it completion of the concert room, and the estimated cost is £21,653. The second includes the absorption of the concert room for municipal offices, the estimated cost being £27,129, whilst the third plan of alteration provides that about a third of the Corn Exchange be absorbed for offices, and is estimated to cost £15,581. The second of the three projects finds some favour among the members of the committee.

PROFESSIONAL AND TRADE SOCIETIES.

ASSOCIATION OF MASTER PAINTERS OF IRELAND.—The [illegible] annual convention [illegible] Belfast on Wednesday, Thursday, and Friday, January 18, 19, and 20. On the first morning [illegible] presided. Mr. John O'Connell, [illegible] welcomed the members and [illegible] and re-elected Mr. John McIntyre, of Dublin, was elected president for the [illegible] year. A vote of thanks was passed to the outgoing president for his services during his term of office. The report of the [illegible] and treasurer showed that the association is in a most flourishing condition, and is doing good and valuable work in fostering the interest of young men engaged in the trade by organising petitions and travelling [illegible] and in other directions. Mr. James Maxwell, of Armagh, was appointed president elect, and it was decided to hold the next annual convention in Armagh. In the afternoon the convention and exhibition were opened by Count Plunkett, Director-General of the National Museum of Science and Art, who said the industry in which the master painters were engaged was one in which everyone took an interest, because it concerned the question of how to make their houses fit to live in. He congratulated those engaged in the decorating trade in Dublin on the fact that the association was thriving so well. The association was especially to be congratulated on the work it was doing in preparing the students. A cordial vote of thanks was passed to Count Plunkett, on the motion of Mr. John Sibthorpe, J.P. Mr. W. S. Morton, of Edinburgh, subsequently delivered an interesting lecture on "The Limitation of Applied Ornament," in the course of which he advocated simplicity and restraint in house decoration and an atmosphere of greater restfulness. In the afternoon the members paid a visit to the National Museum. In the evening they again met in the National Museum. The Director, Count Plunkett, Hon. A.R.I.B.A., who presided, distributed the prizes to the successful students of the association. Subsequently Count Plunkett delivered an address on "Decoration, first dealing with some of the difficulties of the decorator in his relation to the public, then showing how, in this artistic craft, there is a demand on many branches of knowledge. As illustrating the history of decoration, he gave some beautiful examples of very simple designs of the 11th, 12th, and 13th centuries from churches and other public buildings. Photographs from a sculptured altar piece in the Cluny Museum, and from a portion of the Sainte Chapelle, were thrown on the screen in brilliant colour. Count Plunkett laid great emphasis on the Mediæval and Renaissance methods of using good freely, indicating the means whereby the splendour of its effect was relieved from garishness. The proceedings of the convention were concluded on January 20 in the Royal Hibernian Academy, Lower Abbey-street. Mr. John McIntyre, president, occupied the chair. Mr. W. G. Morton, Glasgow, delivered a lecture on "German Art, Old and New." Mr. James Wilson, jun., Cork, gave an address on "The Guild System of the Middle Ages, and its relation to Modern Trades Unionism, especially Apprentices." In the evening the annual dinner of the association was held in the Aberdeen Hall, Gresham Hotel. On the following day the members of the association had an excursion to Maynooth, returning via Lucan.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The following resolutions were unanimously agreed to at a meeting of the council of the Edinburgh Architectural Association held on Friday, February 3, and submitted to the committee in charge of the Scottish memorial to his late Majesty King Edward:—1. That the council of the Edinburgh Architectural Association is gratified to learn that it is practically decided "that the Scottish national memorial to his late Majesty King Edward should be associated with the Palace of Holyrood, and in or near the Palace grounds with appropriate public accesses." This resolution leaves [illegible] diversity of treatment. 2. That [illegible] strongly deprecates the proposal [illegible] been publicly made to erect a [illegible] on the site of the ancient [illegible] gateway, inasmuch as it would [illegible] the view of the Palace from the Canongate, and conversely the view of the Canongate from the Palace grounds. 3. That council also considered that it would be extremely unwise to remove the artistic and historical group of houses at the Abbey Strand, as has been publicly suggested. 4. That a select number of Scottish architects be asked to study the subject and submit designs for the general treatment of the project.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY.—At a meeting of this society, held on 20th ult., under the presidency of Mr. John Bowman, Mr. David Skinner delivered a lecture entitled "Geometry in Building Work." In introducing the subject he condemned the rule of thumb method, and advocated a more liberal use of the principles and application of geometrical methods. He divided his remarks into two headings, 1. Elementary and 2. higher geometry, and, as illustrating the former, the right angled triangle was dwelt on for a short time, its geometrical uses being fully explained. The octagon, circle, and ellipse were also taken up, the development and application being fully illustrated. Under the heading of higher geometry the solids were brought to notice, and the lecturer illustrated this part very fully by means of cardboard models and blackboard sketches. The octagonal ventilator was described at some length, and the process of determining same was clearly illustrated, as was also the method of getting the bevels for louvres in triangular frames. The lecturer also touched upon the application to cones, circled windows with splayed heads and sills, and centering for domes.

GLASGOW MASTER MASONS' ASSOCIATION.—The annual meeting was held on Friday in the secretary's chambers, 175, Vincent-street, Mr. Malcolm Stewart, the president, in the chair. The annual report stated that during the past year trade had been dull, and that there was little prospect of improvement. The following office-bearers were elected for the current year:—President, Mr. Robert Gilchrist; vice-president, Mr. William Muir; treasurer, Mr. George Sharp. Directors for 1911: Messrs. Moses Barlas, John Adam, John Emery, William M'Neil, James Wylie, Elphinstone Forrest, Malcolm Stewart, Duncan Wilson, J. B. M'Callum, Adam Duncan, and Alexander M'Lellan, with a representative from the Paisley Master Masons' Association.

INSTITUTE OF SANITARY ENGINEERS.—Mr. Arthur J. Martin delivered his presidential address to the Institute of Sanitary Engineers at Caxton Hall, Westminster, on Monday. He thought the immediate outlook was by no means hopeful. The best work of the sanitarian was constantly being rendered abortive by the carelessness and the neglect of those for whom it was done, and the only effective remedy was education. The trend of modern progress taught the citizen to unload his responsibility on to the community. As a corrective, Mr. Martin advocated that sanitary bodies should be co-ordinated in the fight against indifference. Among the suggestions offered by Mr. Martin was a "Health Week," during which annually public health should be the chief concern of the country.

THE EXCAVATIONS AT CORSTOPITUM.—At the annual meeting of the Newcastle Society of Antiquaries, the Duke of Northumberland presiding, a report was presented as to the result of the excavations which have been carried out on the site of the Roman town of Corstopitum (Corbridge). The report stated that the committee had carried out a vast amount of exploratory working during the past season. Much of this had to be carried down to a considerable depth, so that the surface area exposed

was proportionately less. The work had again been directed by Mr. R. H. Forster, who remained on the spot from first to last, and had had the active support of Mr. H. H. E. Craster and Mr. W. H. Knowles, F.R.I.B.A., the latter again undertaking the task of measuring and preparing drawings of the work. The excavations had also had the supervision of Professor Haverfield, who, as in previous years, remained during the vacation with associates from Oxford. At the outset of these investigations little else was known of Corstopitum beyond its names as given in the first "Iter Britanniarum" of the Antonine Itinerary, and such information as is to be found in Horsley. So far the excavation committee had demonstrated that Corstopitum dated from an early period in the Roman conquest of the Tyne valley, and shared in the vicissitudes of succeeding centuries, and that its occupation continued until the very eve of the departure of the Roman troops from Britain.

KING'S NORTON MASTER BUILDERS.—The King's Norton and Northfield urban district master builders held their fifth annual dinner at the Exchange Restaurant, Birmingham, on Friday night, Mr. Harold Grice presiding. Responding to the toast of "The Association," Mr. H. M. Grant said that the Conciliation Board was in good working order, and was working for the benefit of both the masters and the men. The association was in a very gratifying condition when it was remembered that builders had been recently passing through the worst times, so far as trade was concerned, which had been experienced during the last thirty or forty years. Employment had been very bad; but now it was slightly better. There was no doubt that trade would improve, and the outlook seemed considerably brighter than it had been for a long time past. Some people thought the building trade was on the fringe of a boom; but he believed that was going a little bit too far. With regard to legislation, the trade had had a great deal to contend against, and they, as builders, had been hit very hard. The chairman proposed the toast of "Local Governing Bodies," and Mr. M. Watts (chairman of the finance committee of the King's Norton District Council), in responding, protested against the practice of borrowing money at a high rate of interest for carrying out certain works by local governing bodies instead of meeting the outlay out of current funds. To-day municipal bodies were permitted by the ratepayers to carry on their business to a considerable extent on the paltry hire-purchase system. The toast of "Kindred Associations" was submitted by Mr. R. E. Bull, and was responded to by Mr. W. Moffatt.

LIVERPOOL'S WATER SUPPLY.—At the joint request of the Liverpool Property Owners', Builders', and Ratepayers' Association, and the Liverpool Master Builders' Association, Mr. Joseph Parry, Liverpool city water engineer, gave a lecture (with lantern illustrations) to the members of these respective associations, at the Municipal Technical School, on Saturday evening, on "The Water Supply of Liverpool." He gave a short history of the undertaking, a description of the several works (Wells, Rivington, Vyrnwy, and high-level stations), and explained the method of distributing the water and the plumbing arrangements.

SANITARY INSPECTORS' ASSOCIATION.—Sir James Crichton Browne, the president, occupied the chair at the annual dinner of the Sanitary Inspectors' Association given on Saturday night at the Trocadero Restaurant. The toast of "The Association" was proposed by Sir Thomas Barlow, who remarked that it was grievous to see how often the sanitary inspector was looked down upon as a nuisance. In responding, Sir James Crichton-Browne pointed out that the association had now over 1,300 members, compared with 524 when he took the chair ten years ago, and they were recognised as the first line of defence against disease. Within recent years there had been a marked decrease in the frequency and intensity of London fogs. No doubt the increased use of gas and electricity for heating and cooking had done something to diminish fog; but Sir James claimed that the main factor in the purification of our winter atmosphere had been practical sanitation.

SOCIETY OF ARCHITECTS.—The Council have appointed the following standing committees for the session 1910-11:—Literature, E. J. Partridge, F.S.I. (chairman); R. G. Bare (past hon. librarian); H. V. M. Emerson, A.R.I.B.A., Col. F. S. Leslie, R.E. (past vice-president, hon. secretary); R. G. Lovell; C. H. Mead, M.R.San.Inst. (hon. librarian); G. A. T. Middleton, A.R.I.B.A. (past vice-president); J. Herbert Pearson; E. J. Sadgrove, F.R.I.B.A. (hon. treasurer); B. R. Tucker, M.R.San.Inst. (past hon. treasurer). Examination. — Professor Henry Adams, M.Inst.C.E. (chairman); H. V. M. Emerson, A.R.I.B.A.; E. M. Leest, J.P.; Col. F. S. Leslie, R.E. (past vice-president, hon. secretary); C. H. Mead, M.R.San.Inst. (hon. librarian); E. C. P. Monson, F.R.I.B.A.; E. J. Partridge, F.S.I.; E. J. Sadgrove, F.R.I.B.A. (hon. treasurer); W. A. Scott, A.R.I.B.A., A.R.H.A.; R. Willock, F.R.I.B.A. General Purposes.—E. J. Partridge, F.S.I. (chairman); the President, Vice-President, honorary officers, and chairman of committees. Finance.—B. R. Tucker, M.R.San.Inst. (chairman); R. G. Bare (past hon. librarian); G. A. Birkenhead; R. Cecil Davies; T. S. Inglis; R. A. Jack; C. E. Jackson; Col. F. S. Leslie, R.E. (past vice-president, hon. secretary); R. G. Lovell; E. P. Monson, F.R.I.B.A.; E. J. Partridge, F.S.I.; E. J. Sadgrove, F.R.I.B.A. (hon. treasurer). Practice.—E. C. P. Monson, F.R.I.B.A. (chairman); R. G. Bare (past hon. Librarian); G. A. Birkenhead; B. D. Cancellor; R. Cecil Davies; W. Scott Deakin, F.R.I.B.A.; T. S. Inglis; R. A. Jack; C. E. Jackson; E. M. Leest, J.P.; Col. F. S. Leslie, R.E. (past vice-president, hon. secretary); G. A. T. Middleton, A.R.I.B.A. (past vice-president); E. J. Partridge, F.S.I.; J. Herbert Pearson; E. J. Sadgrove, F.R.I.B.A. (hon. treasurer); R. Willock, F.R.I.B.A. Registration.—G. E. Bond, J.P., President (ex-officio chairman); every member of the Council for the time-being; the following members of the original Architects' Registration Bill Committee:—His Honour Judge Emden; G. A. T. Middleton, A.R.I.B.A. (past vice-president); J. F. McMullen, J.P. (member); W. Gillbee Scott, F.R.I.B.A., and Mr. Ellis Marsland (past hon. secretary). Students' Section.—The following have been elected by the students:—H. V. M. Emerson, member of Council (chairman); A. T. Davies, N. G. Harland, E. F. Hubert, C. H. Hudson (hon. secretary), W. Kaula, A.R.I.B.A., J. R. Leathart, S. R. Smith, and H. A. Wilkinson.

The Hull Corporation have increased the salaries of the city architect and the assistant city engineer by £50 per annum each with a further increase of £50 per annum at the end of two years.

The new Kemble Theatre at Hereford was opened on Thursday afternoon in last week by Lady Evelyn Cotterell. The architects are Messrs. Groome and Bettington, Palace Chambers, Hereford. Messrs. Bevan and Hodges, Hereford, carried out the general building contract.

Mr. John Athron, architect and surveyor, carrying on business in Priory-place, Doncaster, passed away at his residence in St. Mary's-road, Wheatley, on Saturday morning, at the age of forty years. A widow and three children are left, the first-mentioned being the only daughter of Chief Constable Lister, of the Borough Force.

At a meeting of Dumfries Town Council on Friday, Mr. Barker, the present sanitary inspector, was appointed also to perform the work of burgh surveyor, his salary being increased by £50 per annum; and the salary of Mr. F. Armstrong, who will perform the duties in connection with the Dean of Guild Court, was fixed at £125.

The opening ceremony in connection with the Tabernacle Congregational Schoolrooms, Abertillery, took place on Wednesday week. The building is one of two stories. On the ground floor are large assembly-hall, kitchen, anteroom, and boiler-house. On the upper floor are ten classrooms and a lecture-hall. Mr. Robert Hall was the contractor.

Building Intelligence.

EDINBURGH.—The reconstruction internally of the National Gallery Buildings, Mound, has now been sanctioned by the Treasury, and will be begun immediately after the estimates have been obtained. The Royal Scottish Academy has occupied for fifty-six years the eastern half of the Greek building at the back of the Royal Institution. In the western half is housed the National Gallery collection of pictures and sculptures. With the removal of the Royal Scottish Academy to the front building, which will take place in March, the whole of the back building will be set free for National Gallery purposes. A plan with this object in view, prepared by Mr. W. T. Oldrieve, F.R.I.B.A., H.M. Board of Works, has just received the sanction of the National Gallery Trustees and the Treasury, and will be proceeded with at the earliest possible moment. The internal reconstruction work—there will be no interference with the outside of the building—will be completed within a year from the time it is commenced. The building was designed by Mr. W. H. Playfair. The foundation-stone was laid by the Prince Consort on August 30, 1850, and it was opened—the east half in 1855 and the west in 1859. The reconstruction will more than double the space available for the National Gallery. The cost of the alterations is estimated at £11,000.

ESHER.—St. George's Old Parish Church at Esher, which has just been restored after being unused for many years, was reopened on Saturday. The church dates back to 1540. King Edward contributed generously to the restoration fund, and also gave the committee a number of relics of the late Princess Charlotte to be placed in the church. The plans for the restoration were submitted to and approved by his late Majesty, and the work has been carried out under the direction of Messrs. Dunnage and Hartmann, in consultation with Mr. Harold Brakespeare, F.S.A., A.R.I.B.A. The Duchess of Albany has presented the white marble memorial of Prince Leopold and Princess Charlotte, which was executed by command of Queen Victoria by Mr. F. J. Williamson, and has for many years stood at the top of the grand staircase at Claremont. This memorial has been built into the wall of the north aisle. Among the memorials in the church are those of the Drake, Hervey, and Porter families, one being a fine example of Flaxman's work. The church is now to be used for lectures and other parochial purposes, but not for regular services.

Mr. W. D. R. Taggart, of Belfast, has been appointed surveyor to the Donaghadee Urban District Council.

Exeter finance committee recommend the corporation to increase the salary of the city surveyor from £550 a year to £600 by two annual increments of £50.

The first section of Mr. H. T. Hare's new buildings at Bangor for the University College of North Wales was brought into use on Monday. The completed portions include the council chamber, the lecture-hall (which is seated for 800 people), and the arts rooms.

The Court of Common Council have sanctioned arrangements for acquiring the freehold leasehold, and trade interests at No. 52, Fleet-street, for £23,850, with the view of continuing the widening of that thoroughfare. The beneficiaries had originally claimed £35,500. The Court has also voted £2,585 for the further widening of Bishopsgate.

Mr. W. R. Colton, A.R.A., lecturing on "Sculpture" at the Royal Academy on Friday, said that England dugged far behind any other country in art matters. Furthermore, we always attempted to graft the useful on to the beautiful. If we put up a statue to commemorate a victory and it was large enough to put a kitchen or bathroom inside, we felt that we had scored a point. Referring to proposals put forward with regard to the Edward VII. memorial, Mr. Colton mentioned the case of a provincial town which invited subscriptions for a new sewerage system as a memorial to the Prince Consort, which was to be known as the Prince Albert Sewer.

Our Illustrations.

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CITY OF WESTMINSTER NEW DISINFECTING STATION

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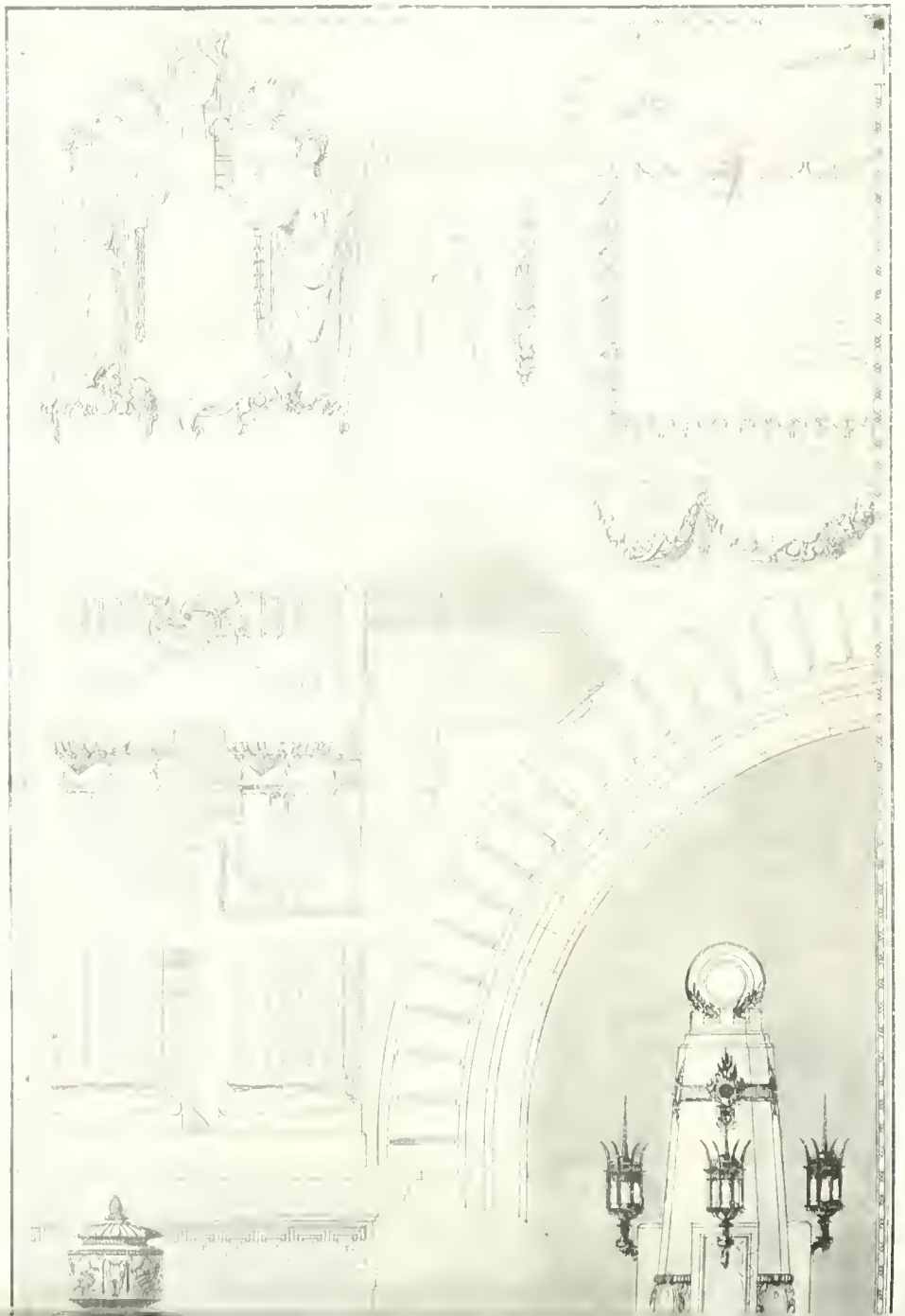
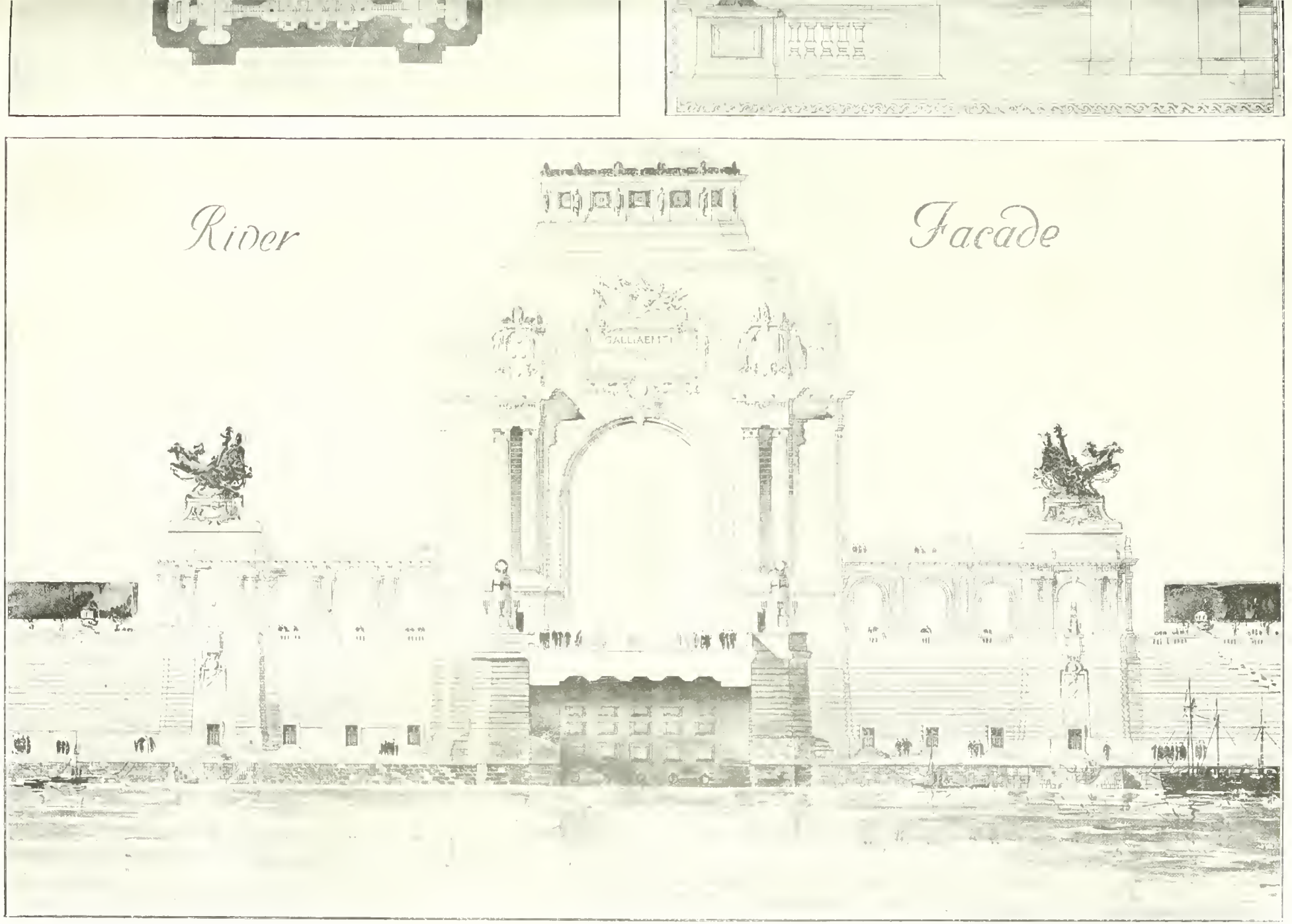
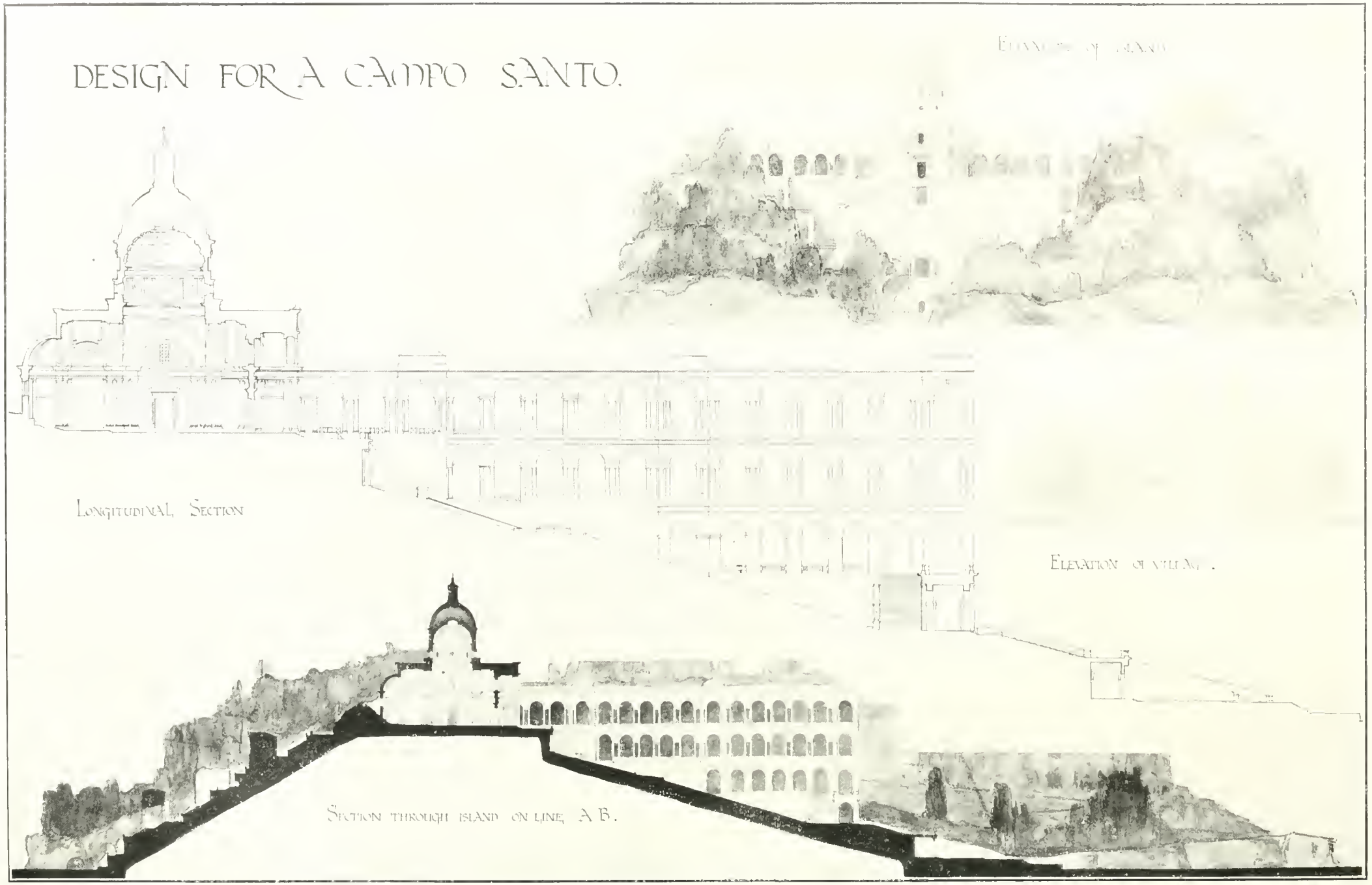
THE GATEWAY GATEHOUSE AND BRIDGE
approaching the Ancient City

Cross Section

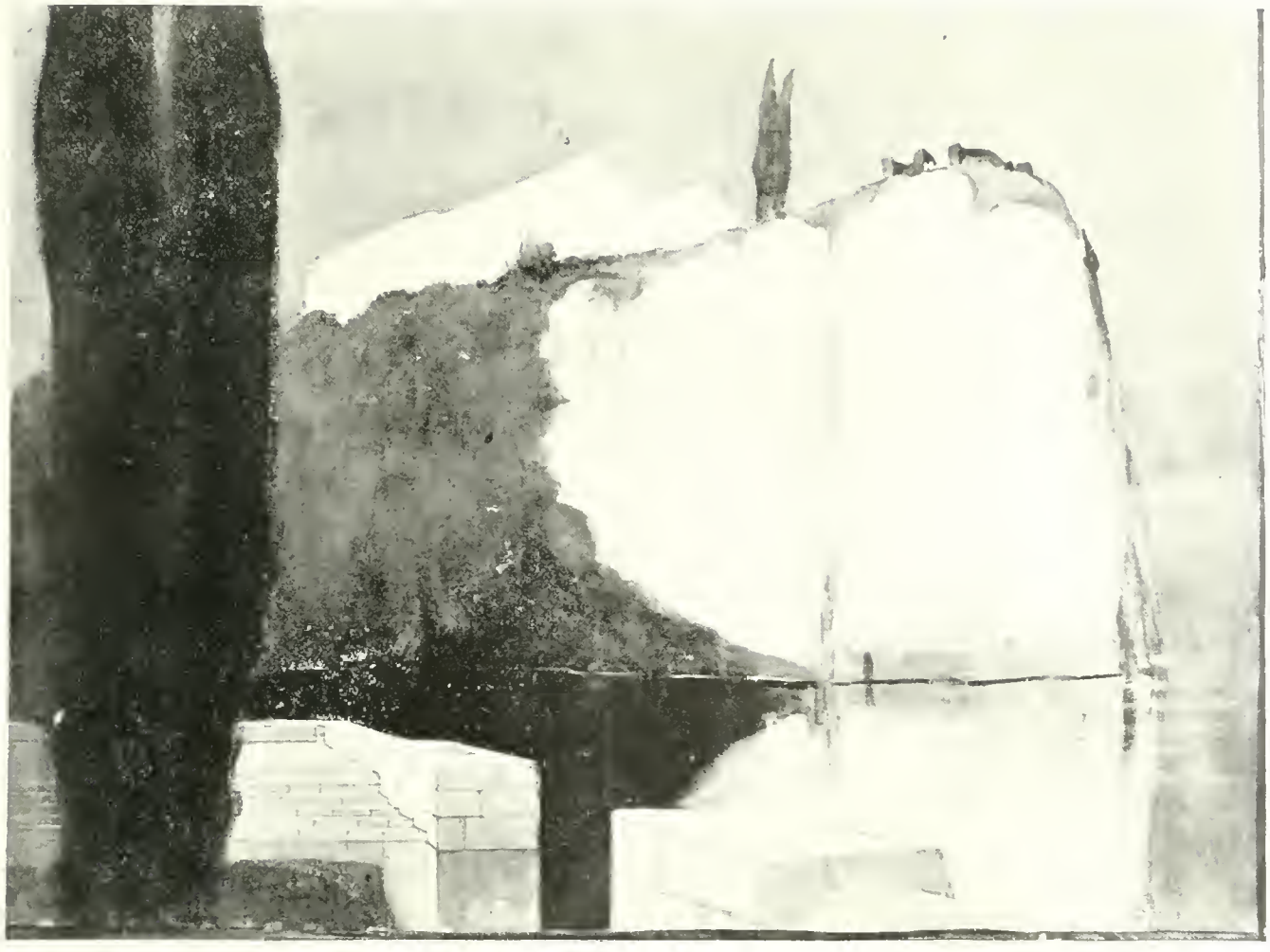




AN ENTRANCE GATEWAY TO A CAPITAL CITY. -DESIGN by PRENTICE MAWSON.
Soane Medallion Competition, 1911.

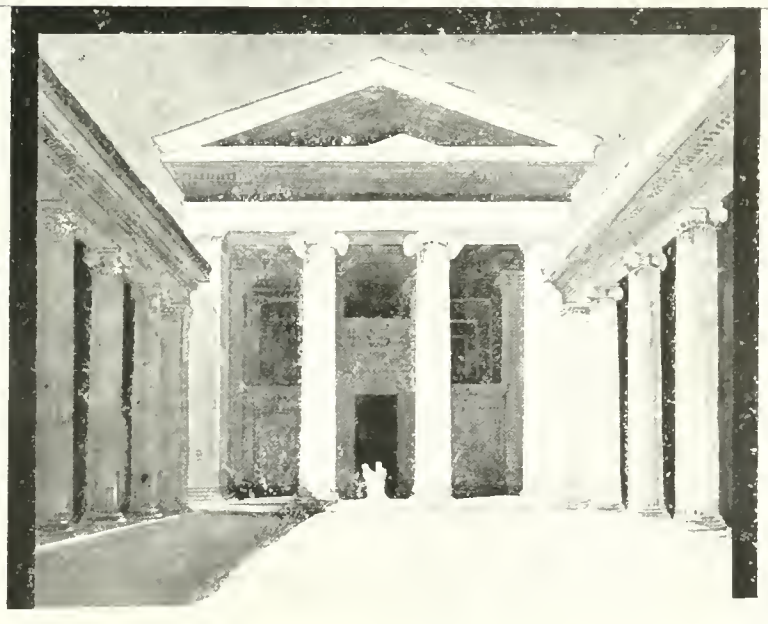


A CAMPO SANTO.—PRIZE DESIGN, by GEORGE HERBERT FOGGITT.



ΕΚ ΘΑΝΑΤΟΥ ΝΙΚΟΣ

GENERAL VIEW OF ISLAND

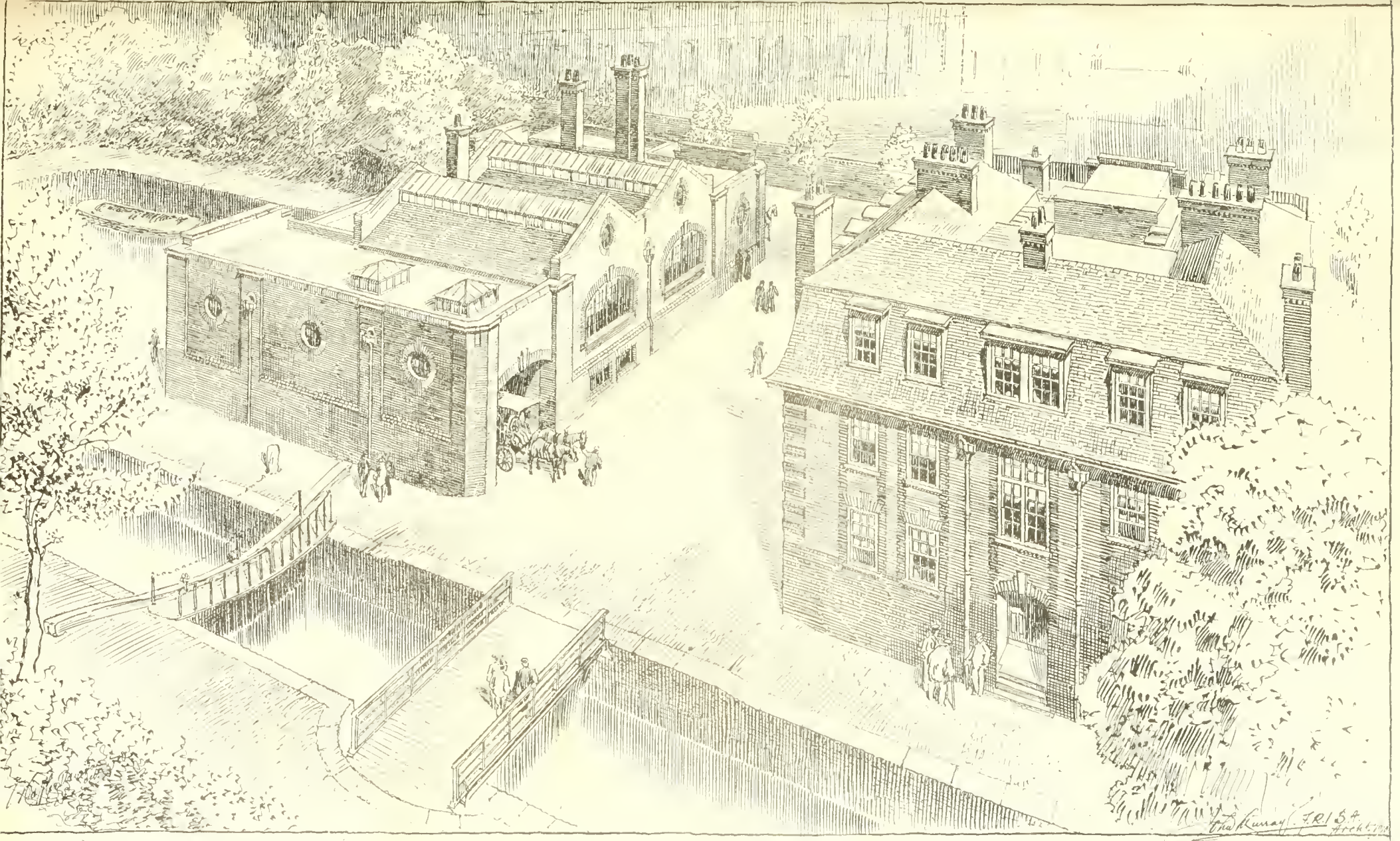


PERSPECTIVE VIEW DOWN CLOISTERS AS SEEN BY A MAN FIVE FOOT HIGH . . .

DISINFECTING STATION & STAFF DWELLINGS GATLIFF Rd S.W. FOR THE WESTMINSTER CITY COUNCIL

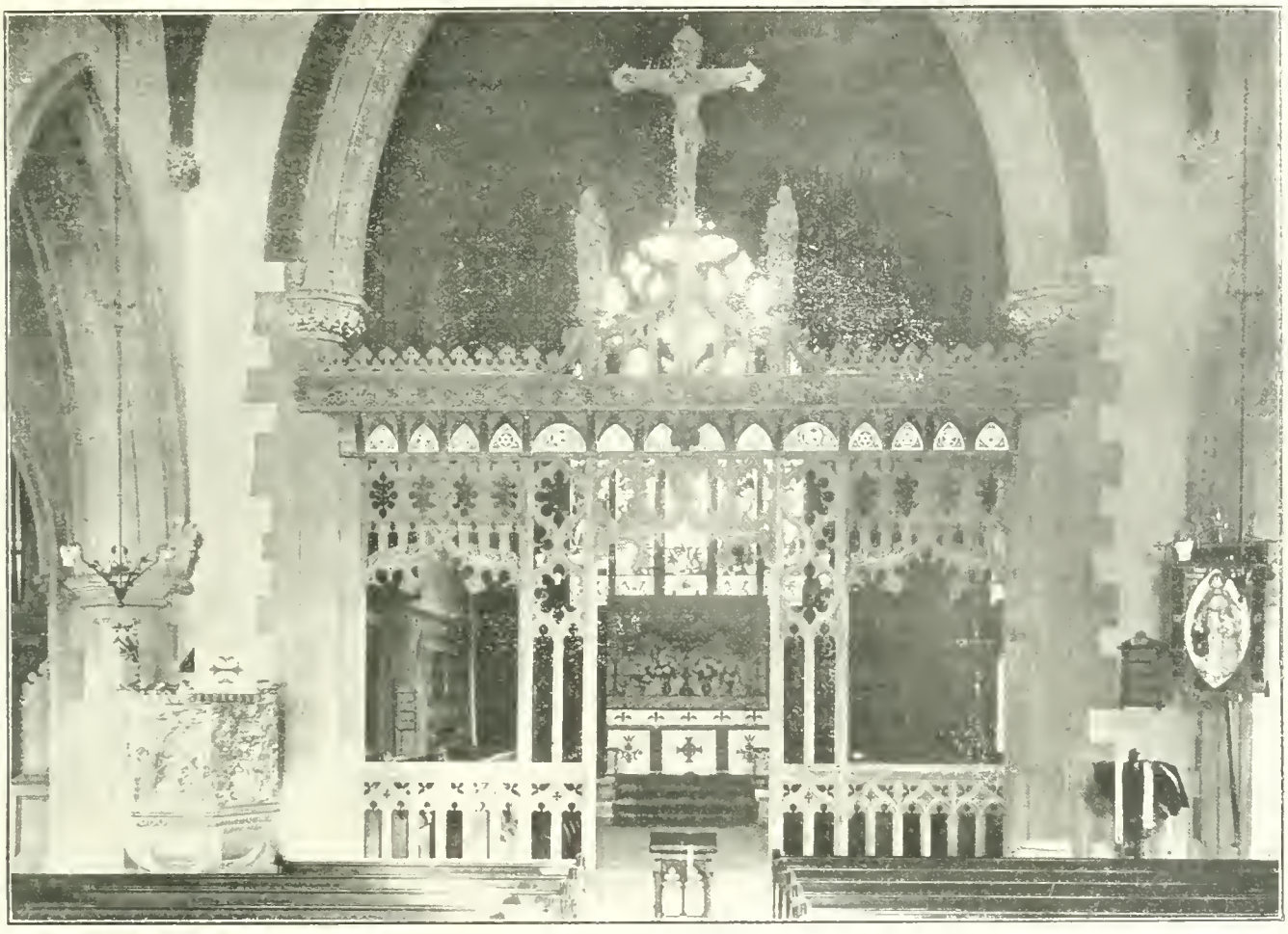
T. Cutler Wilson Delt

John F. Murray. F.R.I.B.A. Archt. 1910.



JOHN MURRAY FRIBA ARCHITECT

Birds-Eye View across the Lock



ROOD-SCREEN, ALL SAINTS' CHURCH, BENHILTON, SURREY. The late L. G. Detmar, A.R.I.B.A., Architect. (Made by Harry Hems and Sons, of Exeter.)

ROOD-SCREEN, ALL SAINTS' CHURCH, BENHILTON, SURREY.

This screen—which forms the line of demarcation between the chancel and nave of Benhilton Church, situated upon the outskirts of Sutton—was dedicated by the Right Rev. Cecil Hook, D.D., the Lord Bishop of Kingston, upon October 29 last, that being, according to the Old English calendar, the Feast of St. Elfreda. It is constructed entirely of well-seasoned English oak, measuring 22ft. 6in. in width, and possessed of an extreme altitude of 25ft. to the top of the cross. It was designed by the late Mr. L. G. Detmar, A.R.I.B.A., who was originally junior partner with Mr. W. Hinton-Nash, F.R.I.B.A., of Bush Lane House, Cannon-street, E.C. After the retirement of the latter gentleman from the profession, Mr. Detmar went into partnership with Mr. Theodore Gregg in offices at St. Helen's-place, E.C. To the deep regret of a very wide circle of friends, Mr. Detmar—who was a talented and rising young architect, residing at Hazeldean, Sutton—in April last was killed by being thrown from his horse whilst riding on Epsom Downs. The design, which he had prepared a little while prior to the fatal accident in question, has since been faithfully carried out under the personal direction of his surviving partner, Mr. Gregg. An inscription thereupon, in unobtrusive characters, reads:

"✠To the glory of God and to the memory of Lionel Gordon Detmar, this screen—after his own design—was erected by his friends. A.D. 1910✠"

The sacred edifice also contains an ornate altar and reredos, and a number of parclose-screens, all in English oak. The altar, etc., and five of these richly-carved screens Mr. Detmar designed in conjunction with Mr. W. Hinton-Nash, and, after the latter's retirement, a sixth one (in the south aisle) was put up by him in conjunction with Mr. Gregg.

The whole of these additions to the general fabric were executed by Messrs. Harry Hems and Sons, of Exeter.

Mr. Detmar's mortal remains rest in Benhilton Churchyard, near to the west tower. They have just been marked by a cross of grey Dartmoor granite—an exact fac-simile of an ancient one existing in a field known as Trelanvean St. Keverne, in Cornwall. An illustration of it, drawn to scale, may be seen in Arthur G. Langdon's "Old Cornish Crosses" (1896). The late and much-lamented architect considered this particular cross to be an ideal example of that particular type which is so distinctly typical of the "West Countrie." The simple inscription upon its reproduction may be read as follows:—

"Lionel Gordon Detmar. Born 1 July, 1879. Died 9 April, 1910."

This memorial is also the work of Messrs. Harry Hems and Sons, carried out under the direction of Mr. Gregg.

CHIPS.

The Clacton Urban District Council have decided to replace the old wooden sea wall along the west beach with a stone structure 1,050ft. in length, at an estimated cost of £6,240. The tender of Mr. T. W. Pedrette, of Enfield, has been accepted at £3,516 for the work, which will be carried out under the direction of Mr. D. J. Bowe, surveyor to the council.

The Chancellor of the Manchester diocese held a Consistory Court on Friday, and granted faculties for various alterations or erections at the following churches: St. Ann's, Manchester; St. John's, Old Trafford; Christ Church, Bacup; St. John, Stand Lane; St. Matthew, Bolton; St. Saviour's, Ringley; St. Michael, Ashton-under-Lyne; St. John the Evangelist, Bacup; St. Bartholomew, Westhoughton; and St. Andrew, Burnley.

Mr. James Lees, A.R.C.S., Assistant Lecturer in the Faculty of Engineering in the University of Bristol, has been appointed to the post of Lecturer in Engineering in the South African College, Cape Town.

While excavating on Saturday in the extensive shingle flats between Sandwich and Richborough workmen unearthed the foundations of a Roman building, and the discovery is held to give strong support to the suggestion that the estuary of the Stour was reclaimed at a much earlier period than is generally supposed, and that the district around Sandwich had ceased to be an island before the departure of the Roman Legions.

Three years ago a committee of the Hawick Archæological Society was appointed to consider as to the excavation of the ruins of the pre-Reformation church at Southdean, and to preserve the remaining portions as a memorial of the battle of Otterburn, the church having been the headquarters of a Scottish army encamped there in the summer of 1388. The work has now been successfully completed, and a dedication ceremony will take place on May 6 next.

It has been decided to submit the differences between the urban districts of Walthamstow, Leyton, Edmonton, Enfield, and Southgate as to the proportion of the cost and the terms and conditions to be undertaken in the scheme for entering the London County Council main drainage system to the President of the Local Government Board, with an agreement that his decision shall be accepted as final. A controversy which has continued for some time will thus be closed.

A Canadian rival to the Statue of Liberty is to be set up on a hill overlooking the St Lawrence, and estimates of £4,000 have been placed before the Canadian House of Commons to pay for it. The statue is to be of a French-Canadian heroine, Madeleine de Verchères. The statue is to be cast in bronze, and is to be fifty feet in height. It is to be placed on Verchères Bluff, which overlooks the St Lawrence, the exact place where took place the heroic deed it commemorates—the defence of Madeleine's home against an attack by the Iroquois Indians in 1692.

COMPETITIONS.

BRIGHTON HOVE AND SUSSEX GRAMMAR SCHOOL.—The following eight architects were invited to compete for this scheme: Messrs. Rowe and Cooper, Mr. Henry T. Hare, Mr. Arthur J. Messer, Messrs. G. [illegible], Mr. H. Carter Pegg, Mr. J. A. O. [illegible], Mr. John [illegible], Mr. [illegible], Mr. H. [illegible], Mr. [illegible], F.R.I.B.A., Mr. H. [illegible], F.R.I.B.A., Mr. [illegible], and Messrs. [illegible]. [illegible] plans were [illegible] Gratwicke [illegible] Brighton [illegible] Wilkinson [illegible] Mr. [illegible] Mr. S. B. [illegible] [illegible] Mr. [illegible] Mr. [illegible] [illegible] Messrs. [illegible] [illegible] [illegible]

temperature. 100gal. of water = (100 × 10) pounds of water = 1,000lb. 1,000lb. × (212° Fahr. − 45 Fahr.) = 1,000 · 167 = 167,000 B.T.U. 167,000 — 966 = 173lb. of steam. Ans.: 173lb. of steam at 212° Fahr. at atmospheric pressure. I think the above calculation will be followed, as it naturally follows, that if it takes 966 B.T.U. to convert 1lb. of water at 212° Fahr. into 1lb. of steam at 212° Fahr., then 1lb. of steam at 212° Fahr. will give up 966 B.T.U. when converted into condensed water or steam at 212 Fahr.—Frank Wilson, 225, Nottingham-street, Sheffield.

[13002.]—HEATING WATER.—Below are answers to the four questions of "Le Tard." (1) The heat required to heat water in a calorifier by steam depends upon the following circumstances: (*a*) The difference in temperature between the steam and water, and (*b*) the thickness and conductivity of the metal used. The following particulars are based upon a copper coil having thickness of ⅛in., which is rarely exceeded. It has been ascertained that 1sq.ft. of steam condensing surface will transmit to the water in contact with it 330 British Thermal Units (B.T.U.) per hour for each degree of difference in temperature between the water and the steam, or 5.5 B.T.U. per minute. The area of heating surface is found by multiplying the inside diameter of the pipe by 22 7, and the product by the length of pipe. If the steam is under pressure, the temperature is increased, and the greater the pressure, the higher will be the temperature, as shown by the following table of temperatures of steam at given pressures:—

Excess of pressure above normal atmospheric pressure in lbs. per squre inch.		Temperature in degrees Fahr.
0	=	212.0
1	=	215.9
5	=	227.6
10	=	239.0
15	=	249.8
20	=	259.0

We will assume that it is required to find the amount of water that can be heated in fifteen minutes, the steam entering the coil at 5lb. pressure, and the temperature of the water in the cylinder is 50° Fahr., the heat required is 180° Fahr., the length of pipe is 42ft., and the internal diameter of the pipe is 1in. The heating surface will equal 1 12 × 22 7 × 42 1, which equals 11sq.ft. The temperature of the steam at the pressure mentioned is (refer to above table) approximately 227° Fahr., and taking the mean difference between 227 and 50° and 227° and 185°, which is 112 Fahr., we can now find in B.T.U. the heat transmitted by 11sq.ft. of heating surface thus—

$$\frac{11\text{sq.ft.} \times 330\ \text{B.T.U.} \times 112^{\circ} \times 15\ \text{minutes}}{60\ \text{minutes}}$$

which equals 101,640 B.T.U., and the amount of water heated in the time stated will be $\frac{101,640}{180 - 50} = 781.5\text{lb.}$, and as one gallon of water weighs 10lb., the amount of water heated to the required temperature will be approximately 78 gallons. By substituting, any quantities can be reckoned from these figures. If the reverse is required—that is, the amount of heating surface to heat a known quantity of water through a given number of degrees in a stated time, the following formula will be useful—

$$S = \frac{L \times R}{H \times M \times T}$$

where S = interior coil surface for condensing steam, L = pounds of water required to be heated in a given time, R = required number of degrees of increase in temperature of the water, H = number of heat units transmitted by 1sq.ft. of heating surface per minute = 5.5 B.T.U., M = mean difference in temperature of steam and water, T = time in minutes in which the water is to be heated. S will give the square feet of coil surface, and the length of pipe, assumed to be 1in. in diameter, can be determined thus—

$$\frac{S}{1.12 \times 22\ 7} = \frac{S}{1} \times \frac{12}{1} \times \frac{7}{22}$$

(2) The amount of condensed steam as water returned through the steam trap into the waste-pipe will be 1c.in. for every cubic foot of steam that passes into the coil at normal atmospheric pressure, assuming that the heat applied to the water from which the steam was converted was 212° Fahr. The piping, &c., will be in proportionate strength to the amount of steam pressure that will pass into it, and the best results are obtained with a pressure of from 1 to 10lb. per inch. Steam above this pressure should be allowed to escape by a dead-weight safety-valve on the supply pipe, as in case of little or no hot water being drawn from the cylinder at any time, the steam will heat the water and fittings to 212° Fahr., when great pressure of steam will accumulate—not condense, and an explosion may occur. With regard to question (3), it seems to me that the temperature of the condensed steam—that is, condensed water—can only be found by the application of the thermometer, as it will range from anything above the atmospheric temperature to the point when steam becomes condensed, which is below 212 Fahr. As to the regulation of the temperature of the condensed water question (4), this will also depend upon the amount of heated water drawn from the cylinder. If the demand for hot water was great, then more steam would be condensed, and the steam trap would operate more rapidly; but if little hot water was drawn off, the less the amount of steam condensed, the slower would be the discharge from the steam trap; and consequently the lower the temperature of the discharge than in the former case.—Gordon L. Thorne, 10, Atherley-road, Southampton.

[13002.]—HEATING WATER.—(1) Assuming the calorifier is required to heat, say, 500 gallons of water per hour, from 50° to 180° Fahr., then 500 · 10 = 5,000lb. 180° − 50° 130°, rise of temperature. 5,000 × 130 = 650,000 B.T.U. required per hour to be transmitted from the steam to the water. The heat for any other quantity or temperature can be ascertained in the same way. (2) If the available steam pressure is, say, 40lb., the latent heat of same is 913 B.T.U. per lb. Therefore,

$$\frac{650,000}{913} = 712\text{lb. of steam}$$

condensed per hour. The heat of steam at other pressures can be obtained from any textbook. (3) If the steam-trap discharges into an open tank or "hot well," the hot water immediately loses whatever pressure it previously possessed. By so doing it automatically loses temperature, and, by a natural law, throws off vapour or steam in proportion to the reduction in temperature. A thermometer immersed in the "hot well" would probably register about 209° Fahr., under favourable conditions. (4) The steam-trap can be adjusted so that no steam is allowed to escape, and only condensation water passed; but it is not possible to regulate the temperature of the latter. The temperature of the hot water leaving the tap of the calorifier can, however, be regulated and maintained at any desired degree by the use of a "Thermostat."—William Clare, 26, Abbeyfield-road, Sheffield.

[13003.]—TROUBLE WITH KEENE'S CEMENT.—Usually the swelling of Keene's cement is caused by the mixing of plaster-of-Paris with the cement. Plaster-of-Paris has the property of expanding on setting, and if the Keene's cement is free from pure plaster-of-Paris no trouble should arise.—Sidney H. Goodwin, 8, Epsom-road, Croydon, Surrey.

[13003.]—TROUBLE WITH KEENE'S CEMENT.—Perhaps, in the case that has come under the notice of "H. F.," there has been too much sand and too little lime used in the ordinary plastering, thereby causing too much shrinkage. This is often caused by the builder not running enough lime for the completion of the whole of the plastering. Commencing at the top of the building, he finds the deficiency when he is doing the principal rooms on the ground floor, and is then tempted to tamper with the lime by adding some insufficiently-seasoned lime and a bigger proportion of sand. Keene's cement must be finished on a backing of Portland cement to obtain the best results. Was this done in the case under consideration?—K. H. Read, Lecturer on Building Construction, Gloucester Technical School.

[13003.]—TROUBLE WITH KEENE'S CEMENT.—From the description of the trouble I should say that the Keene's cement angles were completed before the plastering of the walls, with the result that the Keene's having set, and possibly the angles were used as screeds for the plastering of the wall, which may have been carried out in damp weather, or used in too liquid a state, and the moisture drying out has caused the plaster to shrink abnormally. Cement work shrinks far less than ordinary lime plasterwork, consequently the walls should be completed with plaster before the angles are cut out after setting, and finished flush with Keene's cement. I should suggest to "H. F.," if the work is important, and the projecting angles are very disfiguring, and a remedy is required, that he washes off the distemper at the angles, cuts a line into the plaster about ½in. from the angles and ¼in. deep, well wet after cutting out the surface to the depth mentioned, and make good with lime putty and fine sand mixed one and one, the difference in level being made up in the ½in. This will probably necessitate the redecoration of the whole of the plastered surface, as there is great difficulty in exactly matching distemper tints, and I expect it would be better to become used to the projecting angle, which by the inexperienced eye will not be noticed, and alter the procedure in future work. In any case, the defect is caused by the unequal shrinkage of the plasterwork and Keene's angle.—Gordon L. Thorne, 10, Atherley-road, Southampton.

[13003.]—TROUBLE WITH KEENE'S CEMENT.—Angles done in Keene's cement always show, for two reasons:—(1) The cement gives a lighter background than the general plastering, for the application of distempering, and (2) it always expands in setting from chemical causes, whilst plastering contracts by the mere giving up of the moisture used in mixing the plaster. A ridge is, therefore, the natural result between cement and plasterwork. It will be remembered that plaster-of-Paris, which is the chief component of Keene's, is largely used for filling up cracks, owing to this very property of expansion.—Frank Wilson, 225, Nottingham-street, Sheffield.

[13004.]—THE APOSTLES IN ART.—These are generally represented in architectural works symbolically, and have been depicted as follows:—St. Andrew, cross, saltire, &c.; St. Bartholomew, flaying knife in hand; St. James the Greater, as a pilgrim with staff, shell, hat, and wallet; St. James the Less, with a fuller's club in hand; St. John, with chalice and serpent issuing from it; St. Jude, boat in hand; St. Matthias, bearing a halberd; St. Matthew, money-bag or box; St. Peter, one or two keys; St. Philip, basket and bread; St. Simon, one or two fishes in hand; St. Thomas, spear or lance. Also, John the Baptist, lamb on a book, St. Paul, resting upon or holding a sword. "W. S." should consult Bloxam's "Principles of Gothic Architecture," Vol II. p. 207, or W. and G. Audsley's "Christian Symbolism," and if he refers to his BUILDING NEWS of some twenty-five years ago, he will find that Mr. James F. Bell, in answer 8150, gave some samples of the attributes of saints which he had come across in Norfolk, including the rare figures of St. Appolonia, with her tongue held in pincers, and St. Barbara, with palm in one hand and a tower in the other. The examples quoted in Mr. Bloxam's book are also principally from the same county and Suffolk, mostly depicted in paintings and painted panels of screens.—Frank Wilson, 225, Nottingham-street, Sheffield.

[13004.]—THE APOSTLES IN ART.—The avocations followed by "The Twelve"—all admittedly men of humble birth—are only known in part. It is on record that the majority of them—namely, SS. Peter, Jude, Simon, James Major, Thomas, Andrew, and John were originally fishermen. We are also aware that St. Matthew was a tax-collector; but what particular sphere of life was occupied by SS. James Minor, Bartholomew (son of a husbandman) Matthias, and Philip, appears to be unknown. Therefore, in Mediæval art they never appear collectively represented in early life, and only on comparatively rare occasions are some of them represented as engaged in the respective trades they were employed in prior to the time they were called to follow the great Master. Illustrations of the Apostles, grouped, and identified by their respective emblems, will be found in "The Calendar of the Prayer-Book" (published by James Parker and Co. Oxford and London, 1870). Mrs. Jameson, in her first volume of "Sacred and Legendary Art" (published by Longmans, Green, and Co., 1879), refers to Basaiti's picture (now in the Vienna Gallery), representing the Calling of SS. Peter and Andrew. In it the two brothers are seen kneeling at the feet of our Saviour, whilst the fishing-boats, floating on the Lake of Gennesaret, are shown in the background. The same gifted authoress also refers to the beautiful fresco by Ghirandajo in the Sistine Chapel, wherein this subject is powerfully portrayed. In the Vatican is preserved Cavalucci's grand picture of St. Andrew in the act of presenting St. Peter to Christ. In it, St. Andrew is at our Lord's feet, whilst St. Peter sits upon the edge of the boat. Of all the Apostles, St. Peter has always been an especial favourite with our own Mediæval craftsmen. This is not surprising, considering the fact that his has ever been accepted as the master mind of them all. He is represented as holding a single key upon the rood-screens at Edingthorpe, Tunstead, and Lessingham, and also upon the fonts at Buckenham and Stalham. On the font at Crostwick he has a model of a church, as well as a key, whilst on an ivory triptych of Bishop de Grandison, of Exeter (1327-69), now preserved in the British Museum, he has a model of a church and two keys. The fine old Mediæval rood-screens at Irstead, Filby, Ringland, and Ranworth, as well as the south aisle parclose at Worstead, show St. Peter with two golden keys, whilst at Swafield and Westwick one key is gold and the other of silver. At Trunch he has a couple of keys and an open book. Upon the latter occur the words, "Credo in Deum Patrem omnipotentem." A mural painting (now, I believe, non-existent) on the wall of the Chapel of St. Magdalene's Hospital at Winchester portrayed St. Peter in full pontifical robes, wearing the pallium, crowned as a king, holding a church in his right hand and two keys in the other. Carved in stone at Bromyard Church, and engraved upon the fine brass of Henry de Codyngton at Bottesford, he carries keys and a closed book. At Chalgrove Church the keys are back to back, so as to form the outline of a cross held downward, evidently indicative of the particular form of crucifixion St. Peter is believed to have suffered. On the rood-screen at Blofield he is chained and in prison. A somewhat remarkable representation of St. Peter may be seen upon the exterior of a building in the main thoroughfare at Exeter. It is a life-size figure carved in oak, of 14th or 15th-century workmanship, supposed to have been originally in the Cathedral (which is dedicated to the joint honour of SS. Peter and Paul). Although I have frequently searched, I am, however, quite unable to identify the situation from whence it was (if ever there) removed. It is a spirited work of ecclesiastical sculpture, and represents "Father Peter" (the name the statue is locally known by) trampling upon a figure of the Devil. In his right hand is a model of a church and two keys, whilst in the left is an open book. All the Apostles have, of course, their recognised symbols, some of these emblematic of the respective deaths by which they died; but this is not by any manner of means necessarily so. In many instances, especially upon East Anglian screens, each figure bears a scroll inscribed with a sentence from the Creed. St. Andrew's accepted emblem, of course, is the well-known × cross (the crux decussata). Sometimes, however, this cross takes the form of the letter Y, whilst Husenbeth records that on a bronze gate at St. Paul's, in Rome, St. Andrew is represented nailed to a frame that takes the shape of a V. St. Peter is almost always shown as an aged man wearing a long and venerable beard. In some few instances in ancient art he appears with a couple of fishes in his right hand. St. James the Great is usually represented as a pilgrim, grasping a staff, to which is attached scrip and wallet. He wears an escallop shell in his hat, and is occasionally, but not often, shown with a sword—the instrument of his martyrdom. St. John in sacred art is readily distinguished by his youthful appearance, with long hair falling over his shoulders. On the rood-screens at Worstead and Ranworth he is shown with the usual poisoned chalice in his hand. On those at North Walsham, Ringland, and Trunch, he carries a sword and palm branch. St. Philip usually carries a staff terminating in a cross. Sometimes this is a tau cross. A basket of bread is also almost invariably associated with representations of this disciple. Upon the bronze gates at St. Maria, in Trasteveri, at the church of St. Paul's, at Rome, a representation of St. Philip may be seen crucified head downwards. St. James the Less's accepted emblem is a club of peculiar shape, known as a fuller's bat, as tradition says he was thrown from the top of the Temple, and whilst lying helpless upon the ground below, his brains were knocked out with a cudgel of this description. On the rood-screens at Belaugh, Ranworth, Lessingham, Blofield, Worsted, Ringland, and Tunstead, and upon the fonts at Taverham and Stalham, on ancient glass in the old west window at Melbury Bubb, he carries a saw in his hand; but this is a rare accompaniment. St. Thomas is represented holding a long staff, but upon most of the screens already mentioned as well as on those at Swafield and Sotterley, and on the font at Crostwick, he is armed with a lance. Sometimes he holds a carpenter's square. St. Bartholomew's general emblem is a flaying knife, the instrument of his

dreadful death. He is so represented upon many East Country screens, where painted series of the Apostles are still in existence, as well as upon the well-known Delamere boss at St. Alban's Abbey. St. Matthew is variously shown upon old screens and in other places either with a bag or money-box (indicative of his calling), or armed with a spear or an axe. In some instances he carries a [illegible] square. St. Simon was cut in twain by [illegible] saw. Hence he is generally shown [illegible] saw, but in many 15th-century [illegible] Norfolk, especially on most of the [illegible] Suffolk screens already referred to, [illegible] a fisherman with one [illegible] and at Southwold and Leiston [illegible] he had at Stalham, he holds [illegible] net. At Ringland and [illegible] but on the screen at [illegible] with the recognised saw, and [illegible] a statue in Exeter Cathedral. Representations of St. Matthias are rarer than are those of any other Apostle. Only one old church in the country is dedicated to his honour—that is Theberton, Suffolk. In the Clog Almanacks his emblem is a leg or boot, the original meaning of which is open to question. Generally, in ancient art, he carries a halberd or an axe. Sometimes it is a spear, and occasionally a book or stone. The halberd is the more favourite symbol. On the rood screens at Hunstanton and Southwold, however, he leans upon a sword. St. Jude, more often than not, has a representation of a boat near him, and sometimes one or two fish. The manner of his death is uncertain. In any reference to the Apostles generally, it would be an omission not to include Judas Iscariot. He is generally distinguished from his companions by a money-bag grasped in one hand, and often by the ill-omen of the overturned salt. The earliest sculptured representation of this subject is said to be that existing in the Duomo at Lodi. It dates from the middle of the 12th century. In this bas-relief, Christ is in the act of presenting him with the sop. Amongst celebrated paintings, that of Angelico da Fiesole (preserved in the Florence Academy) represents him in the act of being bribed by the High Priest, whilst in Rembrandt's powerful picture, Judas, stung by remorse, is in the act of throwing down the pieces of silver in the Temple.—Harry Hems.

LEGAL INTELLIGENCE.

BUILDING CONTRACT. Appeal Dismissed. In the Court of Appeal, consisting of Lords Justices Vaughan Williams, Buckley, and Kennedy, judgment was delivered last week in the case of Gardner v. the Durham County Council, upon the defendants' appeal from a judgment of the Lord Chief Justice. The plaintiff, Mr. J. A. Gardner, of Newcastle, as trustee of the estate of Messrs. Veitch and Jordon, builders, of Newcastle, claimed £403 19s. for work done, and materials supplied, under a contract with the Council for the erection of certain schools at Dubmire. The foundations of the old building had been laid over some old colliery shafts, and a subsidence took place, which necessitated the discontinuance of the work. The dispute was with reference to material brought to the job before the cessation of the work, and the defendants paid into court £119 19s., which they said represented the value of the material. Plaintiff, however, contended that the builders were entitled to be paid on a "quantum meruit" value, and the Lord Chief Justice so held and entered judgement for the plaintiff for £403 19s. Hence the present appeal of the defendants. Lord Justice Vaughan Williams agreed with the judgment of the Lord Chief Justice, and thought that the appeal should be dismissed with costs. Lord Justice Buckley dissented, being of opinion that there should be a declaration that the defendants, in the circumstances ought to have charged the value of the material—not the agreed value of measuring up, but the fair selling value at the date of the determination of the contract; and, if necessary, that an inquiry should be directed to ascertain the figures upon that basis. Lord Justice Kennedy agreed in the judgment of Lord Justice Vaughan Williams, and therefore, by a majority of the Court, the appeal was dismissed with costs.

A BUILDERS' CLERK'S OMISSION. In the King's Bench Division on Jan. 20 Mr. Justice Channell gave judgment in the case of Dorman, Long, and Co. v. H. Willcock and Co. In this case, the plaintiffs, a firm carrying on business at Middlesbrough, sued the defendants, who are builders and contractors at Wolverhampton, for £88 13s. balance on account of work done and materials supplied to the Technical School of the Merchant Adventurers at Bristol. The action arose from the fact that a clerk of plaintiffs omitted to put in the account sent to defendants the price of three steel stanchions which had been supplied. Mr. Leslie Scott, K.C., appeared for plaintiffs, and Mr. Acland, K.C., for the defendants. His Lordship, in giving judgment, said this was a case in which he had been extremely anxious not to give judgment, because, in his opinion, it was eminently suitable for settlement. He thought the defendants were wrong, and that the plaintiffs must recover the sum due to them. Dealing with the question of costs which, he said, no doubt, had prevented the parties coming to an agreement, he thought the plaintiffs were right in law, though the matter arose out of an error by their own clerk. He could not, therefore, do otherwise than order the costs to follow the event. There would, therefore, be judgment for plaintiffs, with costs of the action. After consultation with Mr. Acland, Mr. Leslie Scott said the judgment would be for plaintiffs for £91 8s. 10d. beyond the amount paid into Court) with costs, and the defendants got nothing on the counter-claim except costs on that claim as if they had recovered £23. A stay of execution was refused.

HOUSE PAINTERS AND TRAVELLING EXPENSES. To Judge Thomas, in the Liverpool County Court, Mr. B. Newman has mentioned the case of Denton v. Tilley. In making application for costs, Mr. Newman told his Honour that the case had been fought up to that morning, when the defendant had turned up and paid the money into court. The sum involved was only a small one, but it was rather an important case of principle, involving, as it did, the interpretation of the agreement between the Liverpool Operative House Painters' Old Society and the Master Builders' Association of Liverpool. The case concerned the allowance of expenses to workmen for walking time in going to various jobs, and that being the type of the case, and it being of importance to all the people concerned in the agreement, he asked his Honour to allow him costs on a higher scale. The dispute was as to whether the plaintiff was entitled to be paid his travelling expenses when he went to do a job which was outside the particular boundary of one and a half miles from St. George's Hall, and up to the last minute the defendant had contended that the plaintiff was not entitled to the allowance claimed. The whole of the men in the society named, and also in the National Amalgamated Society of Operative House and Ship Painters, were affected, as well as the members of the Master Builders' Association of Liverpool. His Honour granted costs on scale A, and also certified for counsel.

A CONVICTION QUASHED. The case of Rea v. London County Council, which recently came before a Divisional Court of King's Bench composed of Justices Channell, Bray, and Hamilton, raised a question of considerable importance under Part II. of the London Building Act, 1894 as amended by Section 3 of the Act of 1898. The case came before the Court upon a special case stated by a Metropolitan police magistrate, before whom the appellant, Mr. Rea, had been convicted of neglecting to comply with the requirement of a notice to cause the external fences or boundary of the forecourt or other space between the external walls of a certain building and the street to be set back so that every part of the external fence or boundary of such forecourt or space should be at a distance in every direction from the centre of the roadway of such street not less than the distance permitted under Part II. The facts appeared to be as follows. Logan-place was a street about 30ft. wide, within the Royal Borough of Kensington, and had existed as a road for some years. In 1909 it was paved by the borough, used for carriage traffic, and became a highway. The appellant was underlessee and "owner" within the definition of the Act of 1894 of a piece of land on the south side of Logan-place measuring 117ft. 6in. by 95ft., and enclosed by brick walls 6ft. 6in. high. In September, 1908, he began to erect a house upon the south-western portion. The "prescribed distance" from the centre of the roadway of Logan-place was 20ft., and the distance of the front of the wall and buildings hereafter mentioned forming the northern boundary of the land was 15ft. from the centre of the road. Up to September, 1908, the land was used as a garden and lawn-tennis court, with beds, borders, and paths round it. The appellant served a proper building notice and submitted plans when the respondents intimated that he would be required to set back the wall and buildings on the north side for a distance of 5ft. The total length of the northern boundary-wall was 117ft. 6in. Of this, 62ft. 2in. was occupied by buildings—potting-sheds, greenhouse, etc.—the remaining 55ft. 4in. occupied by wall only. In December, 1909, the respondents served on the appellant, in pursuance of Section 3 (1) of the Amendment Act, 1898, a notice requiring him to set back his wall. The appellant contended (1) that the garden was not a forecourt or other space between the external wall of the new residence and the roadway within Part II. of the Act of 1894; that the north wall and other building were not the external fence or boundary of such a forecourt or space, and that neither Section 13 of the Act nor Section 3 of the amending Act of 1898 enabled the respondents to require the setting back of existing buildings—viz., the potting-sheds, greenhouse, and wall; (2) that Section 13 had no application to a fence or boundary of a forecourt or space unless such fence or boundary was erected at the time when the new building was erected; (3) alternatively, that the certificate of the district surveyor given on October 26, 1908, when the building of the house was already in progress, was a complete answer to the proceedings. The respondents contended that the garden was "a forecourt or other space" within the meaning of the section, and that the north wall and buildings must be set back accordingly. The learned magistrate, in his judgment, said he did not think that any definite or clear meaning could be put on the word "forecourt" in the Act; but there was, of course, the expression "other space," and he should have said the distance which separated the house from the old boundary-wall was certainly a "space" within the meaning of the section. He quite agreed that if the dictum of the late Mr. Justice Wright in the case of "London County Council v. Aylesbury Dairy Company" had been a judgment, it would have been a defence in his case; but at most it was an *obiter dictum*, and merely at the end of his judgment—a reservation of a possible doubt, on which, in the face of the words of the section, he (the magistrate) did not think he could act. The district surveyor's certificate, given under section 13 (5) did not take the case out of the Act. In the first place, that certificate was given after the house had been actually in part erected. That certificate, if given at all, applied only to the wall, and he did not think that the certificate referred to in a section was meant to apply to the case of a new boundary-wall. The words were, "intend to alter or re-erect any building or structure," existing at the amendment of the Act, which, he thought, had reference to a building other than a boundary-wall. He was, therefore, of opinion that there must in this case be a conviction; hence the present appeal. At the conclusion of the arguments of counsel, their Lordships allowed the appeal, holding that the learned magistrate was wrong, and that Section 13 had not the effect he attributed to it, and that where, as in the present case, there was an existing boundary-wall, and a new house was built within it, the London County Council could not require the owner of the land upon which it was built to set back the old boundary-wall forming the boundary of the space left between the new building and the street so that the wall, as in the present instance, should not be less than 20ft. from the centre of the roadway of the street.

GROUNDS FOR NON-APPROVAL OF BUILDING PLANS.—In the Divisional Court of the King's Bench, on Friday, Justices Avory and Lush heard an application on behalf of Mr. Joseph Cowper, of Tynemouth, for a rule nisi for a mandamus directed to the Tynemouth Corporation calling upon them to show cause why they should not approve of certain building plans. As a matter of fact, said counsel, it was decided long ago, and that was no ground for the corporation refusing to approve of the plans. There were several authorities to show that the actual grounds upon which the local authorities could refuse the plans were a breach of a by-law, a breach of the statute under the Buildings and Streets Act, or if the buildings would destroy the public highway of which the corporation were the guardians.—Mr. Justice Avory: Will you show me why they refused these plans? Counsel: I will read some of the correspondence. We have written again and again asking them to give us the by-law which we had broken; but they never gave it. It was plain in this case that the question was whether the street was to be directed through land held under covenants by other people. Mr. Justice Avory: They seem to suggest in one letter that you cannot comply with the by-law respecting new streets.—Counsel said the only question seemed to be one of covenants, and that had nothing to do with them.—Their Lordships granted the rule applied for.

OLDHAM RESERVOIR CONTRACT.—When the case of John Spencer and Bros., of Oldham, v. J. Chadwick and Co., of Oldham and Manchester, and Stott and Sons, of Manchester, was called on in the Court of Appeal on Friday, counsel announced that the parties, acting on the suggestion of the Court made the previous evening, had settled the matter. The plaintiffs are contractors, who built a reservoir at Oldham for Messrs. Chadwick and Co., Messrs. Stott being the architects. In the County Palatine Court they asked for a declaration that the architects should give a final certificate for the work completed, and that Messrs. Chadwick should pay £340, the balance of the amount of the contract. They were successful against Messrs. Chadwick, with the exception of £50;

but the Vice-Chancellor dismissed Messrs. Stott from the action altogether. Messrs. Chadwick and Co. appealed, and there was a cross-appeal by the plaintiffs. The Master of the Rolls said he thought a reasonable course had been adopted, because he might have come to a decision which would not have been satisfactory to either party. Both the appeal and the cross-appeal were dismissed on the terms of the settlement.

ARCHITECT'S LIABILITY FOR DRY-ROT.—LEICESTER GUARDIANS v. TROLLOPE.—In the King's Bench Division, on January 25, Mr. Justice Channell gave judgment in the action brought by the Leicester Board of Guardians against Mr. John E. Trollope, F.R.I.B.A., of Craven-street, Strand, for negligence in supervision, negligence in giving a final certificate exempting the contractors from breach of agreement to execute repairs. The plaintiffs stated that in February, 1908, dry-rot developed under the floor of the workhouse infirmary at North Everington, completed in 1906 under defendant's supervision, and that the renewal of the flooring cost about £3,000.—For the plaintiff, Mr. A. E. Sawday, F.R.I.B.A., of Market-street, Leicester, stated that the presence of the dry-rot in the flooring affected was due to dry-rot in some of the 8,000 to 9,000 pegs supporting the joists beneath the concrete.—Mr. Pollock, K.C., for the defence, contended that the offer made by the defendant to complete the work was never intended to form the basis of a legal liability which could be sued upon.—Mr. John E. Trollope stated that during the time the floors were being laid at the North Evington Infirmary, either he or Mr. Gough visited the work alternately once a month. He never saw any sticks or pegs, and if any quantity had been put in, he would have had to ask what they were for. The clerk of the works saw him at the works and in London from time to time. The question of deviation in the construction of the floors was never mentioned in any document or minute.—Cross-examined: Defendant was also engaged at the same time on other works. The clerk of works was there to see that the specifications were carried out. Witness paid one or two surprise visits to the works.—Mr. E. T. Hall, F.R.I.B.A., deposed that it was the duty of a clerk of works to see that details were properly carried out.—Mr. C. Fitz-Roy Doll, F.R.I.B.A., F.S.I., examined the flooring at the North Evington Infirmary in November, 1910. The fact that pegs were used did not indicate that the work was being done wrongly. Pegs had to be put in so as to get the level.—In delivering judgment, Mr. Justice Channell said that the plaintiffs had made no imputations upon the good faith of the defendant. He regretted to give judgment against Mr. Trollope, but the facts were extremely clear. After the builder obtained a certificate of completion from the architect, it was difficult to sue him. In one sense, no doubt, the fault for the damage complained of lay with the clerk of works, whose duty it was to call defendant's attention to what was going on; but did that relieve the defendant? On the main question he must hold the defendant responsible. He was sorry it was so, because it was a serious liability, and defendant had behaved extremely well. He must give judgment for the plaintiffs on the claim and counterclaim with costs.

FIRE PRECAUTIONS IN CITY OFFICES.—The Tribunal of Appeal under the London Building Acts sat at the Surveyors' Institution on Friday and Saturday (Mr. A. A. Hudson presiding) to hear an appeal by the Trustees, Executors, and Securities Insurance Corporation, Ltd., against an order, with reference to fire precautions, made by the London County Council under Section 9 of the Building Act, 1905, in respect to Winchester House, Old Broad-street, E.C. Mr. Astbury, K.C., and Mr. Douglas Hogg were counsel for the appellants, and Mr. Cecil Walsh represented the London County Council. Mr. Astbury submitted that Section 9 was not intended to apply to places of this character. It was a purely business building; the people employed there were clerks, and they were only at work there in the daytime. The present means of escape were ample, and the alterations which the Council wished to have carried out would probably make it more dangerous. Certainly the means of escape would not be any better, and the building would be absolutely ruined by the proposed new staircases and swing-doors. There was nothing in the building to burn, save papers in some of the offices. It was an arbitrary and absurd proposition that the County Council should make all the private offices communicate one with another. If this was to be allowed, he did not know what was to happen to the City of London. They wanted to place nineteen doorways in this unfortunate building, and the result would only be to add to the danger instead of decreasing it. In reply to the President, counsel said about 800 people were employed in the building in the daytime. As to the proposal to run a corridor through certain offices, the company would be breaking their leases, losing their tenants, and be liable to actions. Among the buildings exempted by this Act were the four Inns of Court, the offices of railway companies, banks, and insurance offices, and it was difficult to see the difference between these buildings and Winchester House. Mr. Ernest Flint, F.R.I.B.A., characterised as a source of danger the proposal to put swing-doors for the purpose of cutting off smoke from the staircases. Cross-examined by Mr. Walsh, witness said that only on the fifth floor was there a corridor giving a clear run around. It was true that in the basement there were an engine-room, a boiler-room, an electricians' shop, a lamp-room, and an oil-store. The President said the proposed manner of applying the question of smoke-doors on staircases seemed to him never to have been applied before. They were cutting off the two means of escape by turning them into flues. Mr. Walsh said that was really being done to insure that the smoke should be confined either within or without the staircase, according to where the fire had originated. Mr. Percy B. Tubbs, F.R.I.B.A., said neither of the three main requirements of the Council—the staircase, the alternative proposal of making the corridors continuous and public on each floor, and the swing-doors—were necessary, regarding the character of the building and the nature of the business carried on there. When the alterations which the appellants had offered were carried out, there could be no possible danger to the occupants. Other evidence in support of the appeal was given by Messrs. F. Selfe and C. H. Corbett, architects. Mr. Walsh, opening the case for the Council, said no one could doubt the importance of the inquiry as to whether this was one of those buildings in which it was reasonable to insist on the folding-doors in the staircases and the alternative of a third staircase, or a free run of the corridors. These were really the only two questions for the inquiry. He agreed that if they closed up a staircase all the way up they turned it into a flue, but what the County Council said was that if both staircases were enclosed, it was only in the million-to-one chance of two fires breaking out and involving both staircases at once that the difficulty at which the President had hinted would arise. By carrying out the Council's proposal the smoke would be confined to one staircase, and the other would provide a means of escape. He called in support of his contention Mr. J. C. Stransom, A.R.I.B.A., of the architect's department of the London County Council. Cross-examined by Mr. Astbury, Mr. Stransom said the committee of the London County Council was responsible for the proposals. Re-examined: Not the slightest distinction was being made between the City of London and the rest of London. Mr. Arthur Dyer, divisional officer of the Fire Brigade, stated that smoke-doors were essential from a view of protecting life, and had been the actual means of saving lives in cases of fire, though these instances were not in office premises. He thought there was sufficient office furniture and lumber in this building to cause smoke lodging in the staircase if the fire were burning sufficiently long.—Mr. William Woodward, F.R.I.B.A., F.S.I., said that in his view the means of escape from fire in the building were not adequate. The requirement of the County Council with regard to the doors was a reasonable one; but he would suggest as a substitute for these that the openings to the different staircases only should be enclosed by clear fire-resisting doors. If the corridors were opened up, he would not insist on an additional staircase. The Tribunal reserved its decision.

IN RE WILLIAM BROWN AND SONS, SALFORD.—At the Salford County Court, on Tuesday, Judge Parry gave his decision in the important case in which the affairs of Messrs. William Brown and Sons, builders, Salford, were the subject of inquiry. A motion had been made by a creditor in the firm's bankruptcy to restrain the trustees from carrying into effect a certain agreement by which, it was stated, the parties on the other side would have a prior claim on the estate to that of the creditors. The motion was one by James Cramer, of Brazennose-street, Manchester, a creditor of the estate, and the agreement was one made by the trustees with Mr. James Blakey, who was appointed special manager of the Browns' business, and Mr. John Collier, who was appointed to act as associated special manager, whereby the expenses incurred by these managers should receive a prior claim on the estate to that of the creditors. Judge Parry, in giving his decision, reviewed at great length the course of the case, remarking that the creditor making the motion was supported by 200 creditors whose debts amounted to £22,000. Mr. Cramer was deeply dissatisfied with one of the trustees, Mr. Collier, and with the action of Mr. Blakey, in a lesser degree, in regard to the contract with the Union Bank. The special managers were shown to have incurred expenses to the extent of several thousand pounds in a few days, and the bank refused, in breach of the alleged contract, to find any other money. The Judge went on to say it was not a case of one aggrieved creditor, but of many. There were poor men who had been ruined, but were in no way represented there that day. He referred specially to workmen who had statutory preferential claims under the Compensation Act. Proceeding, the Judge went into details of the history of the bankruptcy, remarking that there was no doubt that the trouble had arisen through the action of the bank in calling upon the firm to reduce their indebtedness to them to the extent of £40,000. He considered that Mr. Brown was the only one who had carried out his agreement. The report made by Mr. Collier to the bank was, he considered, an act of misfeasance. Coming to his decision on the motion before him, the Judge directed: (1) That Mr. Collier resign as trustee within seven days, and take no further part in the matter from to-day. If he does not so resign, the other trustee is to report at once, and the Judge will give directions. (2) Mr. Collier's resignation to be accepted without any meeting of creditors being called. (3) Mr. Collier is not to have expenses or be indemnified either as special manager or as trustee. (4) Mr. Blakey is not entitled to indemnity with regard to moneys advanced by the bank; but the trustee is to allow him his remuneration and reasonable personal expenses. He has been guilty of negligence, but not of misfeasance. (5) I direct the trustees to distribute the estate with all convenient despatch, following priority rule 125, with this exception—that the costs of the aggrieved creditor of this motion, Mr. Cramer, be a first charge on the assets, and that nothing be allowed to the special managers for any expenses or remuneration beyond the remuneration and reasonable expenses of Mr. Blakey already referred to. (6) If the Union Bank of Manchester desire any priority, they must formulate such claim within fourteen days from receipt of notice to be sent to the bank.—The trustee, Mr. Scott, against whom there was no complaint, was allowed his costs of the motion.

The governors of the Peabody Donation Fund submitted to the London County Council on Tuesday plans for dwellings for the working classes to be erected at Lillie-road, Fulham.

The Ironfounders' Society, the Amalgamated Ironmoulders of Scotland, the Welsh Ironfounders' Union, the Stove Grate Workers, the Central Ironmoulders, and the Core-Makers, are to hold a meeting on the 14th inst. to consider a basis of amalgamation for the protection of their interests by united action. About 33,000 workers are concerned.

The two-span bridge with a central pillar, in connection with the Midland line over Forster-square, Bradford, which has been approved by the Parliamentary committee of the corporation, has not commended itself to the street and drainage committee, who have unanimously objected to it, and supported the alternative scheme for a one-span bridge as offering no obstruction to traffic.

The Bishop of Manchester, in his *Diocesan Magazine*, records with the greatest satisfaction the continuing success of the important movement commenced by Sir William Houldsworth, of Coodham, Kilmarnock, some three years ago, for getting good churches built at 50s. per sitting under the usual cost, citing a couple of recent cases that had come under his official notice of excellent churches built within this reduced figure. He also alludes to recent correspondence he had had with Sir William respecting the assistance of his architect, Mr. Lingen Barker.

The funeral of Mr. Henry Nicholas Hawks, I.S.O., of his Majesty's Office of Works, took place on Friday, at Streatham. A service was held at Christ Church, at which there were present, in addition to members of the family, Sir Schomberg McDonnell, Secretary to the Public Works Department, Mr. W. I. Downer, Assistant Secretary, Sir Henry Tanner, Mr. J. Rutherford, Mr. W. Pott, Mr. R. Henry, Mr. Baines, Major Haggitt, Mr. A. J. Durrant, Mr. H. Wordley, Mr. G. J. F. Reavell, Mr. E. Cropper, Mr. H. A. McFarran, Mr. H. G. Nixen, Mr. R. J. Allison, Mr J. Burnett, and Mr. H. E. Seccombe (members of the Office of Works staff). The service was conducted by the Rev. C. S. Nicholl, assisted by the Rev. J. Wallace.

Our Office Table.

[illegible] Mr. J. W. W. [illegible] Westminster, [illegible] Mr. [illegible] and [illegible] to [illegible] Mr. Bond's proposal would [illegible] preserving the [illegible] He was a member of the Royal Commission on Ancient Monuments and thought that the object was not [illegible] take an inventory of all ancient objects, but to take steps wherever [illegible] found wilful destruction going on, and [illegible] the Government to do something in [illegible] of preserving them. As far as he could [illegible] would like the Commissioners to [illegible] work, and he was afraid [illegible] something as of late years would [illegible] to [illegible] at the end of [illegible]

The Great Festival of Empire [illegible] decided to construct two [illegible] ways running from the centre transept of the Crystal Palace down to the main terrace [illegible] These will be over 20ft. in width, and will be designed in harmony with Sir Joseph Paxton's scheme of decoration. The material to be employed is Empire stone. Three flights of steps will relieve the present inconvenient arrangement, which compels people passing into the grounds to go through the basement of the Palace. The pageant as it will be held in the ground [illegible] the ornamental water; the grand stand [illegible] accommodate 10,000 spectators, has been [illegible] from the designs of Sir Aston Webb, R.A., in the form of an ancient Greek amphitheatre. The British Fine Art Section of the Festival will consist of the works of specially invited modern artists in three classes: (a) paintings in oil; (b) water colours, pastels, and drawings; (c) etchings and lithographs. This section will be exhibited in the West Galleries of the Palace. The art of the Overseas Dominions will be represented by collections of pictures from Canada, Australia, New Zealand, and South Africa, housed in the different Government buildings erected in the grounds of the Palace. There will be a special section devoted to pictures representing scenes and incidents of historical interest. This section will include a number of paintings lent by the Duke of Marlborough from the Blenheim Palace collection.

The Reference Committee for England under the powers contained in Part I. of the Finance (1909-10) Act, 1910, have made the following appointments of referees to hear land value appeals: Sir Alexander Rose Sterning, P.P.S.I., 121, Cannon street, E.C.; Mr. Howard Martin, P.P.S.I., London chambers, 27, Chancery lane, W.C.; Mr. Percival Fox Tuckett, F.S.I., 1 Gresham buildings, Basinghall street, E.C.; Mr. Daniel Watney, P.P.S.I., 33, Poultry, E.C.; Mr. Charles Bidwell, P.P.S.I., Ely; Mr. Douglas Henry MacNeill, F.S.I., Dervas, Abergele; Mr. John Gould Drew, F.S.I., 15, Queen street, Exeter; Mr. Henry William Bruton, F.S.I., Albion chambers, Gloucester; Mr. Herbert Mansfield Cobb, F.S.I., Higham, Kent; Mr. John David Wallis, F.S.I., 57, King street, Manchester; Mr. John McClare Clark, F.S.I., Helmsley; Mr. John Farrer, F.S.I., Oulton, [illegible] Leeds; and Mr. Francis James [illegible] M.I.C.E., F.S.I., M.I.M.E., 5, [illegible] Westminster.

[illegible] Professor Edgar [illegible] Chair [illegible] the plan [illegible] made. It is [illegible] expend from [illegible] Broadway and Lincoln [illegible] Bridge [illegible] to Lincoln road, on [illegible] intended to [illegible] greatly, named Narrow [illegible] In connection with [illegible] scheme, Bishop's road and [illegible] road are already complete; St. [illegible] street awaits the widening; Crawthorne road will shortly be a 50ft. road, and [illegible] there will be an unrestricted avenue 50ft. wide in its narrowest parts, via Lincoln road East into Lincoln road to the north. Towards the cost of the Crawthorne road widening, estimated at £3,000, the city council will seek sanction from the Local Government Board to borrow £2,129.

A meeting of the sites committee of the Bangor Board of Guardians was held on Friday to select an architect for the new workhouse infirmary to be erected, at a cost of £10,000, on a site purchased from the Penrhyn estate for £2,000, to deal with forty-six applications for the post received. Mr. Williams (Local Government Board inspector) and Mr. Brook T. Kitchin, F.R.I.B.A. (the Local Government Board architect), were present. After careful examination of the applications and testimonials the committee selected three gentlemen from whom the full board will make its final choice to-day (Friday). The gentlemen forming the "short list" are Messrs. Morrison, Wrexham; W. H. Ward, Birmingham; and Beebs, Bangor.

Professor Baldwin Brown delivered a lecture on "How Greek Ladies Dressed" to the members of the Edinburgh Photographic Society in their hall, 38, Castle street, Edinburgh, on Thursday night in last week. The dresses of the ancient Greeks, Professor Baldwin Brown said, might be termed the most Hellenic product of Hellenism. There was nothing which exhibited so perfectly the capacity of the Greeks for effecting the best results by the most direct and simple means. The forms of Greek drapery were not only graceful, but they were rich and varied, and yet the elements of which the dresses were composed were of the simplest possible description. Both sexes wore practically the same costume, consisting of two dresses, an outer and an inner one. In each case the dress was made of a rectangular piece of stuff, not cut or shaped in any way, but draped round the figure in the form in which it came from the household loom. No scissors or needle and cotton were required. A few pins and a girdle sufficed for the fastenings. The lecturer showed a number of lantern slides taken from living models, showing the ways in which the dress was put on, and how all the appearances produced in the drapery of Greek sculpture could be made by arranging a simple piece of stuff.

The Callender Company, Callender's Cable and Construction Company, Ltd., engineers, cable manufacturers, and contractors, Hamilton House, Victoria Embankment, E.C., have issued a very fine photogravure of H.M.S. Thunderer, built by the Thames Ironworks and Shipbuilding Company, Ltd., at Canning Town. The keel was laid April 13, 1910, and she ship was launched February 1, 1911. The main electrical distribution has been entirely effected by means of Callender's cable and special boxes. The Thunderer's general dimensions and armament are as follows:—Length overall, 584ft.; beam, 88½ft.; mean draught, 27½ft.; displacement, 22,680 tons; turbines, 27,000 I.H.P.; designed speed, 21 knots; armament, ten 13·5in. and twenty-four 4in. guns; torpedo tubes, three 21in.

Some experiments on the pressures required to punch steel plates have been described in a paper read before the American Society of Mechanical Engineers by Professor G. C. Anthony. A hydraulic discharging and indicator were used to record the pressures exerted by the punch. The pressure rises to a maximum almost immediately the punch is fairly on the plate, this pressure being maintained in plates from ¼in. to ½in. thick for about one-quarter the plate's depth during penetration. Apparently the shearing action is then complete, although considerable pressure is still required to force out the severed wad of plate. Also in some of the ½in. plate diagrams there is evidence that in thick plates the actual shearing is scarcely complete until much nearer the full penetration than in thin plates. The experiments so far carried out show that the pressure necessary for punching decreases as the time increases, but for all ordinary variations of time the differences in pressure are insignificant. An increase in the clearance between punch and die also reduces the pressure, but not to a very marked extent.

A joint committee, consisting of architects, engineers, and contractors of the city of Chicago, has recently adopted rules for the measurement of excavation and concrete work. The formulated rules cover all the details of this kind of work and building construction, defining specifically how certain classes of work shall be paid for. The adoption of this set of rules is the outgrowth of difficulties in coming to an agreement for compensation, entailing not only disputes and bad feeling between the parties, but litigation as well. It is only natural that a contractor will make claims for extra compensation when his margin of profit is dwindling because he was obliged to go to additional expense in erecting forms of concrete or sheeting in for excavation, which could not be foreseen when he made his estimate. Under the rules drawn up, provision is made for these contingencies, and extra compensation is allowed where excavation becomes difficult, or where forms for concrete are complex, so that they require not only more time, but additional outlay for material.

The building returns for 1910 submitted by the principal cities of the Dominion of Canada show an average increase of 44 per cent. over 1909. In 1910 the expenditure was 94,180,778dol., compared with 65,459,456dol. for the preceding year. In the reports received from city engineers, city clerks, and building inspectors, the consensus of opinion is that the standard of prosperity set up by 1910 will be raised to a still higher level during 1911. The most noteworthy feature of the returns was Montreal's growth of 103 per cent., whereas the increase of Toronto was only 16 per cent. Winnipeg expended over fifteen millions during 1910, and made a gain of 64 per cent. Vancouver has a gain of 81 per cent., and a total expenditure of two millions less than Winnipeg. Calgary, again, shows an increase of 131 per cent. To Regina belongs the honour of making the highest gain for the year of Canada's leading cities—214 per cent. Only two decreases are to be found in Western Canada.

A useful reprint, entitled "Notes of Lecture on Mortar and Cement," by W. J. Dibdin, F.I.C., F.C.S., etc., late chief of the L.C.C. Chemical and Gas Department, reaches us from the author. It was delivered at the L.C.C. School of Building, Brixton, on February 3. The by-laws of the L.C.C. are appended, some measurements of voids in sand by the specific gravity method, and a description of a modification of Keates' specific gravity bottle.

Important alterations decided on by the Office of Works are now in progress at the west end of Kensington Gardens, including the formation of a wide avenue approach to the public entrance to the State apartments from Bayswater road. The new pathway will also lead to the Dutch garden.

Mrs. Mirke Wood has offered to present to Liverpool Cathedral as a memorial to her late husband, the reredos which has been designed by Mr. Gilbert Scott, the architect. The reredos is to be carved in stone and in size it will be 48ft. in height by 43ft. in width. It will contain panels illustrative of the life of our Lord, with the figures of the Apostles and Evangelists.

LATEST PRICES.

IRON.

	Per ton.				Per ton.		
Rolled-Iron Joists, Belgian	£5	7	6	to	£5	12	6
Rolled-Steel Joists, English	7	5	0	,,	7	15	0
Wrought-Iron Girder Plates	7	0	0	,,	7	5	0
Bar Iron, good Staffs	6	5	0	,,	8	10	0
Do., Lowmoor, Flat, Round, or Square	20	0	0	,,	20	0	0
Do., Welsh	5	15	0	,,	5	17	0
Boiler Plates, Iron—							
South Staffs	8	0	0	,,	8	15	0
Best Snedshill	9	0	0	,,	9	10	0

Angles 10s., Tees 20s. per ton extra.
Builders' Hoop Iron, for bonding, &c., £8 15s. to £9.
Builders' Hoop Iron, galvanised, £14 to £15 10s. per ton
Galvanised Corrugated Sheet Iron—

	No. 18 to 20.	No. 22 to 24.
6ft. to 8ft. long, inclusive gange	Per ton. £13 0 0	Per ton. £13 10 0
Best ditto	13 0 0	14 0 0

Wire Nails (Points de Paris)—

3 to 7	8	9	10	11	12	13	14	15	B.W.G.
8/3	8/9	9/3	9/9	10/3	11/-	11/9	12/6	13/6	per cwt.

	Per ton.				Per ton.		
Cast-Iron Columns	£6	10	0	to	£6	10	0
Cast-Iron Stanchions	6	10	0	,,	8	10	0
Rolled-Iron Fencing Wire	8	5	0	,,	8	10	0
Rolled-Steel Fencing Wire	6	5	0	,,	6	10	0
,, ,, ,, Galvanised	7	15	0	,,	6	5	0
Cast-Iron Sash Weights	4	17	0	,,	4	17	0
Cut Floor Brads	10	5	0	,,	—		
Corrugated Iron, 24 gauge	16	0	0	,,	—		
Galvanised Wire Strand, 7 ply, 14 B.W.G.	14	5	0	,,	—		

B.B. Drawn Telegraph Wire, Galvanised—

0 to 6	9	10	11	12	B.W.G.
£10 5 0	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.

	Per ton.				Per ton.		
Cast-Iron Socket Pipes—							
3in. diameter	£6	2	6	to	£6	7	0
4in. to 6in.	6	0	0	,,	6	5	0
7in. to 24in. (all sizes)	5	7	6	,,	6	0	0

[Coated with composition, 5s. 0d. per ton extra; turned and bored joints, 5s. 0d. per ton extra.]

	Per ton.				
Pig Iron—					
Cold Blast, Lilleshall	110s. 0d.	to	117s. 6d.		
Hot Blast, ditto	70s. 0d.	,,	75s. 0d.		
Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.) :—					
Gas-Tubes				75	p.c.
Water-Tubes				72½	,,
Steam-Tubes				67½	,,
Galvanised Gas-Tubes				65	,,
Galvanised Water-Tubes				62½	,,
Galvanised Steam-Tubes				57½	,,

OTHER METALS.

	Per ton.				Per ton.		
Spelter, Silesian	£23	5	0	to	£23	15	0
Lead Water Pipe, Town	16	17	6	,,	—		
,, ,, ,, Country	17	12	6	,,	—		
Lead Barrel Pipe, Town	17	17	6	,,	—		
,, ,, ,, Country	18	12	6	,,	—		
Lead Pipe, Tinned inside, Town	18	17	6	,,	—		
,, ,, ,, ,, Country	19	12	6	,,	—		
Lead Pipe, Tinned inside and outside, Town	21	7	6	,,	—		
,, ,, ,, ,, Country	22	2	6	,,	—		
Composition Gas-Pipe, Town	19	17	6	,,	—		
,, ,, Country.	20	12	6	,,	—		
Lead Soil-pipe (up to 4in.) Town	19	17	6	,,	—		
,, ,, ,, Country	20	12	6	,,	—		
[Over 4in. £1 per ton extra.]							
Lead Shot, in 28lb. bags	24	15	0	,,	—		
Copper Sheets, sheathing & rods	70	0	0	,,	70	10	0
Copper, British Cake and Ingot	58	15	0	,,	59	5	0
Tin, Straits	185	5	0	,,	185	15	0
Do., English Ingots	194	0	0	,,	194	10	0
Do., Australian	194	10	0	,,	195	0	0
Do., Bars	195	0	0	,,	196	0	0
Pig Lead, in 1cwt. pigs	14	5	0	,,	—		
Sheet Lead, Town	16	7	6	,,	—		
,, ,, Country	17	2	6	,,	—		
Genuine White Lead	21	0	0	,,	—		
Refined Red Lead	19	0	0	,,	—		
Sheet Zinc	32	5	0	,,	—		
Old Lead, against account	12	2	6	,,	—		
Tin, per cwt.	11	0	0	,,	—		
Cut Nails (per cwt. basis, ordinary brand)	0	10	6	,,	—		

TIMBER.

CONSTRUCTIONAL.

Per St. Petersburg Standard (100—12ft. by 11in. by 1in.)							
Yellow Pine Deals, Quebec, 1st quality	£31	0	0	to	£42	0	0
,, ,, ,, 2nd ,,	21	0	0	,,	26	0	0
,, ,, ,, 3rd ,,	15	0	0	,,	18	0	0
Spruce Deals: St. Johns	8	0	0	,,	11	0	0
,, ,, Miramichi	7	5	0	,,	8	10	0
,, Boards: Swag	7	0	0	,,	8	0	0
Red Deals: Archangel 1st quality	20	10	0	,,	21	10	0
,, ,, ,, 2nd ,,	15	0	0	,,	17	0	0
,, ,, ,, 3rd ,,	11	0	0	,,	12	0	0
,, ,, St. Petersburg—							
,, 1st quality	16	0	0	,,	17	0	0
,, 2nd ,,	13	0	0	,,	14	10	0
,, ,, Wyburg & Ulcaborg	10	0	0	,,	12	0	0
,, ,, Gefle, Gothenburg, and Stockholm	10	0	0	,,	17	0	0
White Deals: Crown	10	0	0	,,	12	0	0
,, ,, Seconds	9	10	0	,,	10	0	0
Flooring: White and Planed—							
1st and 2nd quality mixed	9	0	0	,,	9	5	0
1st, 2nd, and 3rd quality mixed	8	5	0	,,	8	10	0
Red Planed, 1st quality	11	5	0	,,	11	10	0
Pitch Pine: Prime Deals and Boards	17	0	0	,,	20	0	0
Lignum Vitæ	5	10	0	,,	12	0	0

Per foot super, as 1in.							
Yellow Pine Logs (waney board)	0	2	9	,,	0	4	3
Pitch Pine Logs	0	1	6	,,	0	1	10
Canary Whitewood: Prime	0	3	6	,,	0	3	9
Birch: Quebec Logs	0	2	0	,,	0	2	6
Oak: Austrian Wainscot	0	7	0	,,	0	8	0
Mahogany: Gaboon	0	0	1¾	,,	0	0	2¼

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (50c.ft.)	£20	0	0	to	£21	10	0
,, Java ,,	15	0	0	,,	18	0	0
Canary Whitewood: Prime bds.	Per cubic foot.						
14in. average	0	3	0	,,	0	3	3
Canary Whitewood: Medium bds. 11in. average	0	2	2	,,	0	2	6
Oak Planks: U.S.A., imported	0	1	9	,,	0	2	6
,, Boards ,, ,, Prm.	0	2	4	,,	0	2	9
,, ,, ,, ,, Mdm.	0	1	10	,,	0	2	2
Sequoia (Californian Redwood)	0	3	0	,,	0	3	6
Birch: Quebec logs	0	1	8	,,	0	2	2
,, ,, sawn planks	0	1	0	,,	0	1	2
Oak: Anstrian Wainscot	0	6	0	,,	0	7	0
Walnut: Prime boards & planks Mdm. ,, ,,	0	5	0	,,	0	6	0
	0	3	4	,,	0	3	6
Greenheart: Hewn logs	0	3	6	,,	0	4	6
Cedar: Cigar box	0	3	6	,,	0	4	8
Satin Walnut: Imp. sawn boards, prime	0	2	3	,,	0	2	6
Orham: Imp. sawn boards, prime	0	1	10	,,	0	2	2
Mahogany: St. Domingo, Cuba, and Honduras	Per foot of lin.						
	0	0	5½	to	0	0	6
,, African, Assinee, &c.	0	0	4½	,,	0	0	9
,, Lagos and Benin	0	0	3½	,,	0	0	4½
,, Sekundi and Cape Lopez	0	0	2½	,,	0	0	3½
,, Gaboon	0	0	1½	,,	0	0	0
Satinwood: West Indian	0	0	10	,,	0	2	2
Rosewood ..... Per ton	7	0	0	,,	12	0	0
Lignum Vitæ ,,	4	0	0	,,	11	10	6

STONE.*

Red Mansfield, in blocks ..... per foot cube	£0	2	4		
Darley Dale, ditto ,, ...	0	2	3		
Red Corsehill, ditto ,, ...	0	2	2		
Closeburn Red Freestone, ditto ,, ...	0	2	0		
Ancaster, ditto ,, ...	0	1	10		
Greenshill, ditto ,, ...	0	1	10		
Chilmark, ditto (in truck at Nine Elms) ,, ...	0	1	9		
Beer, ditto ,, ...	0	1	6		
Hard York, ditto ,, ...	0	2	10		
Ditto ditto 6in. sawn both sides, landings, random sizes ..... per foot sup.	0	2	6		
Ditto ditto 3in. slab sawn two sides, random sizes ,, ...	0	1	3		

* All F.O.R. London.

Bath Stone, delivered on rail at quarry stations ..... per foot cube	0	1	0		
Delivered on road waggons, Paddington Depot ,, ...	0	1	6½		
Ditto ditto, Nine Elms Depot ,, ...	0	1	8¼		
Beer Stone, delivered on rail at Seaton Station ,, ...	0	1	0		
Ditto, delivered at Nine Elms Station ,, ...	0	1	6		

Portland Stone, in random blocks of 20ft. average :—

	Brown Whit Bed.				White Base Bed.		
Delivered to railway depot at the quarry ..... per foot cube	£0	1	5¾	...	£0	1	7¼
Delivered on road waggons at Paddington Depot ...	,, ...	0	2	1	...	0	2	2¾
Ditto, Nine Elms Depot ...							
Ditto, Pimlico Wharf							

BRICKS.

(All prices net.)

Hard Stocks	£1	6	6	per 1,000 alongside, in river	
Rough Stocks and Grizzles	1	6	0	,, ,, ,,	
Picked Stocks for Facings	2	10	0	,, delivered at railway station.	
Flettons	1	6	0	,, ,, ,,	
Pressed Wire Cuts	1	18	0	,, ,, ,,	
Red Wire Cuts	1	14	0	,, ,, ,,	
Best Fareham Red	3	12	0	,, ,, ,,	
Best Red Pressed Ruabon Facing	5	0	0	,, ,, ,,	
Best Blue Pressed Staffordshire	3	15	0	,, ,, ,,	
Ditto Bullnose	4	0	0	,, ,, ,,	
Best Stourbridge Fire Bricks	3	14	0	,, ,, ,,	
2½in. Best Red Accrington Plastic Facing Bricks	4	13	0	,, Net, delivered in full truck loads in London.	

GLAZED BRICKS.*

HARD GLAZES. (PER 1,000.)

White, Ivory, and Salt Glazed. Best.	Best. Buff and Cream.	Other Colours.	Second Colours.
Stretchers—			
£10 17 6	£9 7 6	£12 7 6	£16 7 6	£10 17 6
Headers—			
10 7 6	8 17 6	11 17 6	15 17 6	10 7 6
Quoins, Bullnose, and 4½in. Flats—			
13 17 6	12 17 6	16 7 6	19 17 6	14 7 6
Double Stretchers—			
16 7 6	14 17 6	19 7 6	22 17 6	16 7 6
Double Headers—			
13 7 6	11 17 6	16 7 6	19 17 6	13 7 6
One side and two ends, square—			
17 7 6	15 17 6	20 7 6	24 17 6	17 7 6
Two sides and one end, square—			
18 7 6	16 17 6	21 7 6	25 7 6	18 7 6
Splays and Squints—			
15 17 6	14 7 6	20 7 6	23 7 6	15 17 6

Plinth and Hollow Bricks. Stretchers and Headers—
5d. each 4d. each 6d. each 6d. each 5d. each

Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres—
5d. each 4d. each 6d. each 6d. each 5d. each

Rounded Internal Angles—
4d. each 3d. each 5d. each 5d. each 4d. each

MOULDED BRICKS.

Stretchers and Headers—
8d. each 8d. each 8d. each 6d. each 8d. each

Internal and External Angles—
1/2 each 1/2 each 1/2 each 1/2 each 1/2 each

Cill Bullnose, Stretchers and Headers—
5d. each 4d. each 6d. each 6d. each 5d. each

Per 1,000

Majolica or Soft Glazed Stretchers and Headers	£21	17	6
,, ,, ,, Quoins and Bullnose	26	17	6

Compass bricks, circular and arch bricks of single radius £6 per 1,000 over above list for their respective kinds and colours } Not exceeding 9in. × 4½in. × 2½in.
Camber arch brick, any kind or colour, 1s. 2d. each
Stretchers cut for Closers and Nicked Double Headers, £1 per 1,000 extra.

* These prices are carriage paid in full truck loads to London stations.

	e.	d.	
Thames and Pit Sand	7	0	per yard, delivered
Thames Ballast	5	6	,, ,,
Best Portland Cement	28	0	per ton, ,,
Best Ground Blue Lias Lime	19	0	,, ,,

Exclusive of charge for sacks.

Grey Stone Lime	11s. 6d. per yard, delivered
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. stn.	

SLATES.

	In.	In.	£	s.	d.	
Blue Portmadoc	20 × 10	.12	12	6	per 1000 of 1200 at r.stn.	
,, ,,	... 16 × 8	.. 6	12	6	,, ,,	,,
Blue Bangor	20 × 10	.13	2	6	,, ,,	,,
,, ,,	... 20 × 12	.13	17	6	,, ,,	,,
First qnality	20 × 10	.13	0	0	,, ,,	,,
,, ,,	... 20 × 12	.13	15	0	,, ,,	,,
,, ,,	... 16 × 8	... 7	5	0	,, ,,	,,

Eureka unfading	£	s.	d.	
green ..... 20 × 10	.15	17	6	,, ,,
,, ,, ... 20 × 12	.18	7	6	,, ,, ,,
,, ,, ... 18 × 10	.13	5	0	,, ,, ,,
,, ,, ... 16 × 8	.10	5	0	,, ,, ,,

Permanent green	20 × 10	.11	12	6	,, ,, ,,
,, ,,	... 18 × 10	.. 9	12	6	,, ,, ,,
,, ,,	... 16 × 8	.. 6	12	6	,, ,, ,,

TILES.

	a.	d.	
Plain red roofing tiles	42	0	per 1000 at rly. stn.
Hip and Valley tdes	3	7	per doz. ,, ,,
Broseley tiles	50	0	per 1000 ,, ,,
Ornamental tiles	52	6	,, ,, ,,
Hip and Valley tiles	4	0	per doz. ,, ,,
Ruabon red, brown, or brindled do. (Edwards)	57	6	per 1000 ,, ,,
Ornamental do.	60	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	0	,, ,, ,,

Selected "Perfecta" roofing tiles —Plain tiles (Peake's)	46	0	per 1000	,,	,,
Ornamental do.	48	6	,,	,,	,,
Hip tiles	3	10½	per doz.	,,	,,
Valley tiles	3	4½	,,	,,	,,
"Rosemary" brand plain tiles	48	0	per 1000	,,	,,
Ornamental tiles	50	0	,,	,,	,,
Hip tiles	4	0	per doz.	,,	,,
Valley tiles	3	8	,,	,,	,,
Staffordshire (Hanley) Reds or Brindled tiles	42	6	per 1000	,,	,,
Hand-made sand-faced	45	0	,,	,,	,,
Hip tiles	4	0	per doz.	,,	,,
Valley tiles	3	6	,,	,,	,,
"Hartshill" brand plain tiles, sand-faced	50	0	per 1000	,,	,,
Pressed	47	6	,,	,,	,,
Ornamental do.	50	0	,,	,,	,,
Hip tiles	4	0	per doz.	,,	,,
Valley tiles	3	8	,,	,,	,,

OILS.

Rapeseed, English pale, per tun	£28	15	0	to	£29	5	0
Do., brown	,, ...	26	15	0	,,	27	5	0
Cottonseed, refined	,, ...	29	0	0	,,	30	0	0
Olive, Spanish	,, ...	39	10	0	,,	40	0	0
Seal, pale	,, ...	21	0	0	,,	21	10	0
Cocoanut, Cochin	,, ...	46	0	0	,,	46	10	0
Do., Ceylon	,, ...	42	10	0	,,	43	0	0
Do., Mauritius	,, ...	42	10	0	,,	43	0	0
Palm, Lagos	,, ...	32	5	0	,,	33	5	0
Do., Nut Kernel	,, ...	35	0	0	,,	35	10	0
Oleine	,, ...	17	5	0	,,	19	5	0
Sperm	,, ...	30	0	0	,,	31	0	0
Lubricating U.S. per gal.		0	7	0	,,	0	8	0
Petroleum, refined ,,		0	0	6¾	,,	0	0	6¾
Tar, Stockholm per barrel		1	6	0	,,	1	10	0
Do., Archangel ,,		0	19	6	,,	1	0	0
Linseed Od. per gal.		0	4	3	,,	—		
Baltic Oil ,,		0	4	6	,,	—		
Turpentine ,,		0	4	10½	,,	—		
Putty (Genuine Linseed Oil) per cwt.		0	11	0	,,	—		
,, Pure Linseed Oil, "Stority" Brand ,,		0	10	0	,,	—		

VARNISHES, &c.

	Per gallon.
Fine Pale Oak Varnish	£0 8 0
Pale Copal Oak	0 10 0
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 6
Extra Pale Paper	0 12 6
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

GLASS.

English Sheet Glass:	15oz.	21oz.	26oz.	32oz. Net.
Fourths	1½d. ...	2½d. ...	3½d. ...	4½d. ,,
Thirds	2½d. ...	3½d. ...	4d. ...	5½. ,,
Fluted Sheet	3½d. ...	4½d. ...	6d. ...	6½d. ,,

Hartley's English Rolled Plate: ¼in. 5/16in. ⅜in.
2½d. ... 2½d. ... 3½.
Figured, Oxford Rolled, & Oceanic Glass: White. Tinted.
3½d. ... 5½d.

MEETINGS FOR THE ENSUING WEEK.

Friday (To-day).—Institution of Civil Engineers. "Rivers and Estuaries," by W. Henry Hunter, M.Inst.C.E. Vernon Harcourt Lecture No. 2. 8 p.m.

Saturday (To-morrow).—Royal Institution. "Architecture and Its Allies: A Study of Pictorial Composition," by Prof. Beresford Pite, M.A., D.Litt., Hon. F.R.I.B.A. Architectural Association. Students' Meeting. 7 p.m.

Monday.—[illegible]

Tuesday.—[illegible] Architectural Association. Students' Meeting. 7 p.m.

Wednesday.—Carpenters Hall Lecture. "A Demonstration in Modelling," by Alfred E. Drury, A.R.A. 7.45 p.m.

Royal Society of Arts. "Modern Machine Bookbinding," by George A. Stephen. 8.30 p.m.

Friday Feb. 17.—Institution of Civil Engineers. "The Uses of Chemistry in Engineering," by James Swinburne, F.R.S., M.Inst.C.E. 8 p.m.

Leicester and Leicestershire Society of Architects. "French Mediæval Sculpture," by W. H. Bidlake, M.A., A.R.I.B.A., 5, St. Martin's East. 8 p.m.

Birmingham Architectural Association. Lecture by the Lord Bishop of Birmingham.

Glasgow Architectural Craftsmen's Society. "Rothenberg on the Tauber," by James McKissack. 8 p.m.

Saturday Feb. 18.—Architectural Association. Visit to the Money Order Office, Manor-gardens, Holloway-road. Meet at entrance. 2.30.

Mr. William Butler Whitaker, M.I.C.E., for many years engineer to the Argentine Gas Company, Buenos Aires, died at his residence, Almagro, Vanbrugh Park West, Blackheath, on Friday last, aged seventy years.

At the last meeting of the Manchester City Council it was agreed that a test shall be made of the comparative cost and efficiency of street-lighting by means of high-pressure gas and electricity. Portland-street and Mosley-street are selected for this trial.

Mr. Charles Aitken has been appointed to the keepership of the Tate Gallery, in succession to Mr. McColl, who, in turn, succeeds Mr. Claude Phillips at the Wallace Collection. Mr. Aitken has done admirable work as director of the Whitechapel Art Gallery since 1900.

The death is announced, at the age of seventy-nine, of Mr. J. T. Blight, F.S.A., a once well-known accomplished draughtsman. His "Ancient Crosses and other Antiquities in the West of Cornwall" was published as far back as 1856; the illustrations were both drawn and engraved by Mr. Blight. Subsequent popular works were, "Week at the Land's End," 1861, and "Churches of West Cornwall, with Notes of Antiquities of the District," 1865.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the Building News, Effingham House, 1, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not frequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsolicited contributions.

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NOTICE.

Bound copies of Vol. XCVIII. are now ready, and should be ordered early (price 12s. each, by post 12s. 9d.), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XLI., XLVI., XLIX., LIII., LXI., LXII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXIX., LXXX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., LXXXVI., LXXXVII., LXXXVIII., LXXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., and XCVII. may still be obtained at the same price; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

Handsome Cloth Cases for binding the Building News, price 2s., post free 2s. 4d., can be obtained from any Newsagent, or from the Publisher, Effingham House, 1, Arundel-street, Strand, W.C.

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Rates for **Trade** Advertisements on front page, and special and other positions, can be obtained on application to the Publisher.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

Received.—G. A. W. and Son.—C. A. P., Ltd.—F. F. Co.—H. and G.—C. A. Co., Ltd.—V. de T. Co., Ltd.—S. D. C.—N. R. Co., Ltd.—R. D.—P. T. B. Co., Ltd.—D. and I.—T. L. and Co.—W. J.—W. and Co.—I. C. S.—B. and Son.—R. B. and Co.—B. B.—W. C. Co.—E. N. S. and Bros.—R. I. C. and Co.—A. O. and Son.—G. L. and Co., Ltd.—B. T. B.—R. J. B.—C. and C.—C. Bros.—J. C. F. and Co.—D. E. C.—H. and S.—G. B. and L.—B. B. Co.—F. H. and Son.—L. F. Co.—C. C. D. and Co.—C. G. D.—T. H.—F. E. R. and Co.—H. Ltd.—G. E. and Co.—N. E. M.—B. L. P. Syod.—H. and K.—N. and Co.—D. and Co.—M. M. Co.—G. and G.—S. E. Co., Ltd.—C. and Son.—H. B. Co.—J. T. and Son.—C. B. and Son.—F. E. P., Ltd.—E. B. D. and Son.—W. O. and Son.—F. H. M.—J. S. and Son.—P. B. and P.—D. and Co., Ltd.—R. C. Co.—P. I. S. B. Co., Ltd.—D. Bros.

Kestell.—No.

V. H.—Please send.

Cover.—Might answer, rather wasteful.

Minos.—Thanks; the obligation is mutual.

O.—Rather behind the times. You would do better with any of the firms in our "Directory" pages.

A. H. Withinshaw.—We cannot advise. Ask a solicitor. Dating back articles like that is, to say the least, irregular.

Plank.—A "snuiver" was a small cooking-room at the back of kitchens in seventeenth-century Dutch houses of the better class.

Surveyor.—We have sent you the name of a thoroughly reliable firm for your Coronation decorations, and you will be quite safe in their hands.

G. H.—See our "Directory" pages, under "Horticultural Buildings." In your district we should go to Mr. G. W. Riley, Herne Hill, S.E.

C. Wardman (Randfontein).—B. T. Batsford, 94, High Holborn, W.C., will supply. We have sent him your letter, and he will probably write you.

H. A. W.—Instructions re type should certainly accompany design: but it would be advisable that they should be on a different sheet to the design.

H. N.—We leave the size entirely to you, but obviously there is more chance of an advertiser using a design which is the size of the space he usually occupies.

The workhouse at Tulla, County Clare, is being converted into an auxiliary asylum from plans by Mr. B. E. F. Sheehy.

The award in the arbitration on the claim of the Worksop Water Company for £87,057 as the price for the purchase of their undertaking by the Worksop Urban District Council, was made on Wednesday. The sum apportioned is £64,612, or £22,445 less than the amount claimed. The arbitrators were Messrs. E. Fowler and E. Wilcox, and the umpire Mr. A. J. Ram, K.C.

The winged figure of Victory in bronze, which forms the apex of the Queen Victoria Memorial at the western entrance to the Mall, was placed in position late on Friday evening. There is much to be done in finishing off the details of the lower part of Mr. Thomas Brock's monument, but the figure of Queen Victoria, which faces down the Mall, the two side groups symbolising Truth and Justice, and the group representing Maternity—a woman seated, with a child standing by her side—opposite Buckingham Palace, are all in position.

Mr. Dudley Ward, treasurer of the Royal Household, informed Mr. Peto in the House of Commons on Wednesday that the final stage of the negotiations with regard to the Mall improvement is being reached, and that a satisfactory conclusion will be arrived at forthwith. Westminster City Council have agreed to make a contribution not exceeding £30,000 towards the scheme. An amendment to refer back the recommendation, on the ground that the Office of Works was responsible for the deadlock, and that the improvement was an Imperial and not a local one, was defeated.

LIST OF COMPETITIONS OPEN.

Corbridge—Sewerage and Sewage Disposal Scheme	£15 (merged) and £10	J. H. Nicholson, Clerk, Midland Bank Chambers, Hexham	Feb. 28
Southmoor—Parochial Hall and Institute (cost, £1,500)	£15, £5	The F. S. Myers, South Moor, Stanley, S.O., Durham	Mar. 15
Swansea—Castle-street Improvement (Assessor, S. S. Bear, F.R.I.B.A.)	£50	The Town Clerk, Guildhall, Swansea	,, 24
San Thomé, Portuguese West Africa—Laying-out Streets, Sewerage, Water Supply, and Lighting		The President of Municipal Council, San Thomé, Portuguese West Africa	,, 25
Gidea Park—Town Plan of Gidea Park (E. G. Dawber, H. V. Lanchester, and M. E. Macartney, Assessors)	£100, £50	The Secretary, Town Planning Exhibition, 33, Henrietta-st., W.C.	,, 31
Manchester—Library and Art Gallery (Prof. Reginald Blomfield, A.R.A., assessor)		Thomas Hulson, Town Clerk, Town Hall, Manchester	,, 31
Coventry—Municipal Buildings and Proposed Town Hall. (E. Goy Dawber, F.R.I.B.A., 22, Buckingham-street, W.C., Assessor.)		Geo. Sutton, Town Clerk, 10, Hay-lane, Coventry	April 1
Carlton—Sewage Disposal Scheme		James Senior, Clerk, Carlton, near Barnsley	,, 6
Corbridge, Hexham—Sewerage and Sewage Disposal Scheme	£15, £10	J. H. Nicholson, Clerk, Midland Bank Chambers, Hexham	,, 13
Aspatria—Sewerage Scheme		F. Richardson, Clerk, Aspatria, Cumberland	June 10
Athens—Court of Justice (cost £160,000)	£800, £320	Comm. Intel. Branch, Board of Trade, 73, Basinghall-street, E.C.	Aug. 8
Glasgow—Alexander Thomson Travelling Studentship	£60, £20	C. J. Maclean, Secretary, 115, St. Vincent-street, Glasgow	Dec. 29
Peoistone—Carnegie Free Library		The Clerk to the District Council, Peoistone	No date
Swinton, Rotherham—Parish Hall		The Rev. C. Steele, Swinton Vicarage, Rotherham	do.
Lowestoft—Elementary School (Limited to Norfolk and Suffolk Architects)	20gs., 10gs., 5gs.	R. B. Nicholson, Town Clerk, Town Hall, Lowestoft	do.

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THE BUILDING NEWS

AND ENGINEERING JOURNAL.

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Royal Institute of British Architects: Pugin Travelling Studentship Prize Drawings, 1911. By Mr. J. B. F. Cowper. Details of Tower, St. Mary, Stamford, Lincolnshire, and other Studies.

Picture Palace, Bristol. Mr. W. H. Watkins, A.R.I.B.A., Architect.

Xaverian College Sanatorium, Mayfield, Sussex. Messrs. T. Oliphant Foster and Percy W. Lovell, A.R.I.B.A., Architects.

Gold Medal and First Prize Design for a House to Cost £1,000 (Ideal Home Exhibition), carried out at Abersoch, Carnarvonshire. Mr. William Wands, Architect.

THE PATIO GALLERY.

Galleries, those features in a building which enable the artistic architect to seize such beauty and picturesqueness as he would not otherwise attain, and which condemn the inartistic one to depths of commonness which even he can in most cases keep clear of, was said to be going out of fashion in that branch of church-building which its promoters, if "they saw themselves as others see them," would recognise at once as "the submerged fifth"—are said to be going out of fashion. In Wren's time, and in Wren's churches, as a few passages in the "Tatler," inform us, the galleries were thought the most select part of a church, and the people who sat there were considered as not only physically, but socially, higher up in the world than those who sat below. But for generations this way of estimating rank has been abandoned, and the ground floor of a church (though "All equal are within the church's gate") is considered more respectable than its higher levels. When, it is said, you admit galleries, you at once divide the people into two orders: the congregation proper on the ground floor and the persons in the gallery; and the former class, in spite of all their Christianity and their superior morality, become at once to their fellow-worshippers what the Jews were to the Samaritans. Whether this is really so, does not so much concern the readers of a professional paper as the promoters and officials of the communities for whom these churches and chapels are built. Modern churches, at least Anglican ones with important galleries are, however, few, though nearly 30 years ago a clever and effective design, with side galleries, for a church at Highgate, by Mr. C. H. Mileham, appeared in our pages, but had to be abandoned, it was stated, on account of its expense.

This, however, like most of its class, was not so much a church built expressly for galleries, as a church of the common nave and aisles type, to which narrow side galleries were ingeniously adapted and made an organic part of the composition. But if any of us, while free to follow his own ideas of what is reasonable, were to start from the beginning and design a galleried building, perhaps the average plan of nave and aisles is not what would naturally occur to him as the best type to begin upon. In our ancient churches, as in that of Collumpton, and a great many others in the West of England, there often was a western gallery, perhaps extending from the eastern wall of the tower, and running from one clerestory wall to the other across the nave. These galleries were wooden ones, usually of sixteenth-century work, sometimes of seventeenth-century, and more rarely of eighteenth-century; while an old church at Plymouth contains large ones of the early nineteenth century, copied with care from one which was erected in the same building by seventeenth-century carpenters and joiners. The western galleries were commonly a place for the singers, and Mr. Hardy takes occasion, in one place or another, to describe several of them, and to note how the choir were able to inspect from above the reading which found favour in the ground-floor seats, and helped, for those who sat in them, to pass away the weary time of waiting while the minister worked through page after page of his long and conscientiously-reasoned discourse. The late Mr. Brewer, in his interesting paper on galleries, describes five forms of them which were commonly found in old Mediæval works. First, there is the triforium gallery above the level of the aisle vaulting, when there is any. This gallery is usually too high up to be used at ordinary services. Next, there is the two-story aisle gallery, in which each side aisle has a similar aisle directly above it on the first floor. This principally characterises German churches, like that of Andernach, and others in the same district. Then follow the wooden beam gallery, the cross gallery resting on columns and arches, which, if seldom beautiful, can be made so; and finally, the gallery which projects from the nave walls internally, and rests either on stone corbels or on a flat cornice, or on a demi-vault. All these may be adapted to the usual nave-and-aisles plan of church, and do not include buildings of Roman and post-Roman types. We are not now dealing principally with churches, as Mr. Brewer seems to have been when he wrote on galleries. Galleries were desirable in all sorts of structures: in theatres, music-halls, concert-halls, and halls for public meetings, as well as sometimes, perhaps, in churches and other edifices meant for religious purposes. So we are starting to-day without any general type as a guide to which the gallery will have to bind itself, and which it will have to emphasise and adorn; but simply as a means of accommodating so many hundred people, and usually of accommodating them within sight of a dramatic spectacle, or within easy range of a speaker's voice. For these purposes, the gallery of the Spanish "patio" has many advantages.

In times like these, when bricks and mortar promise before long to be driven off the field by "armed concrete," it is of some interest to note that the "patio-gallery" is singularly well adapted in its main features for construction of the latter kind. Its surface may be of plaster; its arches may vary from semi-circular or Gothic down to the flattest of flat ellipses. Its shafts are commonly of smallish diameter, and might either have an internal core of steel, protected by concrete and plaster, or by majolica, or mosaic, or marble; or they might be ordinary shafts, of stone, or granite, or terra-cotta, or any other material strong enough to carry the weight that comes on them; or in cheap work they may be entirely of concrete, so far stiffened by iron or steel as its place in the building scheme may demand. The working plasterer the craftsman in plaster, the artist in *stucco duro*, would all find their services in demand; the terracotta maker would again be full of orders; the tile-producer would again take heart; the marble mason would find work coming in as it did in the old days; the skilled carpenter would find a market for his skill, and all these handicrafts, with many more, would be busy, not, as the modern "Classic" workman commonly is, in covering up hetitious forms with far-fetched ornament, but in enhancing the beauty of new and fresh structural features, and in causing new flesh and features to cover the new bones and new sinews of what would practically be an altogether new type of modern architecture. So much, and more, the patio gallery may have in store for us; but who will dare to build it so in this land of conventions and unrealities? Very beautiful results may be attained with hardwood posts, mostly chamfered, but without capitals and bases, and surface ornament hand-worked, and in one variety or other of plaster as at the Patio della Mesquita at the Alhambra, a large view of which, as it appeared in 1832, was published in the BUILDING NEWS of Jan. 1, 1897. Here the plainness of the wooden supports contrives with and sets off the artistic richness of the wall surfaces which appear behind them. But plasterers were artists when this work was built. In modern English practice, with the ornament cast, not modelled, with all of it made up of one or two patterns repeated *ad nauseam*, and perhaps these patterns cast from worn-out moulds, the effect would be almost bad enough to sicken an Englishman; in spite of his life-long familiarity with the cheap and showy methods of the nineteenth and twentieth centuries.

A Patio, according to the Spanish Dictionary, is the court of a house, an internal court usually, with the rooms of the house arranged all round it. On plan,

not throw much light on the working of the system." Again, with regard to the evidence on behalf of the Law Society:—"The president of the Law Society presented 92 cases (complaints) supplied by members of the society, practising in London, in reply to a circular issued by him. This circular was sent to 2,000 firms, and out of more than 200 replies only one was favourable to the Acts." The Commissioners, however, remark, "But it must be observed that the circular only asked for particulars of experiences which supported the *objections* to compulsory Registration of Title." When all the witnesses had been heard, the Registrar was allowed to appear again in order to deal with the complaints and objections that had been advanced. The Commissioners do not comment on the Registrar's reply: it would have been very instructive had they done so. We must now wait for the publication of the minutes of evidence before being in a position to judge between the objectors and the Registrar.

Chapter II. is a descriptive and historical review of the subject of Registration of Title to Land, ranging from the Report of the Commission in 1857 to the passing of the 1897 Act, and to the subsequent opposition, as evinced by meetings and petitions, culminating in the passing of a resolution by the London County Council in favour of an inquiry being instituted and the issue of the warrant appointing the Commission on July 30, 1908. Chapter III. deals with the working of the Acts. The Commissioners' opening statements are highly instructive, e.g.:—"The object of the Land Transfer Acts is to simplify, expedite, and cheapen the transfer of land not merely for the advantage of its present owners, but in order to facilitate the increased ownership of land and houses by the poorer classes." Again, "The main evils which the Acts were designed to remedy are the risk of loss of deeds, fraud by duplication or concealment of deeds, the complexity and cost of deeds and abstracts of title, and the reinvestigation on every fresh dealing with the land, entailing unnecessary trouble, delay, and expense." And, again, "The principle of a Registry of Title is, in our opinion, sound and valuable, and appears to have been carried into effect with success in Germany, Austria-Hungary, Australia, and New Zealand."

With regard to the principal complaints against the system (as distinguished from the working), the Commissioners appear to summarise them thus:—(1) Failure to provide compensation to injured persons. As to this the Commissioners point out that in the only recorded cases, one was a fraud perpetrated *before* registration, and in the other the sufferer by the forged document was the actual person who had himself accepted it. (2) Additional trouble, difficulty, and expense. The Commissioners agree that some additional trouble and expense is caused on *first* registration, but state that when once land is registered, the trouble vanishes and the expense is very small. The Commissioners do not concur in the allegation that certain deeds outside the Register are necessary.

As regards Possessory Title, they state that complaint is made, with good reason, that the immediate advantage to be gained from it is in no way commensurate with the expense and inconvenience it entails, and they emphasise this by the statement, "It is not too much to say that up to the present time the effect of compulsory registration with Possessory Title in London has been to place a purchaser there at a disadvantage as compared with a purchaser elsewhere." They then point out that as registration with Absolute Title is the real object of the system, further advance should be made with a view of facilitating the conversion of Possessory into Absolute, and they submit specific recommendations for that purpose.

Chapter IV. consists of recommendations for amendments of the system in order "*to give it a reasonable chance of obtaining that public appreciation and support, without which it could not be made compulsory in other parts of the country.*"

The recommendations are as follows:

(1) Registration, with Absolute Title to confer on the registered proprietor as well as on his transferees a title not defeasible, in consequence of defects in the title prior to registration, but subject in the case of the proprietors and transferees from him otherwise than for value to all rights created by the proprietor himself.

(2) The length of title now required to be shown for Registration with Absolute Title to be reduced from forty to twenty years. (A similar change to be made in the general law between vendor and purchaser.)

(3) The Registrar to be authorised to accept counsel's certificate of title, and unless he sees good reason to the contrary, to grant an Absolute Title where an application is accompanied by counsel's and solicitor's certificates in the form and under the conditions described.

(4) After not less than twelve, or more than twenty, years' probation, a Possessory Title in a compulsory area, if undisputed, to ripen into an Absolute Title to the first transferee for value in cases not exceeding £10,000 in value.

(5) In the case of leaseholds in a compulsory area a Possessory Title after ten years, if undisputed, to confer a "Good Leasehold" Title.

(6) A "Good Leasehold" Title in such an area in cases not exceeding £1,000 in value, if undisputed, to confer, after ten years, an Absolute Title to the term, against all persons interested in the property.

(7) Where settled land is vested in trustees they should be registered as proprietors. Settled land, where not vested in trustees, to be registered merely as subject to the Settlement. In the last-mentioned case the Registrar to issue Certificates of validity of proposed dealings.

(8) Transfers to be executed by the transferees. The register to be cleared on every change of ownership. A purchaser of registered land to be entitled to a full copy of the Entries on the register, and to abstracts and production of all instruments entered on the register which continue to affect the property.

(9) The estate of the registered proprietor to be the legal estate, except when that estate is outstanding, in which case it would be an equitable estate, and such estate to be transferable only by registered instrument, the registered proprietor to have complete power in all other respects of disposing of the property or creating any interest therein for value.

(10) Mortgages of registered land to be effected in the same manner as if the land were unregistered, but a note of the mortgage deed to be entered on the register, and all mortgages to rank according to the priority of their Entries. Dealings with mortgages entered on the register to be regulated by similar provisions. Mortgagees with power of sale to be authorised to transfer the land on the conditions stated. The Registrar to issue certificates as in the case of settled land. In the case of certain securities for present and future advances, the mortgagor only to be able to deal with the Equity of redemption, subject to the total advance agreed to be made.

(11) All easements and similar rights affecting registered land appearing on the title prior to registration to be entered on the register, and claims to similar rights acquired under any instrument after registration to be similarly entered. The Entries to be by reference to the instruments creating the rights.

(12) A registered proprietor to be entitled to have an Entry made on the register of his claim to any easement or similar right which he shows to be appurtenant to his estate, such Entry not to prejudice the owner of the tenement affected.

(13) Restrictive covenants affecting registered land to be registered by reference to the instrument creating them. The Court to be empowered to discharge or modify obsolete restrictive covenants affecting land, whether it be registered or unregistered.

(14) "Land Charges" to be treated as outside the system of registration, and placed in the same position as the liabilities in Section 18 of the Act of 1875.

(15) Provision to be made for protecting registered land and purchasers thereof against the operation of writs, orders, and bankruptcies, unless notice of the same is entered on the register.

(16) Minerals owned separately from the surface to be separately registered.

(17) Dealings for value with a registered proprietor to be protected, notwithstanding notice, whether express, implied, or constructive, of any matter outside the register, except in the case of actual fraud to which the person dealing with him is party.

(18) Provision to be made for annulling or rectifying a registration which is obtained by fraud, and for dealing with the case of the registration by error of two persons in respect of the same land.

(19) The Statutes of Limitation to operate in the same manner with regard to registered land as with regard to unregistered land. The right of parties in possession at the date of first registration to be protected.

(20) Compensation to be expressly given to a party ruled out by registration in respect of the value of the land as it stood at the time of first registration. The time for the recovery of compensation to be limited to six years from the Grant of Absolute Title, except in the case of an infant, a remainderman, a reversioner, and a mortgagee for which special periods shall be fixed.

(21) The form of declaration on application for first registration now in use to be altered. In the case of a Possessory Title or application thereto, the Registrar to be empowered to register without extra charge an Absolute Title, whether the owner consent or not. After registration with Absolute Title such deeds and documents as the Registrar requires to remain in the Registry.

(22) In a compulsory area conveyances on sale and leases to take effect on Execution, but to become void as regards the legal estate or interest unless registration is applied for within a month.

(23) Land boundaries to be described verbally on the register, and maps to be used for assisting identity.

(24) A new certificate in simple form to be issued on every fresh dealing. Certificates of Possessory Title to be different in colour from those of Absolute Title, and to bear on the face a clear warning as to their nature. Certificates also to show by a difference in form or colour whether the register is free or not free from notices. Rules as to the production and loss of certificates to be substituted for the existing statutory provisions.

(25) The procedure for giving effect on the register to the disclaimer of leaseholds in bankruptcy to be amended.

(26) Solicitors to have increased representation on the Rule Committee.

(27) The Land Registry (Middlesex Deeds) Act, 1891, to be amended.

(28) The fees on first registration to be payable by instalments in twenty years, with interest at 4 per cent. per annum, and Section 22 (4) of the Act of 1897 to be amended, so as to enable the balance between receipts and expenditure to be maintained over a series of years, instead of in each separate year.

(29) A reasonable maximum limit to the office fees under the ad valorem scale to be fixed, the Land Registry Office to be relieved of the charge for the building annuity, and in lieu thereof to be charged with an annual rent based on the assessment of the building to local taxation.

(30) All receipts of the Land Registry Office to be carried to a single account, and all expenses charged against it.

(31) The Rule-making authority to be invited to consider whether the percentage scale of remuneration of solicitors for transfers in the higher values might not fairly be increased.

(32) The system of Registration of Title to be amended according to our recommendations; and if after sufficient experience the amended system is found to work satisfactorily in the existing compulsory area, Parliament to be invited to consider the gradual extension of compulsion to the rest of the country.

(33) County Councils to be empowered to establish local Registries of Deeds.

We further make the following suggestions for the amendment of the general law—viz.:

(1) Compulsory Enfranchisement of copyholds.

(2) Provision for a Statutory Receipt on discharge of ordinary mortgages on the lines of the Statutory Receipt on discharge of Mortgages under the Building Societies Acts.

(3) Abolition of the need for technical words of limitation or the words "in fee simple," in conveyances of land in fee simple.

It will be seen that the pith of the Report lies in Recommendation No. 32—viz., that the system must be amended; that the system so amended must be worked for a sufficient period to prove it; and that then application may be made to Parliament for powers to compulsorily extend the system to the country. This may be, and probably is, sound advice; but it spells long delay—in fact, practically precludes any hope of the system being established throughout the country for at least a period of ten to fifteen years, for, confronted with a Report of this nature (and, be it noted, a unanimous Report), what Government is likely to move in the matter, other than on the lines the Commissioners recommend?

All advocates of the system of Registration of Title to Land (and they are many) will doubtless deplore the result, and keen regret will be felt that during the past twelve years those responsible apparently did not realise the existence or gravity of the defects, and did not endeavour to remedy them so that when the trial came the verdict might have been favourable to immediate extension. It is some consolation that the Commissioners, without hesitation, recommend the establishment of Deeds Registries. They point out that this will not only prevent the evils of fraud, duplication, and concealment of deeds,

but will make the grant of absolute titles much easier when the registration of title is extended. As regards the proposal that the Deeds Registries should be in the hands of the county councils, it should be borne in mind that by so doing the seed may be sown which will still further delay the extension of registration of title; for can it be doubted that once the county councils have been relieved of the pecuniary arising from the Deed Registries they will be loath to relinquish them? In an earlier paragraph the Commissioners speak of the subject as a national rather than a local question. Therefore, it is to be hoped that when the subject comes to be dealt with it will be treated as such.

THE TRANSITION OF LONDON'S PLAN, ITS DISAPPEARING LANDMARKS, AND AFTER *

By W. E. Riley, F.R.I.B.A., Superintending Architect to the London County Council.

To the occasional visitor, no feature can be more striking than the kaleidoscopic changes in what may be termed the structural development of London. This never-ceasing mutation includes not only the formation of new and the widening of old thoroughfares, necessitated by the increased volume and speed of traffic, but also the removal and rebuilding of some of London's most notable landmarks, and it may be profitable to investigate the causes and extent of this municipal evolution.

The causes may be briefly indicated as the increase in business and traffic, which have demanded the provision of additional street accommodation, and also the modern and healthier tendency to leave the centre and live in the suburbs, which has been so much fostered by the rapid transit afforded by tube railways and extensions of the electrified tramway system, and has also been considerably affected by the operation of Acts relating to housing of the working classes. As regards further street accommodation, there has been no opportunity since the Great Fire for making an important scheme for the proper planning of London. Unfortunately, Wren's plan, which might have set so noteworthy an example, has been rendered abortive by subsequent events. Wren's plan is shown on the screen, and is notable as showing his conception of the necessity for main east and west streets, with focal centres from which other streets should radiate. The Holborn to Strand improvement has been added to illustrate its effect as regards Wren's scheme, and this will be referred to later. To whatever cause it may be attributable, each generation appears to have dealt with the question of traffic space about buildings and kindred matters in a way that sufficed only for a time. There has been no comprehensive effort to foresee the wants of the future, and to formulate a practical and rational plan. This default has led to the necessity of very heavy financial expenditure. The London County Council, up to December, 1909, effected, or was in course of carrying out, 133 improvements, estimated to cost 8½ millions sterling, besides contributing 1½ millions towards the cost of 486 local improvements. The Council's predecessors, the Metropolitan Board of Works, expended 10 millions in constructing new, and widening old, thoroughfares, and also paid another million towards the cost of local improvements. The outlay of the City of London and the local authorities from 1856 to 1889, exclusive of contributions from the central authority, was over a million sterling, and these bodies are spending from £40,000 to £50,000 per annum with the same object. The City Corporation has also recently initiated works of considerable magnitude, such as the widening of Fleet street and Bishopsgate street, which alone are estimated to cost nearly three quarters of a million sterling.

These improvements have considerably affected London's plan; but it is to be doubted whether the result is in any way adequate. Queen Victoria street was completed in 1871, Northumberland avenue in 1876, Shaftesbury avenue in 1886, Charing Cross road in 1887, and Rosebery avenue in 1892; but these important and costly efforts to improve the planning of London must already be considered as almost obsolescent, and can only be regarded as touching the fringe of a great question. As an example of the costliness of the want of sufficient provision for future requirements the improvement of High-street, Kensington, may be quoted. A widening of the *south* side was carried out in 1866 at a net cost of £126,000. This improvement, however, gave a width of only about 47ft. east of Church-street. It became rapidly apparent that a further widening would be necessary, as this thoroughfare forms the main western outlet, and as early as 1888 a scheme was put forward with this object. It was not, however, until 1899 that powers were obtained to widen on the *north* side at an estimated cost of £87,500. It will be seen that for nearly one-third of the improvement the widenings have overlapped, and the additional expense entailed thereby might have been avoided if a sufficiently comprehensive scheme had been put forward in 1866. Even now, after an expenditure of £213,500, the average width to the east of Church-street is only 60ft., while to the west, at the part where the road was constructed in 1866, the width in one part is only about 44ft. The erection, however, of such large stores as Barker's places the greatest difficulty in the way of any further widening.

The greatest of modern improvements is undoubtedly the large scheme now effected connecting Holborn with the Strand. It is interesting here to consider this scheme in connection with Wren's plan of 1666 for rebuilding London. If the broad avenue west of the Fleet Ditch had been formed, with main streets radiating from a centre near the present junction of Fetter-lane with Fleet-street, the expenditure of the large sum involved in constructing Kingsway would probably have been thought unnecessary, even for the present requirements. The subject of forming a connection such as Kingsway was under discussion as far back as 1836. In that year a House of Commons Committee favourably considered the formation of a road, being a continuation of Lincoln's Inn-fields to Newcastle-street, and the widening of Gate-street leading to Holborn. The Report also advised the removal of the houses in Holywell-street so as to widen the Strand. In the year 1847, Mr. J. Pennethorne prepared a plan showing streets through this area from east to west, with suggested spur streets to the Strand near Wellington-street, and also to Lincoln's Inn-fields. In 1878, Mr. Teulon prepared a scheme for a connecting street—the most complete up to this date. It may be of interest to note that this scheme shows an island garden in the Strand, not unlike that recently proposed when the suggested setting back of the Strand frontage was under consideration.

The desirability of an improvement was first considered by the Metropolitan Board of Works in 1856, and again in 1883. Their successors, the London County Council, also considered many plans before deciding on the scheme as now carried out with a 100ft. street at an actual cost of five millions sterling and an estimated net cost of about three-quarters of a million. Previous schemes showing the new thoroughfare terminated by the Church of St. Mary-le-Strand had been objected to, and the crescent-shaped Aldwych, with the "island site" between that street and the Strand, was finally decided upon. I think that not only will the broad and generous lines of the scheme be admitted, but also its sanitary effect in abolishing a squalid area. One point of importance was the question of the retention or the removal of the Church of St. Mary-le-Strand. This church was designed by James Gibbs, and finished in 1723, and was the architect's first building after his return from Italy. It has a profusion of ornament. For its position, it would be difficult to arrange a more artistic note. It is erected on a podium or pedestal, and the west portico is very pleasing. I believe it was originally intended to crown the west front by a statue of Queen Anne; but after her death the present tower was substituted. Its suggested removal aroused public opposition, as the church undoubtedly forms a highly picturesque object in all views of the Strand, and its removal would have deprived this part of London of one of its most attractive and interesting features.

An important discussion arose on the line of widening to be adopted at the eastern horn of the crescent to preserve the vista eastwards, including the Law Courts and St. Clement Danes Church, at the eastern end of Aldwych. The body of this church was designed by Wren, but the steeple was finished by his pupil, Gibbs. The black line on the diagram shown represents the line approved by the Council to which the new buildings will be erected. The most northerly line was suggested by Mr. Hamo Thornycroft, the next by the Further Strand Improvement Committee, the next by the Royal Institute of British Architects, and the most southerly line by myself.

Other expensive widenings to which allusion must be made, but of which time does not allow detailed description, include that of Long-lane, Southwark, at a cost of nearly £200,000; Mare-street, Hackney, £660,000; Goswell-road, £227,000; Hampstead-road, £245,000; Piccadilly, £300,000; the extension of the Thames Embankment and improvements at Millbank, £1,300,000, and many others, and there has thus been an energetic but belated effort to overtake the requirements of the present time; but the very small endeavour which has been made comparatively recently, as a result of the Royal Commission on London Traffic, which sat from 1903-1905, shows how supremely difficult it is to give any practical effect to the great problem which has to be dealt with. The average width of the streets widened by the Council is only about 60ft. to 62ft., and a map has been prepared indicating roads 60ft. and upwards in width. Perhaps the first impression which this map produces is as to the complete want of regulation or design in the lay-out of these main thoroughfares. A generally-accepted theory in modern town planning is that focal centres shall be provided from which broad roads shall radiate, and which are joined by concentric streets, and those acquainted with the plans of Paris, Washington, and other cities will appreciate the advantages of this system. The map of Washington shows streets, many of which are 160ft. wide, which converge on centres such as the Capitol, affording not only magnificence of vista, but, by means of cross streets, convenience of access. Paris is a familiar example of the same principle. It will be seen that London is chiefly remarkable for the absence of such focal centres, and as regards wide streets, it may be noticed how in many main outlets a width of even 60ft. is not sustained. Paris has 102 miles of streets 98ft. wide or more; London has only 8¼ miles in all of streets of that width. It is instructive also to observe from this map how inadequate are the main outlets from London into the country. In many cases even a width of 60ft. is not maintained to the county boundary, and in the south-east and north-east of London such outlets can scarcely be said to exist. Paris has forty-two roads radiating into the surrounding country; London, with a population twice as large, has only twenty. The example of Paris may be cited as a complete contrast to the policy—or lack of policy—which has characterised London street improvement. As is well known, a plan of Paris improvements was drawn up so long ago as the end of the 18th century, and this was followed by Haussmann's courageous scheme of the middle of the last century. The policy of systematic development has been continuous in Paris irrespective of changes of Government, with a result which is unique.

Even the briefest survey of alterations in London's street plan would be incomplete without a reference to the improvement of the Mall, which is part of the Queen Victoria Memorial. Sir Aston Webb's original pro-

* A lecture delivered at Carpenters' Hall, Feb. 16, 1911.

posal provides for a direct and unobstructed access into Charing Cross, a feature which is common to all the schemes then submitted, and it is hoped that an adequate outlet may not remain unprovided. A further important scheme for relieving congestion of traffic was the alteration at the Marble Arch, by the formation of a new road, 100ft. wide, south of the Arch, which was rendered possible by the surrender of a portion of Hyde Park. It was pointed out to the Royal Commission on Traffic that traffic at this point surpassed that at any other in London, and it is hoped that not only will the improvement have a utilitarian value, but that the Arch itself will assume the position of importance which it merits.

In connection with this improvement the opportunity was taken to indicate the site of Tyburn gallows, and a triangular device, with the inscription, "Here stood Tyburn Tree; removed 1759," was let into the roadway. A map published in 1607 is shown, on which the Tyburn gallows is indicated as a landmark. The earliest date which can definitely associate Tyburn as a place of execution is 1196, when William FitzOsbert was hanged for sedition, and amongst the thousands of others executed here may be mentioned William Wallace, the Scottish patriot, 1305; Elizabeth Barton, the Holy Maid of Kent, 1534; Claude Duval, Jack Shepherd, and Jonathan Wild. The last execution took place in 1783.

The transition of London indicated above has its architectural as well as its engineering side. To attain the best results, it is essential that, whilst improved traffic facilities are afforded, architectural treatment of great dignity should be secured, and in the case of the Kingsway improvement the County Council co-operated with the Royal Institute of British Architects in selecting eight architects, who were invited to submit sketches for the various frontages. Three of those selected by the assessors as suitable for adoption are shown. An interesting portion of the design by Mr. H. T. Hare is for a simple, dignified type of building, one feature being the bridging over of the subsidiary streets. The same portion of Mr. Flockhart's design shows much skill and artistic feeling, suggestive of modern French Renaissance; and the third design is by Mr. Mervyn Macartney. However desirable, in the interests of architecture, the adoption of any of these schemes would have been, the Council has hesitated to impose upon its lessees any rigid scheme as suggested by these architects, with the result that each design submitted for new buildings is considered on its own merits. The Council has become, by reason of the surplus land acquired, one of the largest landowners in London, with a rent-roll of £325,000 a year, and, having regard to the interests of the ratepayers, it is most desirous to avoid any restrictions as to elevation, etc., which might delay letting the land. Circumstances have not been altogether propitious. I venture to think the architectural treatment which has so far resulted, as shown by the western end of Aldwych, is above the average of monumental work hitherto attained in Metropolitan improvements. Mention should be made of the Council's Central School of Arts and crafts erected on the east side of Southampton-row.

It is difficult to believe that this area was but recently covered with evil-looking alleys and courts which gave the district an unenviable notoriety, and any account of this scheme would be incomplete without some reference to the notable landmarks which it caused to disappear. No part of London is richer in historical associations, and many ancient buildings had to be demolished in connection with the improvement. The exterior and interior are shown of the Benchers' Hall with the remainder of New Inn, which was demolished, in Wych-street. This inn was founded in the reign of Edward IV. as an Inn of Chancery appertaining to the Middle Temple. Sir Thomas More stayed at the inn before he removed to Lincoln's Inn. Wych-street contained many old gable houses in plaster and timber, with projecting fronts and tiled roofs, which were typical of the old London houses existing before the Great Fire, of which few now remain in London. Drury-lane possessed a notoriety of centuries, and the lodging has now gone at which Pepys tells us he saw "pretty Nell Gwynne standing in her smock-sleeves and bodice, looking upon one. She seemed a mighty pretty creature." The Sardinia Chapel in Lincoln's Inn-fields, which also had to be demolished, was said to be one of the oldest Catholic chapels in London, and the only entrance was originally through No. 54, Lincoln's Inn-fields, the residence of the Sardinian Ambassador. The chapel was plundered during the Gordon riots in 1780, and a cat in priest's vestments was hanged on the lamp-post outside the door. After the suppression of the riots, the chapel was restored and enlarged. The painting above the altar showing the Descent from the Cross is attributed to Cassali, and is said to have cost £2,500. This has been removed to the new chapel in Kingsway. The interior of the front room on the first floor of 2, Portsmouth-street, Lincoln's Inn-fields, is also shown, with the elaborate plaster ceiling, the deal wall-panelling, and the carved pilasters to the mantelpiece, enriched with bunches of fruit and flowers in high relief. This building was probably erected from the designs of Inigo Jones, who planned the square, about 1618. At the south-west corner of Lincoln's Inn-fields stands the curious little building which is credited as being Dickens's original Old Curiosity Shop. This has for the time being withstood the ravages of the improvement.

A consideration which has largely affected the architectural results of street improvements has been the operation of the Housing and Improvements Acts. In many cases it is stipulated that all persons displaced who had permanent employment in the district should be rehoused within a mile of their former dwelling. In the Kingsway and Southampton-row improvements an area 3¾ acres in extent was acquired for this purpose, and with an insanitary area of 1½ acres cleared under the Clerkenwell and Holborn Improvement Scheme, 1899, the Bourne estate scheme has been laid out, so as to provide accommodation for 3,902 persons.

The average area of the living-rooms is 150ft. super., and that of the bedrooms 100ft. The average cubic space in the living-room is 1,275ft., and in the bedrooms 850ft. The buildings were planned for the internal blocks to lie north and south, so as to obtain the maximum of sunlight in the living-rooms, and each tenement has at least one room looking on to a garden. The type of plan designed for these buildings is an improved "Balcony Plan," arranged so that the living-rooms and bedrooms do not look on to any of the balconies, and have an unobstructed light. The buildings are five stories in height, with a few attics. Bruce House—a lodging-house at the corner of Kemble-street and Drury-lane—is another example of the fulfilment of part of the obligation to rehouse under the Holborn-to-Strand Improvement. Bruce House contains 709 cubicles, affording accommodation for 698 lodgers (men) and eleven porters. It was opened in 1906, and cost £50,020. Each lodger has an independent cubicle, having a minimum width of 4ft. 10½in., with an area of 36ft. super., and lighted by a separate window. The cost of land is a serious handicap to housing operations. Briefly, the financial obligation entails the necessity of building dwellings which will recoup themselves in sixty years, paying sinking-fund charges and interest of cost of buildings and of the land, which is written down in value, as if it were earmarked for housing purposes. In the central districts of London it generally costs 15s. to 17s. per foot super. to clear slums; but very few schemes can be made to pay if the charge for land alone is more than about 5s. per foot.

The type of plan used at the Bourne Estate was also adopted for Darcy Buildings, a small five-story block of dwellings erected for rehousing some of the persons displaced through the widening of Mare-street, Hackney. The site, though narrow, is an excellent one, as the building overlooks London Fields, a permanently-secured open space. Further examples, where the plan of London has been changed by the substitution of healthy dwellings for insanitary slums are the Boundary-street area, Bethnal Green; Churchway, St. Pancras; Webber-row, Southwark; and Millbank, and of another type the Caledonian Estate, Islington, may be quoted. This estate is about two acres in extent, and being acquired under Part III. of the Housing Act, bears no rehousing obligation. The buildings are five-story block-dwellings, containing 272 tenements. As showing the magnitude of the housing operations and their influence on the disposition of the population, it is interesting to note that the Metropolitan Board of Works, the Council, and other authorities have carried out clearance schemes which displaced over 70,000 persons, for 67,000 of which accommodation has been provided in new dwellings. The great improvements for cross-river communication have had the same engineering and architectural effect on the plan of London. The Corporation of London have given us the Tower Bridge, and the County Council a new bridge at Vauxhall, not to mention the tunnels at Blackwall, Rotherhithe, and Greenwich. These works necessitated not only street-works of a substantial character in the shape of approaches, but involved also the beneficent removal of much slum property, and its replacement with healthier habitations. As regards Vauxhall Bridge, a distinct step forward was made when the æsthetic treatment of it was decided to be a matter for collaboration between engineer and architect. Whether pylons upon the shore piers, or some other such feature, giving emphasis to the bridge, will ever be erected is problematical; but the importance and value of the whole scheme would be materially improved if something of the kind were added. Reference should be made to the sculptors' work on the bridge, the figures in the panels reflecting the greatest credit on Mr. A. Drury, A.R.A., and Mr. F. W. Pomeroy, A.R.A.

The architectural evolution of London is no less remarkable than the changes which have taken place in its street plan. The authorities have set an example in public buildings, such as the new Local Government Board and other public offices at the corner of Parliament-street and Great George-street, the new War and Admiralty Offices, and the Offices for the Woods and Forests, which have become more spectacular and permanent. The buildings in Great George-street which were demolished to make way for the extension of the new Government offices were of considerable architectural interest. The stone front to the park was designed by Adam, the brick front not being considered satisfactory, and it was observed during the recent demolition that the internal brick walls had little bond with the external. This front was carefully taken down by H.M. Office of Works, and the stones numbered. It is now being re-erected on the Horse Guards Parade as a new front to the Paymaster-General's Office. A handsome deal chimneypiece which was re-erected when the Surveyors' Institution was rebuilt, and a marble panel of a chimneypiece, reinstated in the same Institution, illustrating Diana and the Chase, are shown. The general exterior of the old War Office buildings in Pall Mall, of which the east block was erected by Sir John Soane in 1790, is extremely refined and unassuming. The architectural treatment of the staircase well reveals Soane's internal treatment of the cupolettes at the Bank of England. The extreme richness of the Ionic Order, with its deep entablature, embellished with medallions containing bas-reliefs and supporting caryatides, gives great architectural distinction to the staircase. The Secretary of State's room in the internal block, designed by Brettingham, had a remarkably fine ceiling, which is shown. The modelling of the ornament to the frieze is much heavier than that of Adams' earlier works, though in a measure anticipating them. Mr. Norman Shaw's new police offices at New Scotland Yard is a building which is generally acknowledged by those competent to judge to be one of the

In 1898 the Liverpool Corporation obtained similar powers, and in addition may require plans showing the general scheme for the development or laying out of an estate. In Manchester, Newcastle, Leicester, and other large provincial centres, convenient accesses or cross streets must be provided in new thoroughfares at intervals of 100 to 200 yards. In London there is nothing in the Building Act to prevent the erection of the interminable unbroken rows of houses whose monotony is almost as offensive as their public inconvenience. If the Town Planning Act can do anything to secure more rational and convenient development, it will have accomplished much.

It is also satisfactory to note that the labours of the Royal Commission on London Traffic have found continuity in the appointment of the London Traffic Branch of the Board of Trade, presided over by Colonel Sir Herbert Jekyll. This department is at present inquiring into the sufficiency of the arterial roads of London and the necessity for and direction of further outlets, besides keeping a watchful eye on those thoroughfares in respect of which the Royal Commission made definite recommendations, and its investigations can have only good results even if the hundred miles of new streets suggested in the report issued only last week are not immediately put in hand. Reference may here be made to one important thoroughfare which will possibly become of greater importance in the near future. The Royal Commission suggested that Euston and Marylebone roads might be widened to the width of a first-class street (100ft.), without considerable expense, and it is clear that if these roads and Pentonville Road were made of that width, a very useful east and west communication, separated from the central traffic, would be established. A considerable improvement in Euston road has already been effected as the result of negotiations between the Commissioners of Land and the Skinners Company, by which the Company have been granted permission to erect buildings in advance of the general line between Tonbridge street and Mabledon place, conditionally on surrendering part of the forecourts to the public way. The effect of this proposal will be to secure a thoroughfare approximately 100ft. wide at this part, without expense to the public.

It is, of course, of the utmost importance that traffic and business requirements in the central areas should receive consideration; but a no less pressing need is to establish the main arterial communications with districts surrounding the Metropolis. Not only can main arteries be fixed now much more economically than, say, a decade hence, and in such a manner as to regulate the development of the suburbs, but it is most undesirable that the beautiful parts of south-east London and others on the western boundary which remain uncovered should be built on in the same uninteresting and unsatisfactory manner as other districts in these localities. If the main lines of communication are laid down, there need be little fear for the development of the areas between them. Fortunately, Greater London is amply supplied with open spaces, and such excellent and popular air-spaces as Bushy Park and Hampton Court Gardens, belonging to the Crown; Epping Forest, Burnham Beeches, and Highgate Woods, which are maintained by the Corporation; and Hainault Forest and Marble Hill, which are maintained by the County Council, will, in a few years, be as essential to the life of the greater city as are now the parks and open spaces which form such a satisfactory feature of the inner town plan. We cannot claim for London any comprehensive development on the lines of Paris; but the present appears to be a suitable opportunity for considering whether its expansion should not be regulated on lines which make as surely for intellectual progress as they do for the purely physical. Time will only permit this brief allusion to the problem of proper future development which the passing of the Town-Planning Act perhaps more than anything else has brought to the public notice; but it is hoped that the record of change which has been shown may stimulate the feeling

that the policy of laissez-faire under which London has hitherto grown, shall not be allowed to apply to the development of Greater London.

I have endeavoured to lay before you in a general way the mass of the forces and interests tending to change and the obliteration of the old order of things, which in detail are not fully appreciated. I have been glad of an opportunity of putting this important phase of work before young and ambitious technical students, trusting that the work may excite more universal interest, not merely in the direction of endeavouring to do what is best in the future, but that each will try to look with loving sympathy on anything that has old associations, and which significantly marks the feeling of any particular period of our life and history.

The annual conversazione of the Institution of Civil Engineers has been fixed to take place on Thursday, June 29, at 8.30 p.m., in the Royal Albert Hall.

In the House of Lords on Wednesday, the City of London (Various Powers) Bill and the Metropolitan Water Board (Hertford Sewerage) Bill, were read a second time.

Scarborough Town Council, on Monday night, after a protracted discussion, decided in favour of the purchase of the undercliff south of the Spa at the cost of £5,000, to make footpaths from the esplanade, and to provide bathing-huts.

The site of the Duke of York's School at Chelsea has been sold to the Secretary for War for £225,000, and appropriated for the use of the Territorial Force. The approved estimate of the cost of the new Duke of York's School at Guston was £205,035, and expenditure amounting to £205,051 has been defrayed.

The Mayor of Guildford opened on Wednesday the new museum of the Surrey Archæological Society, which has been built at Guildford and presented to the town by Mr. F. Ferdinand Smallpeice, a former Mayor. Several valuable collections, which have had to be placed in various parts of the county, owing to the absence of suitable accommodation, have now been brought together in the new premises.

The work of rebuilding Rochester Bridge as a steel structure will be commenced almost immediately, the tender of Messrs. John Cochrane and Co., of Queen Victoria-street, having been accepted. The cost will be about £70,000, and 200 men will be employed on the work, which will take from two to two and a half years to complete. Messrs. Cochrane and Co. built the present bridge—the successor to the structure immortalised by Dickens in his "Pickwick Papers"—fifty-five years ago.

At Tuesday's meeting of the London County Council, the construction of a bridge, 45ft. long and 50ft. wide, over Waterworks River, Hackney Marsh, authorised by the London County Council (Tramways and Improvements) Act, 1909, has been completed. By section 34 of the Act the Leyton Urban District Council is required to contribute one-half, not exceeding £3,750, of the cost of the construction of the bridge, the remainder of the cost, and the repair and maintenance of the whole bridge being borne by the County Council.

The current issue of the Transactions of St. Paul's Ecclesiological Society (Vol. VI. part V.) contains a full report of the lecture recently given before the society by Mr. T. G. Jackson, R.A., LL.D., on "The Repairs now in Progress at Winchester Cathedral," illustrated by plans of the Norman edifice and the existing fabric, and photographs of the settlements and the work of underpinning. The Rev. E. S. Dewick, M.A., F.S.A., describes "Some Vernacular Versions of the Great Oes of Advent." According to the last annual report, the society elected eleven new members during the year, and lost three by death.

Mr. Justice Eve, sitting in the Chancery Division on Wednesday, heard an application by the trustees of the Whiteley Homes to decide whether the Shirley House Estate of 178 acres, near Croydon, was within the area of selection as a site for the homes under the will, and if so, that an order might be made sanctioning a conditional contract for purchase by the trustees. It was stated that the bequest of the late Mr. William Whiteley amounted to £1,000,000, and that 250 sites for the proposed garden city had been considered by the trustees. Mr. Justice Eve dismissed the application, deciding that the Shirley House Estate did not comply with the conditions of the trust.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The ordinary fortnightly meeting of the Royal Institute of British Architects was held at 9, Conduit-street, W., on Monday evening, the President, Mr. Leonard Stokes, in the chair. The death was announced of Mr. Alexander Cullen, of Hamilton and Glasgow, elected a Fellow in 1898.

THE ARTISTIC DEVELOPMENT OF LONDON.

Two papers were read on this subject by Mr. E. A. Rickards, F.R.I.B.A., and Mr. Paul Waterhouse, M.A., F.R.I.B.A., respectively.

THE LOST OPPORTUNITIES OF LONDON.

Mr. E. A. Rickards in his paper said that if London was at any time to affect the large manner of the Continental and American city, it had little as a basis to work upon; certainly no centre of interest such as the buildings and the gardens of the Louvre and the avenue leading from them. He expressed his regret that every opportunity of city development with a central motive, such as that of Sir Christopher Wren and his scheme for rebuilding the City after the Great Fire, had been consistently lost sight of or ignored, and in our own time the opportunity presented at South Kensington, with the Albert Hall as a beginning, stood out as an example. Much work which was certainly within the province of the architectural artist was consistently placed in other hands, and that superstition had to be broken down. London had persistently lost its many noble opportunities for improvement. We were an illogical people. We allowed no hands to be laid on the enclosed squares that could be so exploited in certain neighbourhoods such as Bloomsbury and Kensington, yet the whole artistic character and general design of the surrounding buildings was set back, and in many cases eternally ruined by the substitution of raw terracotta and exotic materials in the worst design.

BOROUGH ARCHITECTS AS THE COMING EDILES OF TASTE.

Mr. Waterhouse said he proposed to consider the means to be adopted for the architectural development of the Metropolis. He put three propositions, each admittedly self-evident axioms, before the meeting. The first was that the preservation of London's past and the guidance of London's future was an artistic trust of the greatest importance. So important was that trust that those on whom it was imposed should, in their own interests, take reasonable professional advice as to its fulfilment. The second was that, as is was not merely an archæological trust, but an artistic one, the necessary guidance of the action of the trustees should be sought, not from committees or societies, but from individuals. Art was produced by individual artists, not by corporations. His third proposition was that the proper advisers were architects. There could be no doubt, he said, that the present age in England was exceptionally strong in the numbers and quality of architects. Any architect who had had experience, as assessor in open competitions, of the wealth, the profusion of design, submitted could testify to this. So could anyone who had looked through the splendid and truly academic work submitted for the Institute prizes and sent in among the testimonies required for the examinations. The best level was a really high one, and the numbers were great. Against that wealth they had to set the indisputable fact that, as far as London was concerned, great enterprises of vast importance were sometimes undertaken without any architectural advice whatever; that architectural advice, when offered by the Institute in a corporate way and in a friendly spirit, was often ungraciously declined; and, finally, that much as individual owners might do on individual sites to secure good architectural effect in isolated instances by the engagement of first-rate architects, there was a conspicuous lack of general architectural control over these larger issues which were really of major importance. There was no good reason for this state of things, and no excuse. Construction and sanitation were well looked after and regulated; but the art of London building passed almost free of public control and stimulus. Why should this be? The London problem lacked efficient artistic advice, efficient artistic control. What was needed was the employment by London for London of the very highest architectural advice in those problems of collective architecture which were greater, not less, than the task of designing individual buildings for individual sites. The crucial question was by what machinery could such a result be brought about? It would, he felt, be more practicable to appoint an architect who should have supreme advisory control over all street-planning schemes and all questions of the guardianship of existing architectural monuments, for no one man could do all the work that needed to be done, and no committee of men could effect work which could be styled a work of art. How, then, were we to get individual artistic genius applied to the whole of this great acreage of buildings? He suggested that it should be made compulsory on each of the Metropolitan boroughs to appoint a borough architect, whose duties should neither overlap those of the L.C.C. district surveyors, nor the existing borough engineers. The new borough architect would have as his primary and simplest work the passing or rejection on purely æsthetic grounds of the designs of intended new buildings. His critical censorship would extend to the admissibility of altering valuable old buildings, and he would sometimes have to exercise a veto against the destruction of work of historic or artistic value. With him again would lie the duty of advising his borough, probably in consultation with a central authority, on the formation of new streets or new frontages; it would be for him to decide whether in certain places individualistic architecture should give place to the grouping of houses in larger composition, and he would be looked to as the guardian of art in those public works which boroughs so often carry out without any architectural advice whatever. The borough architect should be paid a fixed yearly income for his services. He would not be debarred from general practice, but should be prohibited from private engagements in his own district. His reason for proposing that the borough architect should not be debarred from general practice outside his borough was threefold. In the first place, the posts should be coveted among architects not as berths but as honours. Secondly, if the salary were made commensurate with the abandonment of the full practice of a first rate architect, you would either attract inferior men and mere place-hunters, or the best men and be robbed of some of their vitality. His third and most important ground was that these engagements should not be permanent, lest the boroughs should be saddled with inefficient administrators. The initial appointment should, he suggested, be for three years only, renewable at the option of the borough for other successive periods of a like span. As to the method of appointment, without doubt the nominations should come, in the first instance, from the R.I.B.A. Council, who should name not less than two men, from whom the borough would then make their own selection. He would exempt from the control of these new officials the Crown lands. To control the action of these new borough architects, there should be a recognised master mind, an architect-in-chief. The whole body of the officials already appointed should have liberty to select him either from their own number or from outside; but if from outside, they should, as in the case of the boroughs, seek a nomination of two candidates from the Royal Institute of British Architects. The chief architect would, of necessity, be the adviser of the London County Council, and would, therefore, hold his engagement from them. He would be imprimis the adviser of the Council upon the whole handling of their larger schemes. All new streets that run from one borough to another would be under his artistic care and charge; all bridges and cross-river communications would come under his control; and, generally, he would be the appointed adviser on the artistic problem of London as a whole. His rela-

tionship to the borough architects would be intimate and cordial. He would be glad if the Chairman of their monthly meetings [illegible] formal [illegible] to their conduct and [illegible] agenda. Subject to a period of probation at the end of which he recommended the close [illegible] and extension [illegible] sufficiently competent [illegible] architectural advisers.

Earl Beauchamp, [illegible] Works, [illegible] readers of [illegible] admit that [illegible] and not [illegible] same time, [illegible] scarcely [illegible] left [illegible] work [illegible] Society. We [illegible] ready to declare [illegible] circumstances under which [illegible] We had, he thought, [illegible] with the past fifty years had produced many [illegible] and art and [illegible] sympathy and patience with [illegible] who spoke of foreign countries as [illegible] in matters artistic, and were [illegible] the superiority of Continental [illegible] architects, and musicians. He was [illegible] despair, too, when he saw the high prices that were paid for specimens of old masters, and this being often done purely for the purpose of advertisement by people who had quite undeservedly acquired a reputation as patrons of art. He would like to see them doing more for the artists who were living to-day. In regard to modern buildings, they saw striking specimens that went to form very beautiful vistas. During recent years we had seen the introduction of different kinds of artificial lights which gave very charming effects as one travelled through the streets. They were a common sight now, so common, perhaps, that we did not always appreciate them.

Mr. Whitaker Thompson, Chairman of the London County Council, said he was sure that the body with which he was associated would like to insist upon the best form of architecture being preserved in our streets, and the widening of the older thoroughfares with the retention of all that was beautiful in our present street designs. Mr. Waterhouse's daring and most original suggestion of the appointment of borough architects was well worth consideration, although he did not envy the prospect of his friend Mr. W. E. Riley sitting in judgment once a month on the schemes for the development and embellishment of London brought before him by the eight and twenty architects of the various boroughs, and endeavouring to harmonise the various ambitious schemes. Although they might not attain to this ideal at once, it would be a magnificent thing to obtain architectural advice on different parts of London, either from a duly appointed borough architect or possibly red hot, and without honorarium, from the Council of that Institute. Such suggestions would be gratefully received by his Council, and if they could be acted upon would, he believed, tend to make the streets of London more beautiful than at the present time.

Sir Lawrence Gomme, F.S.A., clerk to the London County Council, remarked that London as a whole required an ideal of its own, and invited the members of that Institute to assist in providing it. Until such an ideal was provided, you could not divide the Metropolis, as Mr. Waterhouse had suggested, into eight and twenty sections, each with its own scheme of development and improvement. It was more important for Stepney and Shepherd's Bush to be in close touch with the architectural beauties of London than to possess architectural ideals of their own. The duty of architects of to-day was to supply the principles on which the architecture of modern London should be governed, and he suggested they should first devote themselves to the proper treatment of street corners. He instanced the manner in which the picturesqueness and charm of one of the return angles of Stratford place with Oxford street had been ruined, in his judgment, by the erection upon the site of a new bank. In Mediæval times there were beautiful buildings, such as Sir Paul Pindar's house [illegible] professional architects did not exist and this was because the owners delighted in having "genteel" houses, and desired to be [illegible] the city in which they lived. London [illegible] of best opportunities; but architects might help us to recover our position, and their advice would be welcome.

Professor Beresford Pite, replying to the [illegible] speaker, said London was not a city of [illegible] gave opportunities. A Metropolis which possessed such churches as Westminster Abbey, St. Bartholomew's, Smithfield, Southwark Cathedral, the Temple Church, such a fortress as the Tower of London, such Tudor Episcopal palaces as Lambeth and Fulham, such Renaissance buildings as Greenwich Hospital and St. Paul's Cathedral, and, coming to still later edifices, such noble structures as Somerset House, and London and Waterloo Bridges, and the Houses of Parliament, need not dread the challenge of comparison with any other capital in the world. Without mentioning the names of living men, London owed a great deal to the works of living architects. What we needed was the education of public opinion on architectural matters, and it would be a good thing for the Metropolis if more architects could be induced to serve upon local authorities.

Sir Aston Webb, R.A., Sir Herbert Jekyll, and Mr. Alexander Jamieson also supported the vote of thanks, which was carried by acclamation, and was acknowledged by Messrs. Rickards and Waterhouse.

DEPTHS OF PENETRATION IN WOOD PRESERVATION.*

By David Alleton, the Kettle River Co.

It is obvious that the penetration of a given quantity of preservative to the cubic foot must depend to a great measure on the length, breadth, and thickness of the piece of timber treated—that is, to the amount of surface. A pile has the least surface in proportion to its volume; bridge timbers come next, such as caps and stringers, and so on down to planks and boards, where the surface to be treated is very great. It, therefore, is apparent that as the surface per cubic foot is increased, to get an equal penetration the quantity of preservative must be increased. But often I find this indisputable fact reversed, and people wanting 18lb. per cubic foot put into piling and 8lb. or 10lb., and sometimes less, put into inch boards, and expecting the same penetration. Now, again, the kind of preservative comes under consideration, and of these I shall only allude to the two most commonly used, zinc chloride and creosote. Of the first, which is generally used in a solution of from 3 per cent. to 5 per cent., I find that one as easily penetrates wood as the other, and the amount used is from ¾lb. to 1¼lb. per cubic foot; and the object usually is to fill the wood with a certain amount specified of the solution chosen, and the penetration, owing to the low viscosity of the fluid, is usually nearly or quite to the centre of many of the ties, which are almost the only timbers treated with zinc chloride. This will require from 1gal. to 1½gal. to the cubic foot, though I am well aware that more, and of a weaker solution, is frequently added in very soft wood, because it will take it; but it must be borne in mind that if the same amount of zinc chloride is put in, whether in a small amount or a great deal of water, after the water has evaporated the quantity of zinc chloride in the wood is the same. In the case of creosote we have an entirely different class of preservative to deal with, and will be compelled to proceed on entirely different lines. Of late, for reasons not concerned with this discussion in this paper, it has become the fashion to use a creosote, or, rather, a mixture of creosote and undistilled tar of higher specific gravity and greater viscosity than that formerly used, and, assuming it to be free from any perceptible amount of insoluble matter, it is still, owing to its viscosity, more difficult to force into the wood, and will leave more near the surface than lighter oils. But, taking an oil of from 1·03 to 1·06 specific gravity, I find that we ought to expect with a 10lb. treatment in piling, an average penetration of about 1¼in., and in bridge stringers, caps, etc., with 12lb. of oil, about the same depth. Now, we all know that this will vary a great deal. I am speaking now of the geometrical centre of the stick. We will find a considerable difference in different parts of the same stick, sometimes within a foot or two of each other. Of course, the ends naturally absorb the most, and they seem to take it while the capillaries become clogged. This end absorption will be as deep sometimes as 17in. or 18in., and in very soft woods more. So, while we know we have a good deal of oil there, it must be left out of the question and borings taken far enough away to be beyond this species of penetration. Also, we will get different results on different sides of pieces of dimension timber, as one side may be heart and the other sap, and much will depend on the way the saw has cut it. Where the saw has cut across the rings, the summer wood, as it is called, consisting of capillaries, will take the oil more readily than the spring wood, consisting of cells. And, again, we will often in the same charge examine a large number of pieces and be very much pleased with their appearance, and then come to one having a very inferior treatment. But on the whole I think that the amounts specified per cubic foot in that size of material will be, as a rule, not far out of the way. I know that at times I have obtained a greater average penetration with these amounts, and at other times less. I find in the treatment of green wood that the oil penetrated the pores of the summer wood and not to any great extent the cells, and I get the same penetration from two-thirds to three-fourths the quantity of oil. Now, therefore, as we increase the surface per cubic foot, in order to get the same penetration we must increase the amount of oil, and here is where I am at a loss to specify the ratio of increase; but I think at present the nearest approach to a correct solution would be to increase the oil in arithmetical ratio to the increase of surface. There should be some effort made to settle upon an equitable mode of determining what any one should expect with a certain amount of oil in specified dimensions of timber, or, what is better still, to specify the depth of penetration required and pay for the oil used to obtain it.

* A paper presented at the Seventh Annual Convention of the Wood Preservers' Association, Chicago, Jan. 17-19, 1911.

THE ART OF WOOD CARVING.

At Carpenters' Hall, London Wall, on the 8th inst., Mr. Laurence A. Turner delivered a lecture on "Wood carving." Captain Drummond, M.V.O., occupied the chair.

The lecturer remarked that wood-carving was generally affirmed to be the most popular of all the artistic crafts, and this was natural, inasmuch as it could be employed to adorn so many things in every degree in our homes. It was a cleanly occupation, and could be made an amusing pastime or a strenuous employment, just as the whim of the person practising it might fancy. But how speedily it was laid aside with a sigh, for it proved not nearly so easy an art as it appeared to be. He thought it was about the worst of all the crafts for an amateur to choose. The number of technical difficulties to be mastered is much greater than in other kindred crafts. The difficulty of collecting a set of tools and getting them into a condition fit for use, and keeping them in good order, was a matter requiring great experience and patience. The beginner at the very outset is confronted with the heavy handicap of having to work with tools that are in a condition that even an experienced carver could not work with, and yet he has to use them, without skill and without knowledge. Half the battle of wood carving was learning to sharpen tools and get them in good order—that was to say, that their shapes, sizes, temper, thickness, and curve of the cutting edge required to be adapted to the use they are to be put to. How to produce a good

school of young wood-carvers was at the present moment occupying the attention of more than one of the influential societies around us. He held there was only one way, the old one of apprenticeship. Wood-carving was one of those industries in which apprenticeship had not disappeared. He didn't know a single carver who was taking his place in the ordinary round of London workshops who had not served his apprenticeship. The Carpenters' Company were doing the right thing to benefit the wood-carver. He regarded the class held in their schools at Great Titchfield-street for the advancement of wood-carving as the best of its kind he had seen. No trouble, care, or expense was spared by the Carpenters' Company to do what they could to help the wood-carver to improve his position. Until the carver had been through the discipline of a workshop, where he would be taught the traditions connected with carving, he would never become a master of the craft. He might be able to produce some excellent work, possibly of great originality; but he would not have that grasp of carving generally, that ready perception and comprehensive imagination that was required of the carver who had to work for many masters. It might be said that it was better that he should not be so constituted; perhaps so, but as things were now it was absolutely necessary that he should receive this wide training if he meant to gain his livelihood by wood carving. To debar the beginner from learning all he can from those great masters who have come before us, is, said the lecturer, as narrowing as it would be to give an apprentice half a dozen tools and tell him that he must do his work for the remainder of his life with that limited kit. What the apprentice most needs, and what he seldom gets during the years of his apprenticeship, is the opportunity to block-in and rough-out the carving from the beginning; he is generally employed in finishing what the older carver has begun. In the evening classes he should be given a block of wood and taught to see the planes that the work should be boasted to, to see the contour of the masses, that he may quickly rough-out the work and remove the wood in a workmanlike way. He should be taught to draw, so that he may with as little labour as possible be able to convey his ideas on paper. Highly-finished chalk drawings from the antique are not of the kind he wants to learn. The reason why carving is roughed-in by one man and finished by another, which is the usual custom, is that apart from the fact that the first stage of the work requires greater skill and knowledge, the tools used for finishing require to be kept in a different condition from those employed for roughing-in. They have to be sharper, and consequently have a thinner edge. If those used for roughing-out were sharpened like the finisher's tools they would be constantly gapped from the strain that is put on the edge by the heavy use of the mallet. The most important thing to remember in wood carving is to make every cut tell. The great charm of a well-carved piece of work is the spontaneous effect it should possess. The work should appear as though each cut was the result of a single thrust, not laboured or niggled, but direct, decisive, and firm. This quality should be particularly marked in soft wood, such as pine. Carving that is laboured and over-finished, so that the mark of the tool is not detected, is very dull; one ought to be able to see how the work is carved; but if you cannot most of its interest is lost. Carving is a thing to be done rather than talked about, to be seen rather than to be learned from lectures. The main difference between the principal tools is, first of all, that some are shouldered to prevent the steel from being driven into the handle, and are used for heavy work. The chief difference between carvers' tools and other wood-workers' tools is that the carvers' tools are sharpened equally on both sides. Also that in shape they are bent to allow the tool to make deeper hollows than could be done if they were straight. Most of them are made from a square piece of steel, which is widened out suddenly to form the shape for the cutting edge: these are called spades. It is very important in the bent gauges that the curve should be exactly right, so that the leverage comes on the right place. The curve from the edge of the heel should be a continuous one. The fluter is an important tool, inasmuch as a great deal of work is outlined with it. Instead of setting in the outline of the design by driving the tool into the wood at right angles to the ground, this tool cuts a groove round it, thereby avoiding the unseemly cuts in the ground that may be found when the work is finished. Even if there are not cuts, the wood will be bruised by the other method. The sharpening of these bent tools is a slow and laborious process, as there is very little room for movement of the oilstone slip on the inside of a bent gouge. The number of tools a carver has to form a kit may be any quantity from about six or eight dozen to a gross or more.

AMENDMENT OF THE LAND TRANSFER ACTS.

In their second and final report, the Royal Commissioners on the Land Transfer Acts recommend a number of amendments of the Land Transfer Act, as the embodiment of the conclusions at which they have unanimously arrived. They recommend that registration with absolute title should confer on the registered proprietor, as well as on his transferees, a title not defeasible in consequence of defects in the title prior to registration, but subject in the case of the proprietor and transferees from him otherwise than for value to all rights created by the proprietor himself. The length of title now required to be shown for registration with absolute title to be reduced from 40 to 20 years. The registrar to be authorised to accept counsel's certificate of title, and, unless he sees good reason to the contrary, to grant an absolute title where an application is accompanied by counsel's and solicitor's certificates in the form and under the conditions described. After not less than 12 or more than 20 years' probation a possessory title in a compulsory area, if undisputed, to ripen into an absolute title to the first transferee for value in cases not exceeding £10,000 in value. In the case of leaseholds in a compulsory area a possessory title after 10 years, if undisputed, to confer "a good leasehold" title. A "good leasehold title" in such an area in cases not exceeding £1,000 in value, if undisputed, to confer, after 10 years, an absolute title to the term against all persons interested in the property. Where settled land is vested in trustees, they should be registered as proprietors. Settled land, where not vested in trustees, to be registered merely as subject to the settlement. In the last-mentioned case the registrar to issue certificates of the validity of proposed dealings. Amendments are also proposed to cover questions of mortgages, of registered land, easements, separate registration of minerals owned separately from the surface, and the system of registration of title.

A CODE OF ETHICS.

The following is the code of ethics adopted by the Association of Transvaal Architects:—(1) No member should have any financial interest in, or combine any other business with, that of architecture, such as building, contracting, house and estate agency, auctioneering, or mercantile pursuits. (2) No member should receive, directly or indirectly, any royalty, gratuity, or commission on any patented or protected article used on work that is being carried out for his clients without the authority of such clients. He should be at liberty, however, to issue certificates or recommendations for payment for such goods by his clients. (3) No member should participate in, or be the medium of, payments made on his clients' behalf to any builder, contractor, or business firm without the authority of his clients. He may, however, issue certificates or recommendations for payment for same by his clients. (4) No member should guarantee an estimate or contract by personal bond, nor be a party to a contract with a contractor, except as direct employer or under special circumstances, with the concurrence of his client and the contractor. (5) No member should attempt to supplant or compete against another architect after definite steps have been taken towards his employment. (6) No member should advertise in any publication other than by a card or plate giving name, address, and profession. It is undesirable to publish the architect's name on hoardings on buildings in course of construction. (7) No member should criticise in public print the professional conduct or work of another architect except over his own name. (8) No member should furnish designs in competition for private or public work except under conditions previously approved by the council of this or other recognised institute. (9) No member should submit drawings in competition unless designed and prepared under his personal supervision, nor should any member attempt to secure work for which a competition remains undecided. (10) No member should deviate from the rules of practice and scale of charges authorised by a recognised institute without first consulting the president or council of such institute.

THE LAW LAND COMPANY, LTD.

The twenty-eighth annual report of this solidly-established and genuinely successful property company, to be submitted to the shareholders on February 22, 1911, reports that the gross rental for the past year was £124,022 10s. 2d. The balance available, including the £1,598 3s. 1d. brought forward from last year, was £40,343 19s. 11d. Out of this the interim dividend on the ordinary shares and the dividend on the preference shares to December 31, 1910, have been paid, and the sum of £1,093 6s. 4d. has been written off for depreciation on the company's investment in Consols, which has been written down to 79½ per cent. £10,000 has been added to the reserve account, and £3,302 5s. to the leaseholds redemption account. The leaseholds redemption account is now £31,013 17s. 7d., and the reserve account £110,000.

The balance remaining, after providing for the above payments, is £11,895 13s. 7d., and out of this the directors recommend that a final dividend for the half-year ending December 31 last at the rate of 8 per cent. per annum be paid on the called-up ordinary capital, making, with the interim dividend paid in September last, 7 per cent. for the year. This will absorb £10,000, leaving £1,895 13s. 7d. to be carried forward to the next account.

During the year, Mr. S. H. Burbury, who has been chairman of the board since the year 1893, signified his desire to retire from that post, and the directors have elected Sir Courtenay Warner, Bart., C.B., M.P., to succeed him. Mr. Burbury retains his seat on the Board. We congratulate the company on its continued prosperity, due to the continuously solid policy of its directors, and to its able managing director, Mr. Arthur M. Lloyd, and its assiduously attentive and ever-courteous secretary, Mr. E. H. Cousens.

DRY ROT IN WOOD.

A report recently issued by the Board of Agriculture remarks that as a destroyer of timber used in the construction of dwelling houses, the fungus popularly known as "dry-rot" had been well known for many years, and, notwithstanding modern improvements in ventilation, etc., the disease appears to be gradually gaining ground. This is chiefly owing to the following causes: (1) The use of immature and imperfectly seasoned wood; and (2) the rapidity with which modern houses are built, resulting in the imprisonment of a superabundance of moisture in the material used.

Infection with the dry-rot fungus sometimes takes place in the forest when felled timber remains stored there for some time. The first evidence of such infection is indicated by the presence of red stripes in the sawn wood. If such wood be thoroughly seasoned, the mycelium present in the red stripes is killed. If the seasoning be neglected, or imperfectly

fone, the mycelium, which possesses the power of remaining in a latent condition for some time, commences active growth when the wood is used in any part of a building where it is exposed to dampness, and this in some cases is unavoidable, as when the ends of joists are built into a wall.

Under such circumstances, dry rot eventually appears. On the other hand, the fungus is by no means rare on old beams and boards stored in wood yards, etc., and it is mainly from such sources that spores or portions of the spreading mycelium are introduced into buildings by new wood which has become infected.

A thorough system of ventilation and the avoidance of damp, stuffy places is of primary importance. The endeavours to exclude dry rot by hermetically closing all communication with the outer air in the spaces between flooring boards and joists, and similar places, has been practically demonstrated to be an utter failure.

A frequent cause of trouble is the use of slamp, deadening material, or "pugging," and covering it over with boards before all the moisture has evaporated. Such material should be used as dry as possible, coarse sand being the best for the purpose. The surface of boards coming in contact with deadening material should first be painted over with methylated spirit containing corrosive sublimate in solution—six ounces to one gallon. The spirit evaporates, leaving a coating of corrosive sublimate on the boards, which completely destroys any mycelium coming in contact with it.

The fruit of the dry rot fungus presents the appearance of irregularly shaped, flattened, or undulating patches of variable size, adhering by their entire under surface to the substance on which they are growing. When mature the central portion of the patch is covered with an irregular network formed by slightly raised anastomosing ribs, and is of a rich brown colour, due to the enormous quantity of spores, which are deposited on surrounding objects under the form of snuff-coloured powder. These spores are diffused by currents of air, or by rats, mice, and insects. The spreading mycelium can be checked by the application of carbolic acid, and when its presence is once detected, all woodwork that can be reached should be thoroughly saturated with the same substance.

The Hereford Rural District Council have elected as road surveyor, in succession to Mr. P. R. Gibbs, Mr. R. Stewart-Lloyd, surveyor to the Cheltenham Rural District Council. There were eighty-two candidates for the appointment.

The corporation of Dublin are building a new fire-station in Thomas-street, at an outlay of £7,000, from plans by their city architect, Mr. C. J. MacCarthy. The contract is being carried out by Messrs. Mull and Co., of Kingsend-road, Dublin.

Canon Jones, vicar of Hitchin, has received a cheque for £1,000 from an anonymous donor for the restoration of St. Mary's Church. The work of restoration has disclosed the foundation wall of a smaller church, supposed to date from a period anterior to the Norman Conquest.

A new clubhouse is being erected for the use of members of the Tyneside Golf Club, Ryton. The new building has been designed by Mr. Andrew Sell, architect, of the Alnwick Foundry and Engineering Company, and is being erected by his firm, under his supervision.

It is proposed by the Senate of Cambridge University to assign a site on the Downing ground for a building for the department of physiology to the east of the School of Agriculture, and separated from the east end of that school by a space of 40ft., the south front of the proposed building to be approximately in a line with the south front of the School of Agriculture; and a space to the south of, and adjoining the proposed building for the department of physiology as a site for a laboratory of experimental psychology. As soon as the latter site has been assigned tenders for the erection of a building for the psychological laboratory on general accordance with Mr. T. G. Jackson's plans will be asked for, and the Vice-Chancellor will be authorised to sign the contract for the work, provided that the cost does not exceed £3,700.

SEWERAGE SYSTEMS.*

Students and others, to say nothing of members of authorities concerned, will find this well compiled volume extremely useful. Mr. Watson leads the reader intelligently and consecutively to the comprehension of the various difficulties always before the designer of a sewerage system for any given locality, starting from elementary principles, and working step by step through the various details till a full grasp of the finished scheme is obtained.

The book embraces five parts. In the first we have the general design of sewerage systems explained, with details of the various types, data required for preparation of designs, and details of ventilation, flushing, sewage lifters, etc. In Part 2 we get the method of preparation of a design, in Part 3 the construction, in Part 4 the maintenance, and in Part 5 some valuable legal notes.

The appendices comprise an outline specification and draft regulations and forms. The volume is well illustrated, and will be found one of the most useful of its class obtainable.

The plans of Mr. W. Kinnaird Jenkins have been passed by the executive committee of the new operating theatre, which is to be built at the Falmouth Hospital as a memorial to King Edward VII.

A soldiers' home is being built at Curragh Camp from plans by Mr. Edwin Bradbury, architect, of College Park Chambers, Dublin. The cost will be about £8,000, and the builders are Messrs. Collen Brothers, of Dublin.

Mr. L. H. W. Crockwell, who for six years has served in the capacity of assistant surveyor of Torquay, has resigned his position in order to take up the duties of second assistant engineer in the Public Works Department, Shanghai.

Todmorden Corporation has purchased for public purposes the famous Central Vale Estate, which belonged to the late Mr. Samuel Fielden. It has cost £10,000, and comprises seventy acres of park and woodland, a famous lovers' walk, a mansion, two lodges, two villas, and the town's cricket field.

A memorial church is to be built at Benmore, Co. Tyrone, from a bequest by the late Mr. Philip M'Ateer, an Irish merchant in Glasgow, a native of the village. The style will be Late Perpendicular, with characteristically Irish features, and the architect is Mr. John Hopkins, of Manchester. The estimated cost is £20,000.

The promoters of the Brent Garden Village at Church End, Finchley, have now completed the purchase of the estate, plans for the development of which are being arranged. The central hall, which is to be the clubhouse when the scheme is completed, is being fitted up as a temporary residential house for those members who are waiting for their houses to be built.

Messrs. Reed and Stem, architects, Endicott-building, St. Paul, Minn., have been selected to furnish plans and specifications for the Union station of Michigan Central Railroad. Mr. G. H. Webb, the chief engineer of the company, will superintend its erection. Plans will be started at once, and tenders will be opened in March. The estimated cost is £750,000 sterling.

The London County Council have completed the purchase, for £15,600, of the freehold interest of the trustees of the London Parochial Charities in land in Bolt-court, E.C., required in connection with the erection of the L.C.C. School of Photo-Engraving and Lithography, subject, however, to a clause being embodied in the contract agreeing to offer no objection to the present position of St. Dunstan's court being altered should at any time hereafter the trustees in future developments of their property so desire.

The corporation of Hereford are about to enlarge the free library, the cost being met from a legacy supplemented by a donation from the testator's nephew. The new feature of the extension will be a new lending library at the rear of the present reading room, with a magazine room and librarian's office, and on the first floor an art gallery over these new rooms, approached from the existing museum. Messrs. Groome and Bettington, of Hereford, are the architects, and Messrs. Wilkes and Son, of the same city, the builders.

* Sewerage Systems: their Design and Construction. By Hugh S. Watson, A.M.I.C.E. London: Crosby Lockwood and Sons, 7, Stationers' Hall Court, E.C. 16s. 6d.

OBITUARY.

We regret to announce the death, which took place, after some weeks of illness, at Whittingehame, East Lothian, on Tuesday morning, of Colonel Eustace James Anthony Balfour, M.A., F.S.A., F.R.I.B.A., of 32, Addison Court-road, S.W. Colonel Balfour, who was in his fifty-seventh year, was the fifth and youngest son of Mr. James Maitland Balfour of Whittingehame and Lady Blanche Cecil, the second daughter of the second Marquis of Salisbury and a sister of the third marquis, and was the youngest brother of Mr. A. J. Balfour. He was educated at Harrow and at Trinity College, Cambridge, where he graduated in 1877, and on leaving Cambridge entered the office of Mr. Basil Champneys, and commenced practice on his own account in 1879. In 1885 he entered into partnership with Mr. Thackeray Turner, with offices in Buckingham-street, Strand. In 1890 Colonel Balfour was appointed surveyor to the Grosvenor estates by the late Duke of Westminster. As an architect he carried out a number of mansions and town houses, all distinguished by clever planning and good proportions, with a free use of vigorous plaster decoration in the ceilings and cornices. Among the works of Messrs. Balfour and Turner are the late Mr. Alfred Beit's residence in Park-lane; alterations to the family seat at Whittingehame; Ampton Hall, West Suffolk; a house for Mr. Alfred House at East Grinstead. Their churches include the very original St. Anselm's, Davies-street, Mayfair, S.W., illustrated in our issue of March 12, 1897, and the reconstruction of the National Scottish Church in Crown-court, Covent Garden, illustrated by us on March 26, 1909. They also carried out a chapel at Hatfield Hyde. Colonel Balfour was elected a Fellow of the Royal Institute of British Architects in 1892, and eleven years later a Fellow of the Society of Antiquarians. He was widely known as Colonel Commanding the London Scottish Regiment, which he did much to augment in numbers and efficiency. He served in the ranks of this corps (officially known then as the 7th Middlesex V.R., and now as the 14th County of London) for eight months in 1882-3, and, being promoted lieutenant in January of the latter year, he passed through the various grades as an officer, and finally held command as lieutenant-colonel from April, 1894, until November, 1902, when he retired with the honorary rank of colonel. He received the rare distinction of being appointed an aide-de-camp to Edward VII., and has served in the same capacity under the present King. There will be a memorial service in St. Columba's (Church of Scotland), Pont-street, S.W., on Sunday afternoon, at 3.30, to be attended by the London Scottish (14th County of London) Regiment. It is requested that any others who desire to attend, and to have places reserved for them, will apply by letter addressed to the Chaplain of the Regiment, St. Columba's Church, Pont-street, S.W., when special tickets of admission will, so far as possible, be sent to them.

Mr. John James Griffiths, J.P., the well-known paving contractor, died, aged seventy-four years, on Tuesday in last week at his residence, 213, Willesden-lane, after a few days' illness. Mr. Griffiths was a member of the Skinners', Fanmakers', and Paviors' Companies, being a past-Master of the latter body. His business was established half a century since in Kingsland road, while ten years ago the undertaking was converted into a limited company, under the title of William Griffiths and Co., Ltd., the offices being at Hamilton House, Bishopsgate. Mr. J. J. Griffiths at that time retired from the business, his place being taken by his son William, who became the managing director. Mr. Griffiths carried out many important contracts for the Metropolitan Board of Works, and constructed almost all the old horse-tramway systems in the Metropolis. At one time he was the sole owner of the Lea Bridge Tramways. He had for some years past been the chairman of the Victoria Patent Stone Company, Ltd., and was also the proprietor of the Lake Hotel, Llangammarch Wells. The funeral took place on Saturday at Abney Park Cemetery.

CURRENTE CALAMO.

Mr. Paul Waterhouse's suggestion on Monday night at the Institute that every London borough should have its own architect, charged with the control of all street-planning improvements, and the passing or rejecting, on purely æsthetic grounds, of the designs of new buildings, has a good deal to recommend it. We are hardly in love with his three years' system of tenure of office, or sure that the borough architect should be allowed private practice outside his own district. The method of election proposed—viz., by the whole body of other existing borough officials, on the nomination of the R.I.B.A. Council, has something to recommend it, but will hardly be adopted—at any rate, yet awhile. The borough architect would naturally be subject to the control of the architect to the London County Council, exercised in a friendly way at monthly meetings.

We hope this would prove sufficiently effective. Every superintending architect may not exhibit Mr. Riley's tact, ability, and good taste, and, in spite of all remonstrances, some future borough architect of Westminster may insist on duplicating Sir Horace Jones's pet griffin hard by the existing monster in the Strand! We suspect, in the immediate future, at all events, the new borough architects and their primate will principally have to dread the storms of opposition raised locally by brother critics—much as just now at Liverpool—all laudably anxious to convince everybody how much better they could have done the job!

Mr. Waterhouse's concluding reference to Democrates was, we suppose, sarcastic. That ambitious architect, like some of our own time, had to devise methods of self-advertisement that did not clash with professional etiquette, and his apparition as the god Hercules to Alexander the Great, and his delicate flattery of that monarch, whom he wished to immortalise by carving Mount Athos into the similitude of a giant, was rewarded later on by the job of the town planning of Alexandria. Alexander, says Mr. Waterhouse, was a supreme general; therefore he knew how to choose a good architect. Is the moral meant that the selection of London's new borough architects, after all, had better be left to Lord Roberts? If that will really save a procession of certain London architects we know to Spring Gardens in "a dress consisting of a club, a lion's skin, and a little olive oil," each anxious to chop Primrose Hill into a presentment of the current year's Chairman, as a proof of their æsthetic tastes, we are resigned!

Oh beatific vision! oh joy of the elect! St. Laurence Gomme in a new halo, and glowing with the certainty of that coming big, full pension, and Lord Beauchamp, the herald of the golden age of art, at the gates of Spring Gardens, waiting to let the ransomed in! With just a stray Norman Shaw sent down, now and then, to bottle a tear of rapture or two shed by Professor Reilly at the "curioser and curioser" things that are done even now at Liverpool, and elsewhere, ere admission is vouchsafed to the Paradise of all good architects.

"And after?" Well, we hope, sometimes against hope, that even mock-tournament sort of debates like that at the Institute and elsewhere may at least stimulate the feeling that London shall no longer be left to degenerate into further aggregations of ugliness and unfitness; but that, on the same and businesslike lines indicated in Mr. Riley's admirable lecture last night at Carpenters' Hall, the expansion of the capital may be in some degree regulated on lines which make as surely for intellectual as for the purely physical. An ounce of the experience Mr. Riley so pithily summarises is worth a ton of visionary anticipation, and no careful reader of his lecture will fail to rejoice that the great authority of which he is the able and trusted adviser has such accurate knowledge and healthy zeal, tempered by sound discretion, at its command.

The finance committee of the Liverpool Corporation again discussed on Friday the request of the King Edward Memorial Committee that the corporation should provide a site by the St. George's Hall for an equestrian statue to King Edward. Mr. Goscombe John, R.A., was present. The design, by Mr. Norman Shaw, R.A., showing a double stairway approach to the south portico, in place of the present unbroken podium wall, was again considered. By a majority of nine to four the committee decided to approve of the proposal to cut into the wall, subject to a modification of the details to be discussed later. The proposed position of the statue, however, did not find favour, and ultimately the committee resolved to recommend to the memorial committee a variation of the scheme. They agreed unanimously to reserve spaces for statues at either end of the podium wall in St. John's lane, and asked the memorial committee to put the King Edward statue on the site nearest to Lime-street. The Memorial Committee met on Tuesday, and determined again to consult "experts," and then hold another meeting.

At the finance committee meeting there was exhibited along with Mr. Norman Shaw's model an engraving of the southern and eastern façades of St. George's Hall, published in 1854 by J. R. Isaac, dedicated to the then mayor and corporation of Liverpool, and bearing the name in print of "H. Lonsdale Elmes, architect." This was stated to be a copy of one of Elmes's designs. It shows an equestrian statue at each end of the podium, as now suggested by Alderman Cohen, and midway in the wall steps enclosed by iron gates similar to those designed by Mr. Goscombe John.

We are inclined to doubt whether this was really a design by Elmes, seeing that he died on November 26, 1854. The objectors insist that the only drawings in existence by Elmes himself show the podium wall, that the steps were Cockerell's, and that he admitted they were a failure, and they were removed. On the whole, we prefer Mr. Norman Shaw's scheme. If some of the current criticism were less flippant, it might, perhaps, help the Liverpool people and their representatives, who really seem doing their utmost, with the aid of quite competent advisers, to arrive at the best solution of the problem before them.

We note in the *Ohio Architect*, in many ways the livest and most representative of the American building papers, which, by the way, we have to thank very cordially for its hearty and graceful congratulations to ourselves on the recent commencement of our hundredth volume, that American architects mean to have higher fees. The American Institute of Architects allows six per cent. for complete architectural services, including sketches, working drawings and details, taking of figures, letting of contracts, superintendence of the construction, and the payment of all contractors' bill. The Institute, however, recommends a higher scale for residences and alteration work. Most American architects adopt a sliding scale, seven to eight per cent. for work less than 10,000dol. and six per cent. for all work over that amount.

"What should be charged," declares an architect in *Country Life in America*, "is ten per cent. straight for all residence work. This is the amount of clear profit usually figured upon by the contractor. I have kept careful count of the time spent on all work turned out of my office, and by an empirical rule based on the salaries of the draughtsmen employed this time is reduced to office hours. I have figured that to return myself an income of 5,000dol. a year there should be a gross receipt of 3dol. for each office hour expended on a building. Perhaps to expect an income of 5,000dol. a year is presumptuous in as humble a member of society as an architect."

Our American colleague's "humbleness," however, only lasts out one paragraph. Gaining strength as he proceeds, he demands of his readers whether they "ever stop to consider what an architect must know? First the artistic side; here we must start with a certain amount of Godgiven talent. To design properly an architect must have, or thinks he must have, exact and intimate knowledge of the great styles of architecture." He must have mastered "civil engineering, the design of beams, trusses, etc., mechanical engineering for heating and power plants, sanitary engineering for plumbing, electrical engineering for electric wiring, etc." He "must have exact and minute knowledge of each one of the twelve or more trades that enter into" his work, and "he must be a business man." Ten per cent., therefore, is his fitting remuneration. Sounds nice, doesn't it? Say, now, shall we teach our own Registration parrot to say to our clients, "Your fees will cost you more"?

A seaside Garden Village is a welcome novelty. Some of us are sick enough of some of the ordinary seaside resorts, and would gladly spend a holiday, or plant our week-end refuge at a place laid out with some regard to health and beauty. Such a boon is promised us in an excellently-illustrated volume by Messrs. John W. Fair and Val Myer, A.R.I.B.A., of 39, Furnival-street, E.C., at Woldsea, on the Lincoln coast. The eternal pier and promenade are to find no place at "the Eastern Riviera," but instead, fair lawns and gardens by the sea, under the care of a proper Corporation, and not a mere trading syndicate under the guise of a benevolent society. Good water and cheap gas are promised—electricity, also, we hope. There is to be a new railway station at the "village," whereto, we trust, the dwellers in the variously-designed dwelling-houses contemplated will be carried with some little comfort. Many a reader might spend Easter

Building Intelligence.

AYLSHAM.—The Wesleyan Institute and Sunday-school in Ishington, Birmingham, built at a cost of £8,500, was opened on Friday. The institute, which has frontages to two main thoroughfares, has been designed by Messrs. Harper, of Birmingham, and built by Messrs. J. Dallow and Sons, Blackheath. The assembly hall seats 400 people, and on each side of the ground floor are four classrooms. The hall is lighted by clerestory windows, and in the roof provision has been made for gymnastic apparatus. A secondary entrance from Tennant street gives access to the social rooms on ground and first floors. On the left and right of the principal entrance are a young men's room and a girls' parlour. On the first floor are a church parlour and a guild room. Opposite is the entrance to the gallery of the assembly hall. The buildings are of picked Staffordshire bricks, with stone-coloured terracotta dressings.

NORWICH.—On Thursday in last week the King Edward Memorial block for the isolation of infectious and septic cases at the Hospital was opened. This block, the foundation stone of which was laid by the late King in October, 1909, forms part of a scheme for the extension of the hospital. The Memorial Fund Committee also presented to the hospital a bust of the late King by Mr. Bruce Joy. The new building is a two-story block, with the centre portion carried up an extra story. The ground floor consists of two septic wards, 40ft. by 24ft. by 12ft. high, each containing six beds. The architects were Messrs. Edward Boardman and Son, who have been associated with the consulting architect, Mr. H. Percy Adams, of London. The builders were Messrs. J. Gill and Son, of Norwich. The outlay has been about £6,400.

SOUTHAMPTON.—A new drill hall and other accommodation provided by the County Territorial Association on land at the back of Hamilton House, Commercial road, Southampton, has been opened. The work has been carried out by Mr. G. R. Long, builder, of Shirley, whose contract for £4,080 was carried out under the supervision of Messrs. Hair and Buckmill, architects, of Portland terrace, Southampton, by whom the plans were prepared.

The Town Council of Dunstable have appointed Mr. Barker, at present borough surveyor of Poole, to be borough surveyor, with an addition to his salary of £50 per year.

Mr. W. J. E. Biker, who has been thirteen years in Harrogate Corporation Surveyor's Department, is to succeed Mr. Proctor on March 13 to take up an appointment at Bexhill-on-Sea.

The Council of the County of Dorchester has approved the election of Messrs. D. Balfour and Son, C.E., sewerage and sewage disposal engineers, of Westminster and Warrington, and it has been decided to apply to the Local Government Board for a loan of £4,809.

At the meeting of the Stretford and Ayre Town Council on Tuesday the plans and estimates received at £10, £20, and £250 were produced, and the borough surveyor was instructed to advertise for the two plans for the cheapest cottages to be placed in the public library in order that the names of those who would be prohibited, unsuccessful, but marked on them

Engineering Notes.

SUNDERLAND.—The site of the barracks at Sunderland, which has been abandoned by the War Office, on account of its exposure to attack by sea, has been taken over by the River Wear Commissioners, who propose to utilise the barracks for improving the facilities at the docks. The scheme of the Wear Commissioners' engineer (Mr. Wm. Simpson), which has been accepted, will enable the barracks ground, which is 30ft. above the level of the dock railways, to be connected with the latter, so as to be used for the storage of goods. The site will thus be made a part of the whole docks system, and worked directly from the low level railways of the dock. This will be done by the construction of an incline leading from the low level railways into the barrack square, the barrack wall being pierced for the purpose, and a cutting made inside the square. The footway to the docks will pass through an archway in the incline. The barrack site will be laid out with sidings for the delivery of goods. The work is to be commenced immediately, and will be completed by next June.

It was decided at a public meeting held in Newmarket on Tuesday night to build a new town hall as a memorial to King Edward.

The contracts for the first part of the works comprising the extensive alterations which the Metropolitan Railway Company has undertaken at its Baker-street East Station have now been let. They relate to the widening of the tunnel for about 150 yards from Baker-street end, and the laying of four lines of railway in this section.

The Herts County Council have sanctioned plans prepared by Mr. Urban Smith, the county surveyor, for carrying out alterations and additions to the St. Albans Public Library premises for providing accommodation for instruction in day school cookery, woodwork, art, and evening classes. The county surveyor was directed to submit tenders for the execution of the buildings, at a cost not exceeding £2,080.

At a meeting held at Bridgwater it has been decided to form a surveyors' association for Somerset. Mr. H. T. Chapman, the county surveyor, is taking a great interest in the association, and has become its first president. Mr. F. Parr, borough surveyor of Bridgwater, and founder of the association, is vice-president, the secretary and treasurer being Mr. W. A. Collins, engineer and surveyor to the Bridgwater Rural Authority.

Mr. P. M. Cruttwell, K.C. has held a Local Government Board inquiry at Kirkby Stephen into an application of the East Westmorland Rural District Council to borrow £4,150 for works of sewerage and sewage disposal, and also for a provisional order for the compulsory purchase of the land required for the works. The scheme consists of a new system of sewers in the town, and bacterial disposal works. Mr. Harry W. Taylor, A.M.I.C.E., of Newcastle (Messrs. Taylor, Wilson, and Taylor), is the engineer.

The Local Government Board has sanctioned the application of the Bexhill Corporation for a loan for the erection of a colonnade on the Central Parade. The scheme combines an ornamental shelter with a sunk bandstand and enclosure. The enclosure will provide accommodation for 700 people, and can be enlarged on special occasions to seat 3,000. The scheme has been designed by Mr. J. E. Wall, a member of the Bexhill Town Council. The colonnade will complete the central front improvement, which has been carried out at a cost of about £12,000.

A Local Government Board inquiry was held in Birmingham on Tuesday before Mr. Thomas Adam, inspector, with respect to the city council's application for authority to prepare a town planning scheme in East Birmingham under Part II. of the Housing Act of 1909. The scheme has reference to 1,477 acres of land in the Saltley and Bordesley wards in the parish of Aston. Evidence in support of the proposals was given by Mr. H. I. Stafford, the city surveyor, and by Mr. J. Ivo Wilmot, of Messrs. Wilmot, Fowler, and Wilmot. There was some small opposition by landowners, based on the ground that they were already carrying out what the Corporation proposed to do. The Inspector congratulated Birmingham on the fact that two town planning inquiries had been held in the city before any other town had held one.

COMPETITIONS.

ATHENS.—With reference to our previous notice on page 65, relative to the international competition of plans and designs for new Courts of Justice at Athens, H.M. Minister at Athens now reports that the final date for the receipt of projects has been changed from August 8-21 to September 12-25 next. Projects, accompanied with a payment of 200 drachmæ (£8), should be sent to the "Section d'Architecture, Service Central des Travaux Publics, Ministère de l'Intérieur," Athens. H.M. Minister has also forwarded a plan of the ground on which the Courts are to be built. Further particulars of the competition (in French), and the plan abovementioned, may be seen by British architects at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C.

CHIPS.

The Local Government Board have sanctioned the borrowing by the town Council of Hereford of the sum of £7,000, for the construction of the new filter bed.

The death is announced of Mr. P. J. Prendergast, C.E., of Galway, who was for many years surveyor for the East Riding of Co. Galway, a position from which he recently retired owing to ill-health.

The Secretary of State for India in Council has, upon the recommendation of the President R.I.B.A., appointed Mr. H. Seton Morris, A.R.I.B.A., to the post of consulting architect to the Government of Burma.

A proposal to appoint a sub-committee to prepare details for a reconstruction of the main entrance to the Bradford Town Hall was defeated by 38 votes to 27 at the city council meeting on Tuesday night.

Preliminary negotiations between the Liverpool City Council and several of the district councils on the south side are taking place with a view of obtaining the advantages of the Town-Planning Act and a possible extension of the municipal area.

At the annual meeting of the Dublin Master Builders' Association, held at the Grosvenor Hotel, Westland-row, Dublin, the following officers have been appointed:—President, James Beckett; vice-president, H. McLaughlin; hon. secretary, John Good; hon. treasurer, S. Roberts. Committee: Richard Denne Bolton, Thomas Connolly, G. Goodfellow, James Kiernan, Thomas Mackey, R. E. Mellon, Henry Pemberton, and E. W. Warren. Auditor: H. J. Monks.

The foundation-stone of a Roman Catholic church, of St. Felix, was laid on Wednesday in last week on a site near the Central Railway Station at Felixstowe. At present only the first section, consisting of the sanctuary and two bays of the nave, is being built. It is of stone throughout. The architect is Mr. F. B. Banham, of Beccles, who designed the Benedictine minster there, and the builder is Mr. Frederick C. Thurman, of Walton.

As a memorial to the late Mr. J. Howard Colls, an influential committee has been formed to raise a fund for the permanent endowment of a cot at the Evelina Hospital for Sick Children, Southwark Bridge-road, an institution in which he took a deep personal interest. Already a substantial sum has been raised towards the £1,000 required. Alderman Sir John Bell, Bart., 95, Finsbury-pavement, is acting as the chairman and treasurer, and Mr. T. Rothwell Hasham, 47, Moorgate-street, as the hon. secretary.

The Imperial Trade Correspondent at Toronto reports that the Young Men's Christian Association of that place is having built a new central building, seven stories high, of fireproof construction, steel frame, and brick walls, to cost between 300,000dol. and 400,000dol. (£61,000—£82,000). There are to be dormitories, toilet-rooms, bowling-alleys, a billiard-room, gymnasiums, a Turkish bath, etc., and elevators or lifts are to be installed. Work is to be begun early in the coming spring. New offices, sixteen stories high, are to be built in Toronto at a cost of 1,000,000dol. (about £205,000). The building is to be of steel, faced with glazed terracotta. A bank has purchased a site in Toronto, upon which a large head office building is to be erected. Addresses to which communications might be made in connection with each of the foregoing matters may be obtained, and further particulars and a plan in regard to the Y.M.C.A. building may be seen, by British firms at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C.

Correspondence.

"CIVITAS" AND THE SOANE AWARD.

To the Editor of the BUILDING NEWS.

SIR,—The occasion of the withholding of the Soane Award has caused so much comment by, and so many inquiries from, personal friends and the young men of architectural profession, that some explanation seems to be called for.

The President and Council claim that I received "substantial" help, and I have freely acknowledged that I did receive some help in colouring and also in setting up of a rough draft from my own sketches for the perspective, the latter being work which I considered was of a purely mechanical nature. The responsibility, therefore, for the withholding of the Soane is entirely my own, and I wish to take all blame. I have lost a much-coveted prize; but I am still very young, and hope to make amends.

In any case, the loss of the Soane is not the bitter disappointment to me that it might have been to some, for my competing at all was a mere chance accident. I was already a student in Paris when the programme was issued, and it occurred to me that I might as well work upon this project as any other. Moreover, when I read the programme I realised that the award would probably go to the man who could convert a civic ditch of 120ft. into a dignified water approach, for only thus could the scale be obtained which could in any case express the status of a capital city. I thought when I had solved this problem that I would probably be well in the running.

Now as to the help I received. The fact that I prepared my early studies during the summer vacation absolutely precludes any question as to the authorship of the design, so the whole objection naturally revolves upon that of draughtsmanship, and here I may further add that I did not receive any assistance whatsoever until the Thursday preceding the Wednesday, the day of sending in. This shows that I did not even anticipate any help. At this stage all the drawings were in line, and I have the assurance of responsible authorities that had I sent in my drawings at this stage I should still have been the winner. Had I for one moment anticipated that so much value was placed on gilt and Chinese white, I would have washed out every trace of it.

Only on one point do I offer any criticism of the Council's action, and this for awarding me the Soane in face of the help rendered by my friend M. Carlu, whose every touch is unmistakable, and was unquestionably recognised by Professor Reilly, who delivered the criticism. Speaking for myself, it certainly never occurred to me that the snow on the perspective (mostly put on with a toothbrush), the amusing political meeting on the side façade, or the smoke so cleverly indicated above the plan of the steamer (whilst undeniably adding interest to the drawing) would be classed as architecture, and I am certain that it will vastly amuse my fellow-students at the atelier that the R.I.B.A. attach so much importance to the merely *chic*, and equally surprise them that so little encouragement is given to the more important qualities of imagination and true architectural scholarship, which are surely the only guarantees of a student's future.—I am, etc.,

PRENTICE MAWSON.

28, Conduit-street, W., Feb. 12.

The London Education Committee have allotted £600 for preliminary expenses in connection with the erection of a secondary school for 450 boys in Crister-road, Brixton-hill.

It is stated that the designing of the Shakespeare Memorial National Theatre for which ambitious enterprise about £100,000 has already been subscribed, will, in all probability, be thrown open to the architects of the world. The promoters are asking the London County Council to grant an option of the site of the present hall and offices in Spring-gardens "on the most favourable terms." Their request to the Council ten years ago for a free site was very properly rejected.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

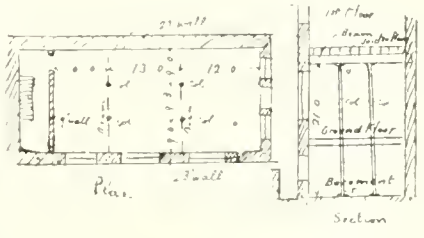
All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. Arthur C. Hewitt, 43, All Saints-road, King's Heath, Birmingham.

QUESTIONS.

[13008.]—LOAD ON WAREHOUSE FLOOR.—I give sketch of an old building in the London district, which is used for warehouse purposes. I wish to be informed, what load can be safely placed on the first floor, taking into account that the girders carrying the floor are fixed beams supported by intermediate columns which are solid cast iron, 5in. diam. at base, and 4in. at top with

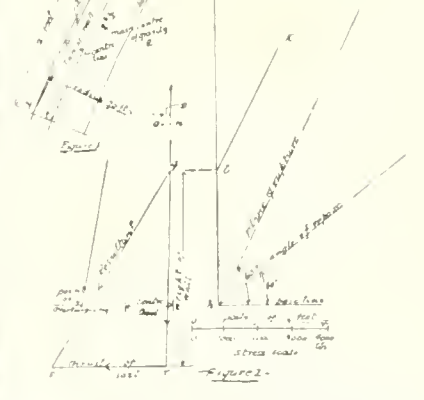


12in. square base plates (assuming the foundations are sufficient). The columns are 21ft. long, and extend from the basement to under side of first floor. The chief question is, What will these columns carry? These columns do not take any weight of ground floor.—J. H.

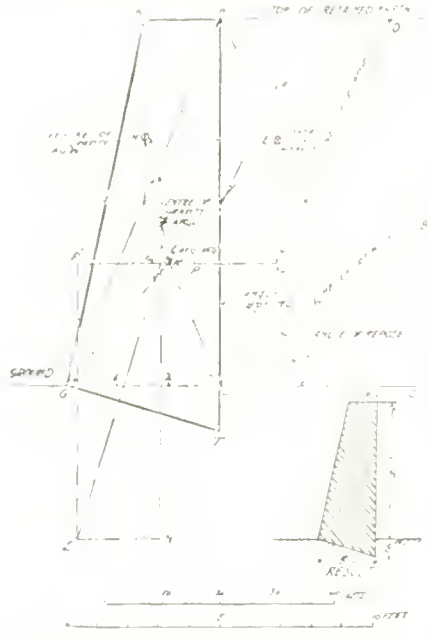
[13009.]—SEWAGE INSTALLATION.—Required bacteriological sewage installation for a country mansion which is isolated. Suggestions from your architect readers appreciated.—Aide-de-Camp.

REPLIES.

[13005.]—RETAINING-WALL.—A retaining-wall constructed in good cement concrete will be practically homogeneous throughout its entire length, and "J. W." may safely base his calculation upon the resistance to overturning in a length of 12ft., which will have the effect of deflecting the mean centre of gravity of the wall somewhat further from the point of overturning than would be the case if a single foot were taken for the purpose of calculation. The distance *x* (Fig. 1) being the centre of



gravity of the portion of the wall, outside line *a b* represents approximately the distance of the mean centre of gravity behind the centre line of the wall (*c d*)—viz., point *e*. The angle of repose of loamy earth, based on Professor Unwin's experiments, may be assumed at 40° above the horizontal, the plane of sliding or rupture being 65° above horizontal. Loamy soil is assumed to weigh from 80lb. upwards, and



Draw A W parallel to G L representing the top of earth to be retained. At L construct angle B L C of 40°, equaling angle of repose of loamy soil. Bisect angle W L B to obtain line of rupture L D produced to cut horizontal line V D at D. Find centre of gravity of triangle W L D by bisecting sides and joining centres to apex or angles opposite the sides bisected. The intersection of these lines give the centre of gravity. The weight of triangle W L D will act as a force vertically through this centre of gravity. Draw vertical line E Q through the point E. Find the magnitude of the force by tapering the area of the triangle W L D, and multiplying the area so obtained by 100lb. (weight of loamy earth per cubic foot).

$$(W L \times W D \div 2) \times 1 \text{ ft.} = (12\text{ft.} \times 5\text{ft.}) \div 2 \times 100 = 60 \times 100 = 6{,}000\text{lb.} \quad \text{say, 3 cwts.}$$

Resolve the force of 3 cwt. into its two components by the triangle of forces, one of which will act parallel to the line of rupture and the other at right angles to the face of the wall, at a distance of one third the total height of the retained soil = 4ft. The thickness of the wall is now obtained by trial. Set off on line A D from the point W a distance of, say, 2ft. 6in., and on the G L from L a distance of, say, 2ft. 6in., and join V G. Calculate weight of 1ft. run of wall as follows:

$$(A W + G L) \div 2 \times W L \times 120\text{lb.} = \text{weight of 1 cubic foot of concrete}$$

$$2\text{ft.} \times 5\text{ft.} \div 2 \times 12 \times 120\text{lb.} = 60 \times 1{,}290\text{lb.} = 77{,}400\text{lb.} \div 2240 = 34.5\text{cwt.}$$

This weight of 34 cwt. will act vertically through the centre of gravity of A W G L. Find the centre of gravity by joining G W, thus making the two triangles A G W and W G L. Find the centre of gravity of the two triangles as before, and join them by line H K. Calculate the area of these two triangles, V G W and W G L.

$$12\text{ft.} \times 2\text{ft. 6in.} \div 2 = 15 \qquad (1)$$

$$12\text{ft.} \times 5\text{ft.} \div 2 = 30 \qquad (2)$$

The area are thus found to be 1 to 2. Divide the line H K into three equal parts, and the centre of gravity is one third part from K in the larger triangle. Through the centre of gravity L draw vertical line K N. We have now the direction and magnitude of the two required forces, 34 cwt. acting vertically through centre of gravity L and the force

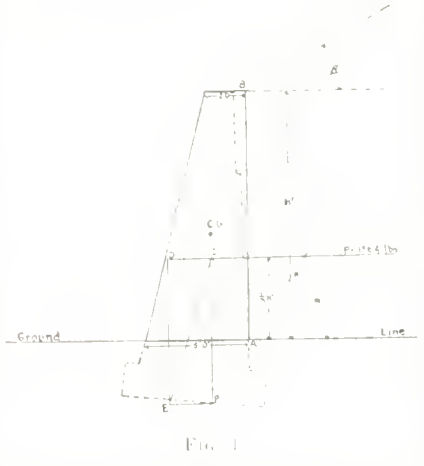


Fig. 1

and exert upon it the perpendicular A B 12ft. high, representing the back of the wall, to any convenient scale. Now, assume say, 4ft. for the thickness of the wall at the base and 2ft. thickness at the top, and draw in the outline. Find the centre of gravity of the assumed section, as shown in Fig. 2, as follows. Draw the diagonals H K, J L, cutting one another at I. Set off K M = H L and join L M. Bisect M L at N, and join N I. The centre of gravity is at the point C G, one third the length of N L from N. The pressure of 1,648lb., as calculated, acts horizontally on the back of the wall at one third of its height, tending to overturn it about its outer edge, whilst the weight of the wall act downwards through its centre of gravity, tending to resist the overturning moment. From the C G drop a perpendicular, and at a height of one third H draw a horizontal line. These line cut at C, i.e. the opposing forces meet here. We now apply the principle of the parallelogram of forces to find the resultant. Set off the weight of the wall to scale = 34 cwt. or 3,808 pounds downward from C, vertically.

$$\text{C F} \quad \text{say} \quad 3{,}800 \quad 1{,}648 \quad = 5{,}350\text{lb.}$$

(where C represents weight 3,800 lbs. per cubic foot). Set off P to the same scale commencing from C. C D = 1,648. Complete the parallelogram C D E F, and draw the diagonal C E, which represents the resultant of the three on wall. To give stability the thrust must come within the wall, but in practice, as in the present case, it should come within the middle third of the wall. Should this not be the case on the first trial, the wall must be increased on the information obtained until a stable result is arrived at. The fact that the querist has a semicircular of 70ft. radius gives it greater resistance to overturning than a straight wall, and, it he thinks fit, he could step the back of the wall in 4ft. up, as it were, 4ft., as shown in thick dotted lines on Fig. 1. The foundation of the wall should be sloped

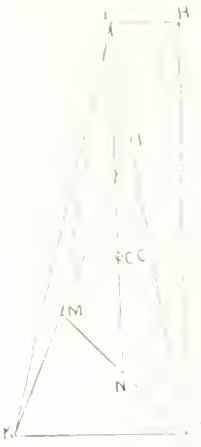


Fig. 2

as shown in dotted lines, to prevent sliding. Any other section of wall which may be adopted is dealt with on exactly similar lines.—Arthur C. Hewitt, 4 All Saints road, King's Heath, Birmingham.

[7907.]—REGALVANISING ZINC ROOFS.—The process of galvanising is as follows. The iron is first cleaned by being steeped in water containing about 1 per cent. of sulphuric acid about eight hours is necessary for this process, as a rule—scoured with sand, washed, and placed in clean water. The iron is heated, immersed in chloride of zinc, to act as a flux, then plunged into molten zinc, the surface of which is protected by a layer of salammoniac. This coating of zinc, as long as it is intact, will protect the iron from oxidation; but if the sheet of iron is cracked when the corrugations are being made (this is generally done after the galvanising process—especially for the lighter sheets), or the zinc coat is damaged so as to expose the iron, the destruction of the sheet is only a matter of time. From the above description it will be seen that it is impossible to regalvanise the zinc on roof in position. How would the laps of the sheets be dealt with, also the washers, bolts, etc.? I assume that "E. Wilkie" does not mean zinc, but iron sheeting, as it is very unusual to coat a metal with a coating of the same metal. Zinc, when exposed to moist air, oxidises, and a film of oxide is formed on the surface, which effectually prevents any further corrosion. The best plan would be to paint the roof, and, to avoid any galvanic action caused by the contact of two dissimilar metals in the presence of water or acid, and very destructive, the first coat to be of oxide of iron paint or red lead. All sheets to be well cleaned from dirt, rust, etc. A good "key" for the paint may be obtained by brushing over the surface a mixture composed of 1 part chloride of copper, 1 part of nitrate of copper, 1 part of salammoniac. Dissolved in 64 parts of water, with 1 part of commercial hydrochloric acid.—K. H. Read, Lecturer on Building Construction, Gloucester Technical Schools.

[7907.]—REGALVANISING ZINC ROOFS.—By "zinc" I suppose galvanised iron is meant, and assuming this to be the case, the answer to "E. Wilkie's" question is "No." Sheet iron is galvanised by being immersed, after a "pickling" process, in a bath of molten spelter, afterwards being lightly beaten, immediately after its removal from the bath, to remove any excess of spelter which may adhere to the sheets. If the spelter has disappeared from the sheets about which your querist writes, he will be well advised to replace them with new sheets of good, reliable make (such as Messrs. F. Braby and Co's.—see Directory). If, however, the iron is still fairly stout, and it is not feasible to remove it, it might be thoroughly cleaned, to remove loose flakes, rust, etc., and then be well painted "Soir.

A new Electra Picture Palace has been built in Fitzalan-square, Sheffield. The style is 15th century Arabian, as seen at Cairo. Messrs. Richton and Farmer, FF.R.I.B.A. of Birmingham and Walsall, are the architects, and Messrs. Longden and Son, Ltd., of Sheffield, the contractors. The facing material is Burmantofts Marmo, supplied by the Leeds Fireclay Co., Ltd., of Wortley, Leeds.

The London County Council decided on Tuesday to raise the future pension on retirement of Sir G. L. Gomme, their clerk, by £300 a year. Provided his salary remains at £2,000 a year the pension will be £1,333 6s. 8d. per annum. Several increases of salaries were agreed to including that of Mr. A. E. C. Fell, chief officer of tramways, from £1,750 to £1,875 a year, and to £2,000 in 1912, and Mr. S. G. Gamble, divisional officer of the Fire Brigade, from £600 to £650 a year.

Our Illustrations.

SCOTTISH NATIONAL MEMORIAL TO KING EDWARD: NEW GATEWAY AT HOLYROOD, EDINBURGH.

The accompanying view and plan show the memorial which has been approved by the committee of which the Lord Provost of Edinburgh is the chairman. The scheme was proposed by the Lord Provost of Glasgow, and Lord Balfour of Burleigh seconded. The memorial will take the form of a new gateway in front of Holyrood Palace, on the site of an ancient gateway. It involves the removal of some two or three very tumbledown old houses that are comprised in the triangle of slum property. There is no interest of an architectural character about the houses, which some so-called archæologists are making a needless fuss about, and Edinburgh contains in such a house as Old Coates House near St. Mary's Cathedral, a really fine example of a small domestic piece of architecture of the 16th century, which is beyond compare with the tenement in question, the latter having its interior so far gone that it would be almost impossible to do anything to preserve it. No one could be more desirous than we are to see historic buildings upheld when their architectural merit and typical character warrant such conservation; but mere sentiment and mistaken zeal of the kind now alluded to is an increasing worry which tends greatly to hinder the preservation of real architectural treasures, particularly when traffic or other improvements are involved, such as not infrequently happen elsewhere. Mr. R. S. Lorimer, A.R.S.A., F.R.I.B.A., the architect of this memorial to the late King, is far too keen an archæologist to demolish any historic building such as we have in mind. His new gateway is situate, as the plan shows, in proximity with the old abbey courthouse, and a spacious "Place" fronts the tower. This "Place" is formed by the acquisition of the above-mentioned triangle of dilapidated and small property to the north, including two dwellings to the south. On each side of the tower a vaulted passage for ordinary use will lead to the forecourt of the Palace. The church and the school, in the precincts of the stables, abutting on to the old courthouse, are to be removed, and a new gable-end will complete the courthouse. The Holyrood constables will be removed from their present quarters and accommodated in the upper part of the new tower. The space vacated is to be utilised by additional premises in connection with the Royal stables. A new guard-room is to be erected as a balance to the north elevation of the courthouse. During Royal residence or when the Lord High Commissioner is in occupation at Holyrood Palace, the side gateways are to be closed and the central archway alone will form the entrance to the forecourt, which by this means will be kept private for the time being. The Royal arms will surmount the central portal, and above a bronze statue of the late King will be erected, while a figure of the patron saint of Scotland is to occupy a niche in the parapet. The mural decoration of the building is to include the coats of arms of the towns in Scotland subscribing to the memorial. The dotted line on the plan indicates the position of the holdings which will be taken down, and the relative proportions of the gatehouse, with its flanking pavilions, are correctly indicated by the perspective which occupies our double-page plate.

ROYAL INSTITUTE OF BRITISH ARCHITECTS: PUGIN TRAVELLING STUDENTSHIP PRIZE DRAWINGS, 1911.

This plate comprises one of the sheets of sketches and measured drawings for which Mr. J. B. F. Cowper, of Manchester, the Ashpitel prizeman for this year, has just been awarded the Pugin Travelling Studentship. The chief subject illustrated comprises a detailed measured elevation, section, and plans of the famous tower of St. Mary's Church, Stamford, Lincolnshire, fully figured with dimensional sizes and marginal notes, so that little is left to conjecture. These details were worked out to half-inch to the foot; but the scale drawn on the plate will supply any sizes not furnished by the figures already mentioned. The plan of the building and perspective sketch of the tower, with its beautiful broached spire, add much to the value of this representation of this typical specimen of English Gothic work of the best period. The accompanying sketch of the belfry and spire of Ketton Church, Rutland, is included to show a somewhat different example of the same character, but very similar in many respects to the Stamford tower and spire. The next sketch represents a suggestive chimney from Stamford. It is attached to an old house now used for "The Northants Stores." Grevil's House, Chipping Camden, Gloucestershire, furnishes the top right-hand sketch on the sheet. Below it occurs a detail of the great lectern from Wells Cathedral, with large profiles of the mouldings, all drawn to scale, which is given. The Village Cross, Saintbury, has a sundial not unlike some Scotch examples, but not common in England. The Interior below illustrates the Lady-chapel in the great East Riding cruciform Church of St. Patrick, Patrington, Yorkshire. The altar space is recessed in the east wall of the groined aisle of the south transept, as shown in the sketch. It has a highly elaborate and pretty mural treatment over the altar by way of a reredos, and side windows occur in the splays of the octagonal projection which corresponds with the width of the transept arcade. Externally a very charming feature is made of this uncommon plan.

PICTURE PALACE, BRISTOL.

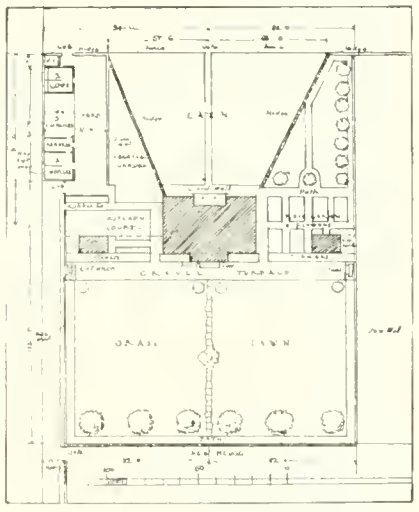
This Picture Theatre has just been erected in Zetland-road, Bristol, for Mr. Ralph Prindle, from designs by Mr. W. H. Watkins, A.R.I.B.A., of Clare-street, Bristol. The theatre itself occupies over 200,000cu.ft., and will accommodate some 1,400 persons, of whom over a thousand can be seated on the ground floor, the remainder being accommodated in the grand circle and promenade. The building is approached through four pairs of glazed doors, there being separate entrances to the ground floor and the circle, the latter being reached by means of two marble stairways. The circle is constructed of steel girders and cantilevers, and the principal girder weighs over nine tons. A stage has been erected behind the picture screen for presenting vaudeville entertainments from time to time. The back of the stage is connected with houses in North-road, which will be used as dressing-rooms, offices, etc. The cost of the building, with fittings, etc., has been about £7,000. The contractors are Messrs. Wilkins and Sons, of Bishop-street, Bristol.

SANATORIUM, XAVERIAN COLLEGE, MAYFIELD, SUSSEX.

The cost of this sanatorium was about £1,700. The builders were Messrs. Longley and Son, of Crawley. Red facing-bricks were used for the walling, and the plaster was finished with a wooden trowel. The fittings, etc., are in bronze. The building, of which we give the plan, general elevation, and detail view, forms a sanatorium erected in connection with a large boys' school near Mayfield, belonging to the Xaverian Brothers. All the angles throughout were rounded and built on the latest hospital requirements. Messrs. Foster and Lovell, of Westminster, are the architects, and the illustration given was shown at the Royal Academy last summer.

GOLD MEDAL AND FIRST PRIZE DESIGN FOR A HOUSE TO COST £1,000 (IDEAL HOME EXHIBITION), BUILT AT ABERSOCH, CARNARVONSHIRE.

We give a copy of the working drawings and plan of the garden carried out in the execution of this design, which was placed first in the Ideal Home competition. It has just been erected at Abersoch, Carnarvonshire, North Wales, for Dr. O. J. Evans, at a total cost of close under £1,000, exclusive of the garden work now in hand. All materials are the best of their kind, and special precautions had to be taken on account of the exposed nature of the site chosen. The outside walls generally are of stone, 1ft. 6in. thick, with roughcast on teh face, and tinted to a soft grey colour. The brick dressings round windows and doors and chimney-stacks are from Dennis of Ruabon, special pressed bricks of a dull red tint, and the roof tiles and floor tiles, etc., are of the same company. The woodwork is of the best-quality red deal, and the exterior woodwork has been thoroughly creosoted on account of the sea air. The asphalte for roof, etc., was supplied by Val de Travers, who sent qualified men to lay the same on the flat roof and elsewhere. The hall and staircase have been treated very simply. The colour scheme is most effective. The walls and doors and skirtings are all white, and the floor borders and staircases, etc., are stained and varnished a warm brown colour. The outer



Gold Medal and First Prize Design.

hall floor is of tiles 6in. square, with a wide joint flushed up with clean cement to floor level all over. The dining-room and drawing-room have been panelled. The dining-room oak panelling has been stained to a very dark brown, and tapestries have been placed in between the panel stiles. This panelling is carried up to the door-head and the wall over up to the ceiling level is painted a quiet red. The cornice and ceiling are white. Dr. Evans possesses some very old Welsh furniture, which he is using in this house. The doors and windows, like those in the hall, are pure white, which contrasts effectively with the dark oak panels and furniture generally. The drawing-room colour scheme has been chosen with care. The panels, somewhat similar to the dining-room, are left pure white, and the stiles and the spaces between and the walls over up to the ceiling level are a light sky-blue tint. The window and door finishings are white, like the cornice and ceiling. The furniture is Sheraton, and the finishings are of a light cream colour. The kitchen, pantry, scullery, etc., are all laid with tiles on the floor, and generally are fitted up with the latest appliances for saving labour. The house is lighted by lamps, as no gas mains have yet been put in at Abersoch; but this lighting scheme gives an even more effective touch to the finishings, as old Welsh lamps, hung from the ceilings, have been brought into requisition, and give more harmony to the whole than the usual electric fittings can do. The bedrooms upstairs have each been coloured differently. The contractors for this house are Messrs. T. Owen and Son, builders, Dinas by Pwllheli. Mr. William Wands, of Harlesden, is the architect.

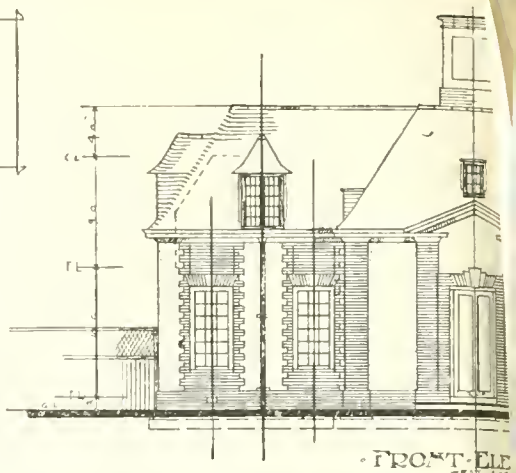
The fine collection of 18th- and early 19th-century ware owned by the late Mr. Thomas Carlich, of the Manor House, Woore, and verbally bequeathed by him to the Hanley Museum, has been formally presented to the county borough of Stoke-on-Trent by Mr. A. P. Llewellyn, the legal representative of the Carlich family. The gift is contained in four large cases prominently exhibited on the platform in the ceramic section.

HOUSE AT ABERSOCH CARNARVONSHIRE - WALES
FOR D^R O. J. EVANS
PLANS ELEVATIONS & SECTIONS. DRAWING N^o 1

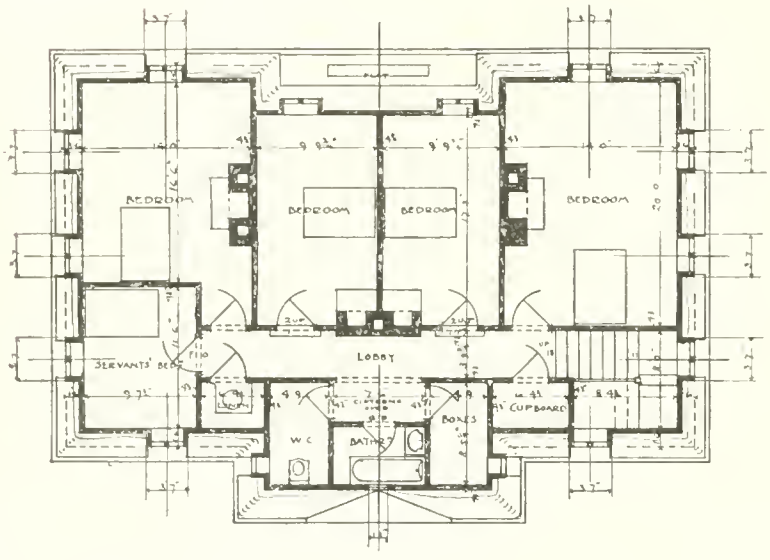
GOLD MEDAL & 1^ST PRIZE DESIGN FOR A HOUSE TO COST £1000 - IDEAL HOME EXHIBITION

WILLIAM WANDS ARCHITECT

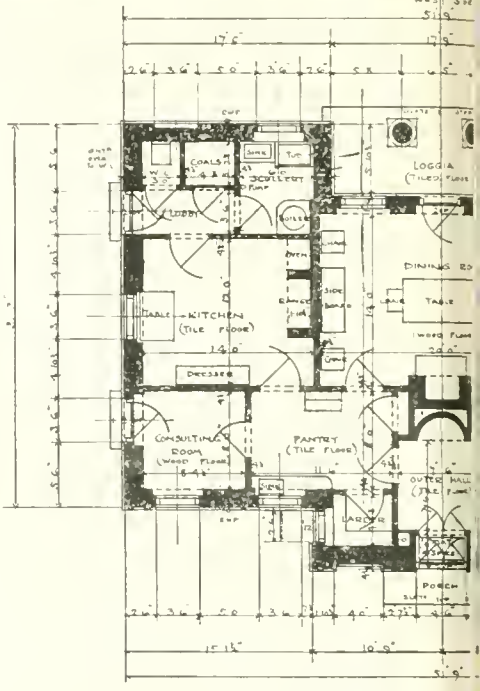
CARRIED OUT AT A PRICE WITHIN THE SPECIFIED AMOUNT



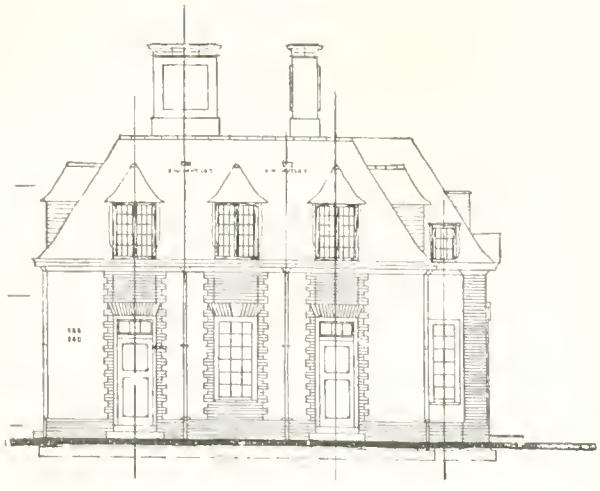
FRONT ELE



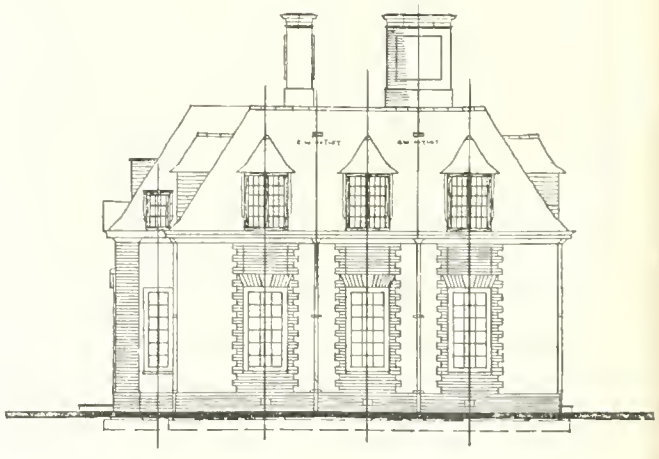
FIRST FLOOR PLAN



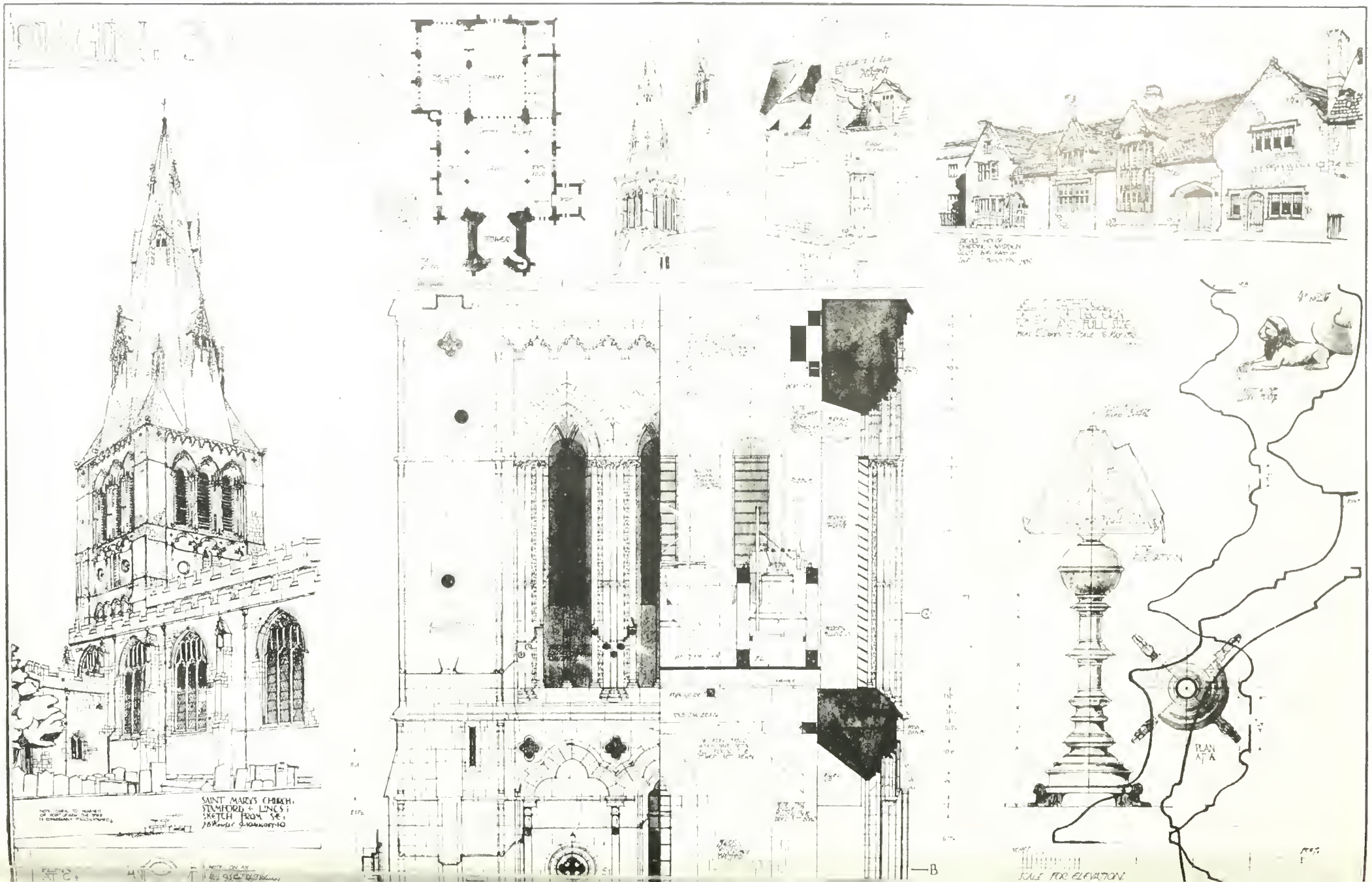
GROUND FLO

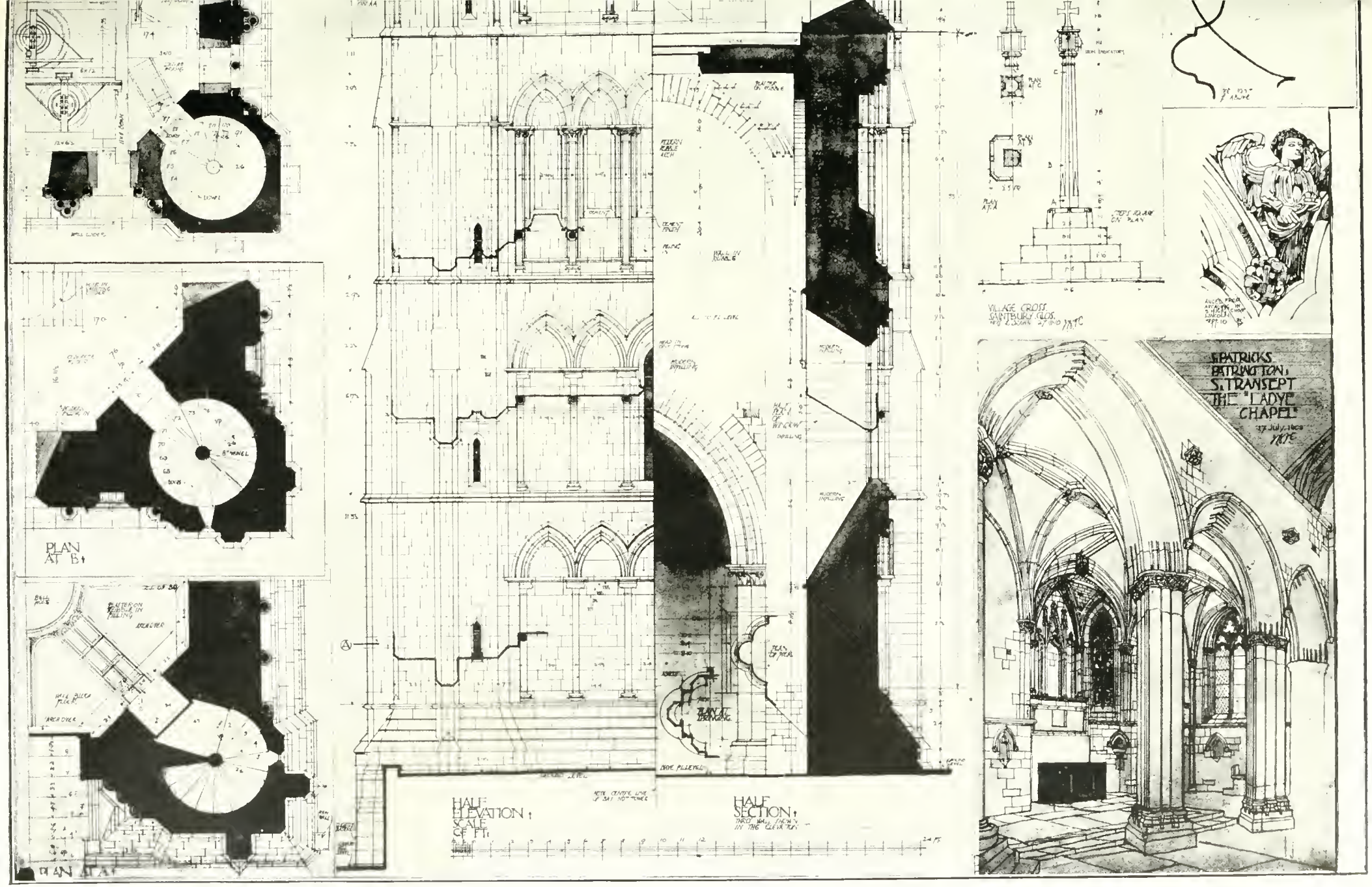


NORTH ELEVATION



SOUTH ELEVATION


SAINT MARY'S CHURCH, STAMFORD, LINCS.
SKETCH FROM S.E.
TOWER
—C
—B
PLAN AT A
SCALE FOR ELEVATION



R.I.B.A. PUGIN TRAVELLING STUDENTSHIP PRIZE DRAWINGS, 1911.

By J. B. F. Cowper, Ashpitel Prizeman.

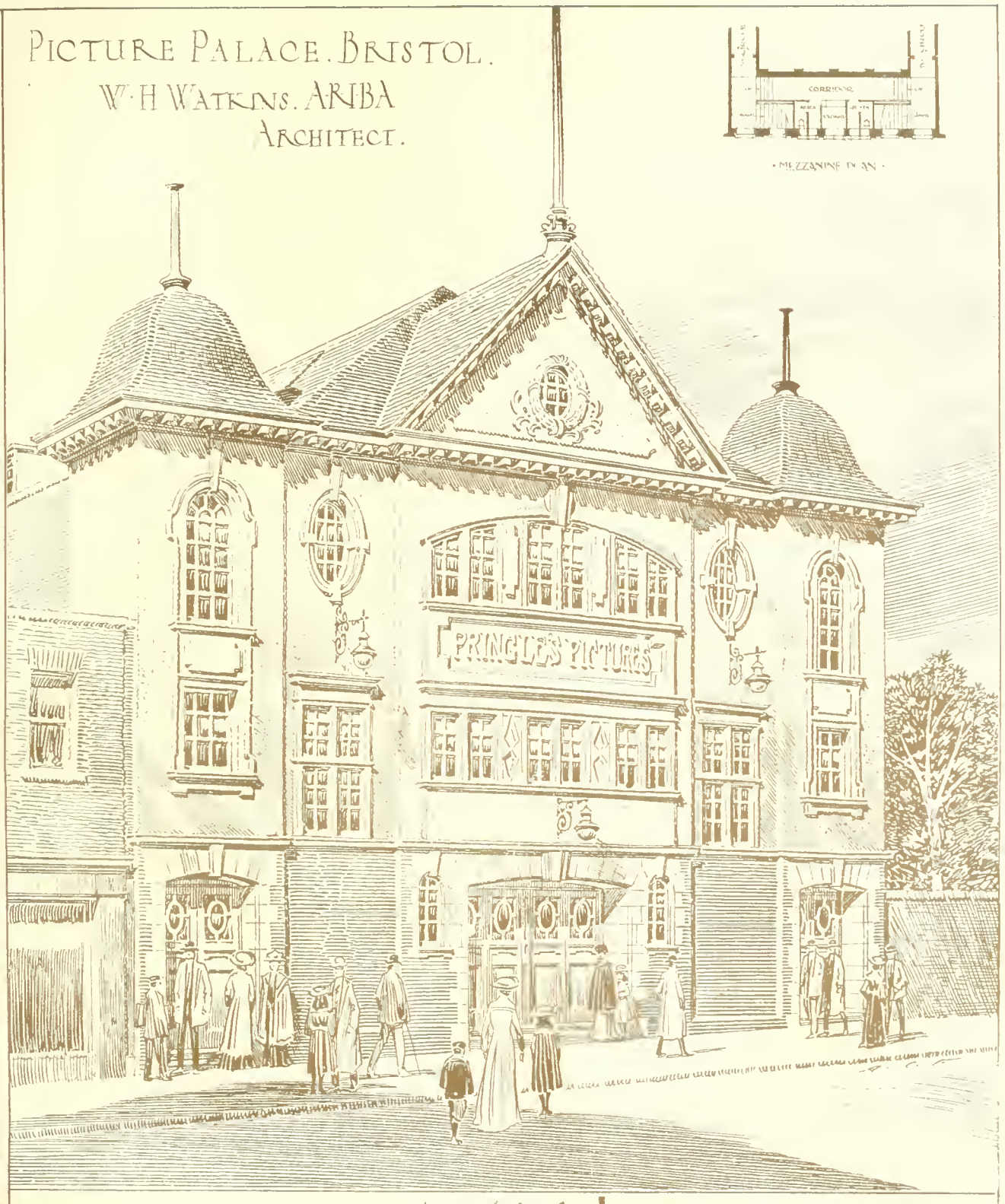
XAVERIAN COLLEGE SANATORIUM MAYFIELD SUSSE

TOLIPHANT FOSTER
PERCY W LOVELL ARIBA
ARCHITECTS
PARLIAMENT CHAMBERS
GREAT SMITH STREET
WESTMINSTER S.W.

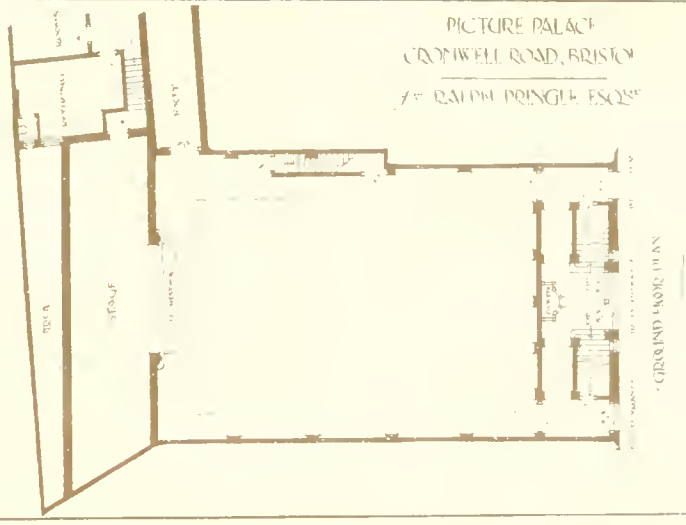
PICTURE PALACE, BRISTOL.

W. H. WATKINS, ARIBA
ARCHITECT.

MEZZANINE PLAN



CIRCLE PLAN



PICTURE PALACE
CROMWELL ROAD, BRISTOL
for RALPH PRINGLE ESQ^RE

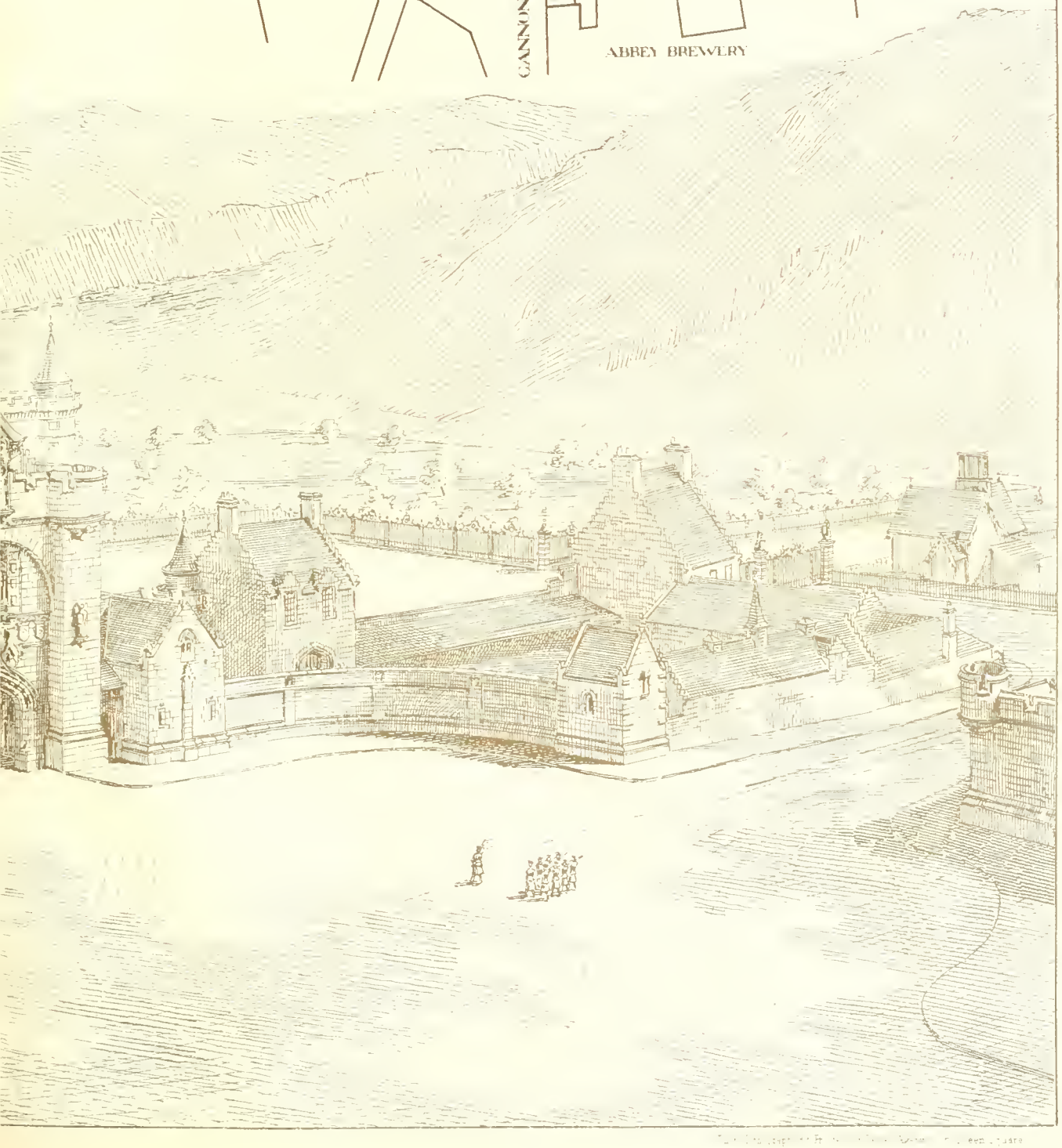
GROUND FLOOR PLAN

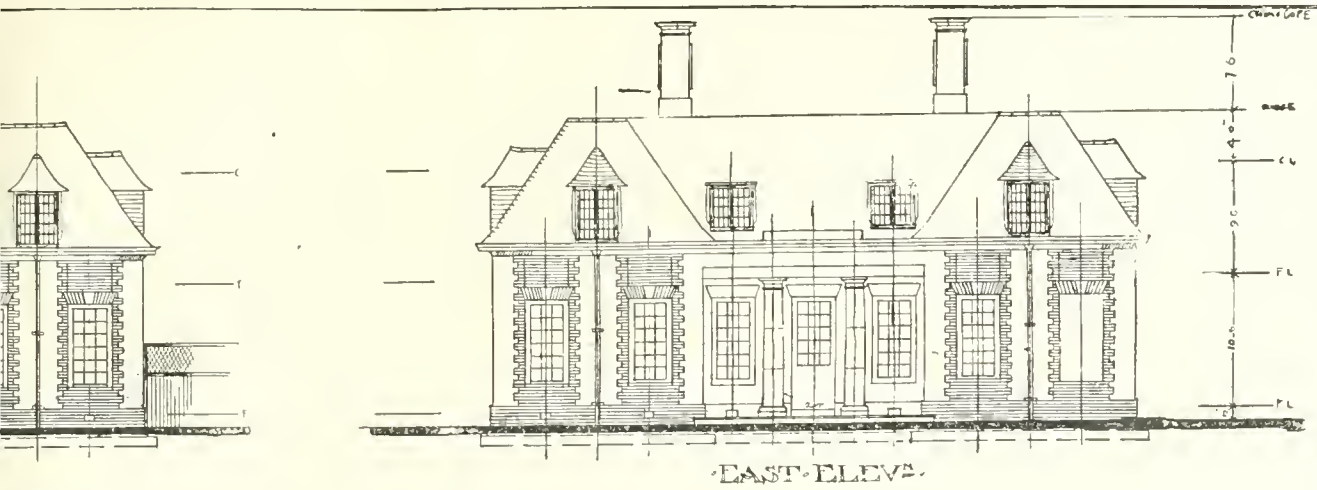
...TISH NATIONAL MEMORIAL TO KING EDWARD

...S LORIMER AMSA FRIBA ARCHITECT.

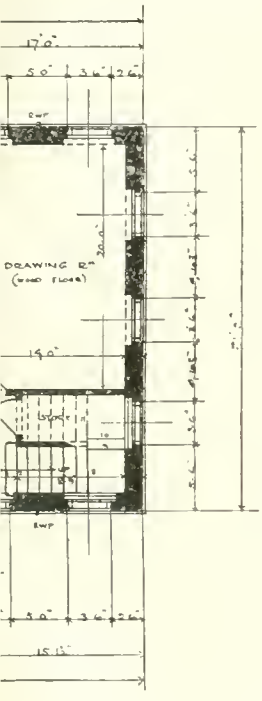
HOLYROOD
EDINBURGH
MEMORIAL TO
KING EDWARD
VII

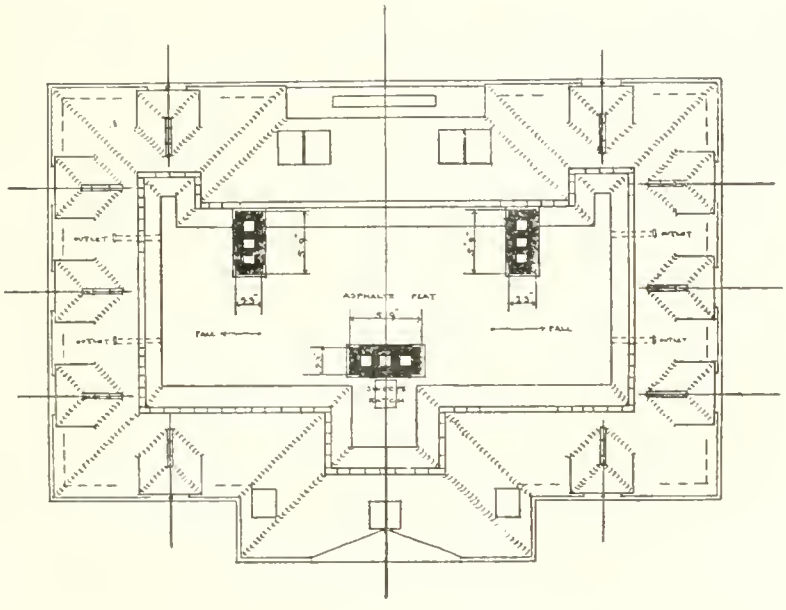
PALACE
FORECOURT
FOUNTAIN
ABBEY COURT HOUSE
NEW GUARD ROOM
QUEEN MARY'S BATH
ROYAL STABLES
LODGE
PAVILION
PAVILION
PLACE
HORSE WYND
PUBLIC LAVATORY
CANNONGATE
ABBEY BREWERY



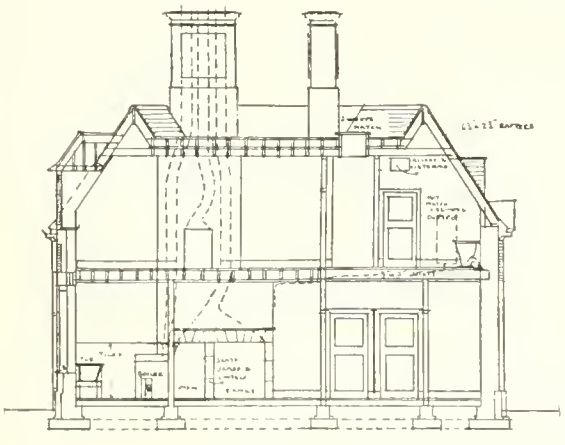


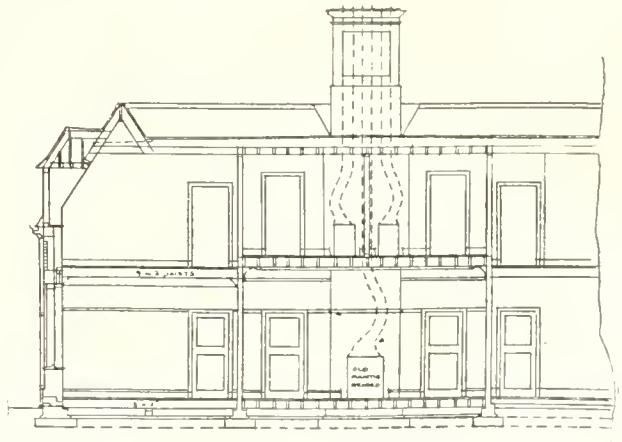
EAST ELEVN.





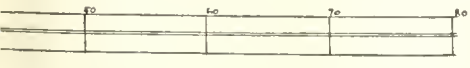
ROOF PLAN





SECTION THRO KITCHEN PANTRY ETC

LONGITUDINAL SECTION THRO DINING RM DRAWING RM ETC



FEET

WILLIAM WOOD ARCHITECT
17 HARLEY ROAD
HAMPSTEAD LONDON N.W.
DEC. NOVEMBER 1910

PROFESSIONAL AND TRADE SOCIETIES.

FRENCH INFLUENCE ON SCOTTISH ARCHITECTURE. [illegible] Edinburgh Architectural Association [illegible] Francis Sandilands Scott [illegible] Mackie on [illegible] Messrs George [illegible] Alexander [illegible] Glasgow [illegible] RSA., [illegible] Chief [illegible] Abbey, and [illegible] St John [illegible] Speaking [illegible] evidence regarding [illegible] he mentioned [illegible] Melrose Abbey, and [illegible] pointed to him there and elsewhere the influence of Scott and Thorn. The interest was maintained from church to house-building [illegible] beginning of the 16th century, in this [illegible] by France and Scotland domestic [illegible] was a direct development from [illegible] type of corbel days. After the [illegible] the Scottish house of the 17th [illegible] the Renaissance [illegible] Rome reached Scotland through France [illegible] the latter [illegible] of which the finest [illegible] the Royal Palaces of Stirling and Falkland under [illegible] Renaissance was slowly adopted [illegible] [illegible] with the union of the Crowns, the Renaissance was absorbed in that of the English Parliament, as evidenced in the work of Inigo Jones and the elder Adam, and it disappeared entirely. The following century [illegible]

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY.—Mr. Vernon Conisbee, A.R.I.B.A., lectured to the Society on Friday evening, his subject being "Some Buildings of Paris." He took the subject as a text on which to base a comparison between the Gothic and Renaissance spirit in architecture. The Gothic type he treated of as structure itself made pleasing to the eye; the Renaissance type as being structure overlaid with ornamental detail. This comparison was traced in the main structure and in the subsidiary details as well. The paper was illustrated by lantern and bi-photograph slides of the Cathedral of Notre Dame and the Palace of the Louvre, Paris.

THE GLOUCESTER AND STROUD TECHNICAL SCHOOLS.—On Saturday last a party of building-construction students and a visit of inspection to the elementary schools in course of erection in Deacon-street, Gloucester, from the plans of Mr. J. Fletcher Drew, M.S.A., Gloucester. Mr. W. H. Read, the lecturer to the schools, in thanking Messrs. Bland and Sons, the contractors, remarked upon the benefits to the students of such a visit, where they would see the actual work. Considerable interest was taken in the ferro-concrete construction, on the Hennebique system, which was being used for the floors and stairs, and could be seen in all its various stages.

GUILD OF ARCHITECTS' ASSISTANTS.—This body, at a meeting held at Prince Henry's Room, Fleet-street, on February 7, had before them a "Mock Arbitration Case," arranged by Mr. J. Gerald Large, P.A.S.I. The case was assumed to have arisen through certain amendments being demanded by the district surveyor, the architect refusing to accept the surveyor's interpretation of the Act. The builder, however, carried out the instructions of the district surveyor, contending that he had power to do so, as provided by Clause 5 of the R.I.B.A. Contract; the result was a dispute between himself and the building owner, the matter being referred to arbitration for settlement. The building owner made counter-claim for damages. Mr. J. H. Eber Dyer [illegible] president [illegible] the case, acted as arbitrator. Mr. J. Gerald Large, P.A.S.I. [illegible] the plaintiff Mr. A. Hilton, F.S.I. Mr. S. Douglas [illegible], A.R.I.B.A. [illegible] the defendant. Mr. J. and E. Burkinshaw, Messrs. H. C. Bishop, A.R.I.B.A., F. R. Chalmers, F. J. Dixon, A.R.I.B.A., and [illegible] H. B. Simpson were [illegible]. The proceedings were [illegible] formal character, and resulted in [illegible] for the plaintiff; both claims being [illegible] and the members taking part [illegible] much enthusiasm. They would, however, [illegible] had a rather more serious [illegible] giving evidence in a matter of case in [illegible] before an arbitrator.

HOW TO SOLVE THE HOUSING PROBLEM.—A meeting of the Anerley Tenants' Estate was held on Wednesday evening, when Mr. Joseph McConnell, of Belfast, read a paper on "Garden Suburbs in Connection with Large Cities." The President, Sir Robert Buckell, said that many people were so enthusiastic about garden cities, which they thought would enable a man to escape from two or three rooms in an overcrowded city to a charming house amid beautiful surroundings. There were difficulties in regard to the matter, however, and it was necessary that they who were called on to advise should have clear ideas on the subject. Mr. McConnell said it was a pity that the individual ownership of land and houses as a security was not more favoured in England. In the United States and in a number of our dominions overseas it was the universal desire of every thrifty and enterprising adult to own his own house and garden. Local authorities could assist the movement here. For in places with a population of 50,000 and upwards they could advance four-fifths of the saleable value on any house that was not worth more than £300. But there was much red tape in getting advances from local authorities, and if Mr. Burns would simplify the procedure of the Small Dwellings Acquisition Act, which was inaugurated by Mr. Joseph Chamberlain, and assist local authorities to grant cheap money on houses in new districts, he would do more to solve the housing problem than by any other method. The transfer and registration of land in this country should be free and untrammelled, and every assistance should be rendered by the State to renew the confidence which previously existed in the security of land.

THE INSTITUTE OF BUILDERS.—Professor Beresford Pite, F.R.I.B.A., lectured before this Institute on February 1 on "The Teaching of Building Construction with Architecture." Before coming to his subject, viz., the education of builders in architecture, he dealt with the reverse side of the matter, viz., the education of architects in building. This building construction might be studied not only as a science in itself, but as a doctrine of design—the design being but the expression of essential facts—e.g., the lintel and the arch (the former being the ruling constructional principle among the Greeks, and the latter that among the Romans), are simple fundamental constructional facts, yet are distinctly beautiful forms of design. The Gothic builders of Mediæval times were constructionalists first and artists afterwards, and from the simple semi-circular arch of the Romanesque they advanced to the complicated forms of arcade and vaulting of which the Chapel of Henry VII. at Westminster is such a notable example. Upon the main lines of their constructions they worked their artistic ornaments in the deeply recessed mouldings so characteristic of Mediæval architecture. With this view of architecture as the ideal one, it is necessary for architects to keep up to date with constructional developments. The bulk of the buildings that are erected in this country are done probably without architects, and therefore, without architectural thought or design. But education to some extent in architecture will be needed if builders are to cultivate their minds in the direction of the æsthetic, e.g., true proportion, propriety of ornamental detail, etc. Education in technical matters is eminently needful to the aspirant for a place in the building trade, but the student soon finds its practical limits. He naturally spoke with great diffidence and hesitation as to recommending a course of study in architecture to builders; but without reserve he would say that in addition a young man should be well grounded in the principles of geometry and freehand drawing, and, in addition, in as much more of the principles of constructive science and decorative art as he can find time to digest.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—At the meeting of the Society held on Thursday, Feb. 9, when Mr. Sydney D. Kitson, F.R.I.B.A., occupied the chair, Mr. F. C. Eden read a paper on "Varallo, Orta, and Varese." These small towns, situated in the lake district of Northern Italy, had a connecting link in that each possessed a noted sanctuary in its Sacro Monte, and it was to these sanctuaries and the buildings comprising them that the lecturer drew special attention. They were, he said, started at Varallo in 1491 by Bernardino Caimi, a Franciscan friar of noble Milanese family, who attempted to reproduce the Holy Sepulchre, and probably other Holy places, as Golgotha and the Grotto of the Nativity. As the work proceeded, the idea developed into commemorating the events of the Sacred Narrative by groups of life-size figures, so that there are now forty-four chapels upon the Sacro Monte containing these groups of painted imagery. In infinite variety of plan and design, these little buildings, gleaming white amongst the tree-trunks or against the sky, imparted a character of architectural romance to the whole mountain-side. At the close, and on the motion of Mr. H. S. Chorley, F.R.I.B.A., seconded by Mr. Fredk. Musto, A.R.I.B.A., a hearty vote of thanks was accorded Mr. Eden for his paper. The next meeting will be held on Thursday, February 23, when Mr. H. E. Henderson will lecture on "The Minor Domestic Architecture of Yorkshire."

THE MANUFACTURE OF BRICKS.—Under the auspices of the Sheffield Society of Architects and Surveyors, a lecture was given at the University on Thursday night in last week by Mr. W. G. Buck, Licentiate R.I.B.A., on the subject, "Bricks and Brick-making Material." After dealing briefly with the geographical distribution of brick-making materials, Mr. Buck gave an outline of the nature and causes of the various deposits, and classed them under their principal heads—fluviatile, lacustrine, and marine. He described the characteristics of each of these classes, and the chemical and mineral composition of brick-earths, giving analysis of some typical clays. Mr. Buck went on to describe various methods of manufacture. He ventured suggestions on some of the scientific problems that at present confront the manufacturer in the process of drying and burning. He also gave a description of two principal kinds of kiln. In the finished product, continued the lecturer, strength, durability, and appearance were of prime importance, and of these probably durability was the most desirable. Mr. Buck was of opinion that colour and effect were best left to the taste and skill of the architect.

MANCHESTER SOCIETY OF ARCHITECTS.—On Wednesday, the 8th inst., Mr. F. W. Jackson read a paper, entitled "The Village." He first reviewed modern conditions and tendencies in art, and compared them with the conditions under which the great works of the past were produced, and then passed to the study of the buildings of a village on the north-east coast of Yorkshire, the village of Hinderwell. It was of no antiquity, its church ordinary, if not ugly, but with a little search one can see the rise and fall of its craftsmen. At one time there was something of the picturesque; but that element has almost gone, and is giving place to something that concerned him much. The old cottages show signs of a life that could appreciate beauty; these qualities are not to be found in the newer ones. Then one could find among the odd tombs in the churchyard some with merit in their design and lettering; but who would visit the modern cemetery in search of beauty, although the modern mason is more expert? This leads one to consider what is happening to the dwelling-houses of our people. We found in

our village, to face our north-east gales, half-timber and plaster villas from the city suburbs, that seem to fear the dashing waves. They know they have not come to stay, and are for the summer only. He showed a sea-captain's house. The stone of the district would not do. He must have red Accrington bricks, coloured glass in the entrance-porch, big, clumsy windows, and cast-iron railings. Opposite was an old house, such as could be found in any village. How unfavourably the up-to-date one compared to it. Mr. Jackson showed other examples of this contrast. He was no believer in the cry that we were a decadent people. We have become possessed of materials and facilities that the world has not known before in all the arts. The problem for students was how to adapt these modern conditions. It was no good to ignore them; we cannot, in our village, get the blacksmith, or the joiner, or the mason. As a painter he deplored the colour of many of the new materials now in use in these smoky districts, and he thought the thing to strive for in our town was bigness of massing and fine skyline.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND. — A statutory general meeting of the above body was held at the Institute Rooms, 31, South Frederick-street, Dublin, on February 9, 1911, at 4.30 p.m. The president, Mr. Albert E. Murray, R.H.A., F.R.I.B.A., occupied the chair, and there were also present: Messrs. J. H. Webb, Joseph Holloway, Frederick Hayes, Charles H. Ashworth, J. P. Lynch, G. C. Ashlin, R. Caulfeild Orpen, E. H. Morris, P. J. Wrenn, L. E. H. Deane, C. P. Sheridan, R. O'Brien Smyth, and C. A. Owen, hon. secretary. A letter of apology from Mr. W. J. Fennell was read. The minutes of the general meeting of November 16, 1910, having been read and signed, the president read his inaugural address, in which, after briefly mentioning his own services on the council during the last twenty-seven years, thirteen of them as hon. secretary, he referred to the work of the men who had preceded him, and, more particularly to that of the late president, Mr. Frederick Batchelor, to whom he paid a well-earned tribute of praise. He then reviewed the questions of the day—entrance examination, amalgamation with the Ulster Society of Architects and with the Architectural Association of Ireland, and Registration—expressing an earnest hope that, with good will on all sides, satisfactory conclusions would ultimately be reached. The various points raised by the president were discussed at some length, and the proceedings terminated with an unanimous vote of thanks to him for his address — A meeting of the council of the Royal Institute of the Architects of Ireland was held at the institute premises, 31, South Frederick-street, Dublin, on Monday week. The president, Mr. A. E. Murray, R.H.A., F.R.I.B.A., occupied the chair, and there were also present: Messrs. J. H. Webb, Lucius O'Callaghan, W. Kaye-Parry, F. Batchelor, C. J. MacCarthy, C. H. Ashworth, A. G. C. Millar, F. Hayes, G. P. Sheridan, F. G. Hicks, and C. A. Owen, hon. secretary. The minutes of the ordinary meeting of January 9, and the special meeting of the 23rd, were read and signed. The president reported that His Excellency the Lord Lieutenant had graciously accepted the invitation of the institute to the annual dinner on the 25th inst. It was resolved that as the Town-Planning Act does not apply to Ireland it is unnecessary to send a delegate to the conference to be held at Liverpool on the February 23 and 24 next. A vote of condolence was passed with the relatives of the late Mr. John Fawcett Gilchrist of Sligo. The hon. secretary was desired to inquire from the Home Office as to whether it is necessary to apply to a new Sovereign for confirmation of the right to the title "Royal."

In his studio at Exeter, Mr. Harry Hems has in hand a statue of King Edward VII., the gift of Mr. Thomas Ford, J.P., to Tiverton, his native town. His late Majesty is to be represented crowned, wearing his Court robes. The statue will be of white marble, and will stand upon a pedestal of grey Dartmoor granite. It is to be erected nearly opposite to the Clock Tower, which Mr. Ford presented to Tiverton two years ago.

LEGAL INTELLIGENCE.

A LAVINGTON ARBITRATION. Mr. Charles Bidwell, of Ely, has issued his award as arbitrator between Mr. Charles Awdry, of Lavington Manor, Devizes, and the War Office as to the purchase of a portion of the Lavington Manor estate compulsorily acquired by the War Office as a part of its new artillery ranges on the north-western edge of Salisbury Plain. The hearing took place last December. The Lavington Manor estate was bought by Mr. Awdry from the trustees of the late Mr. Bouverie for £79,500, and its value was now put at over £100,000. Its extent was 3,282 acres, of which the War Office took 805 acres. Mr. Awdry claimed £32,018, including residential damage £12,200. The highest valuation on behalf of the War Office was £12,286, the residential damage being denied. The arbitrator has awarded £21,358.

IN RE W. G. PLUMB, NORWICH.—The first meeting of the creditors of William George Plumb, builder, 24, Grove-road, Norwich, was held at the office of the Official Receiver (Mr. H. P. Gould), at Norwich, on Wednesday week. Debtor's statement of affairs showed gross liabilities £2,433 3s. 11d., expected to rank £1,211 16s. 11d., deficiency £883 3s. 11d. The causes of failure, as alleged by the debtor, were: "Losses on contracts, bad debts, and depression in the building trade." The Official Receiver reported that the debtor originally commenced trading as a builder in York-street and Howard-street, Norwich, in 1893, with a capital of £25. Two years later, when his capital had increased to £150, he entered into partnership with a Mr. Arthur Brown, under the style of "Plumb and Brown." On January 21, 1897, they executed a deed of assignment for the benefit of creditors, under which a dividend of 1s. 9d. in the £ was paid on partnership claims amounting to £1,742 3s. 9d. Shortly after this assignment debtor recommenced trading as a jobbing builder, a friend assisting him with a loan of £10, subsequently repaid. Debtor admits having known of his insolvent position since the end of 1909. A private meeting of creditors was held on the 18th ult., at which they were asked to accept a composition of 5s. in the £; this was declined. The matter was left in the hands of the Official Receiver.

ARCHITECT'S CLAIM FOR DAMAGES.—This was an action, tried before his Honour Judge Ruegg at the Birmingham County Court, by Mr. J. J. Hackett, architect, of Birmingham, suing Mr. G. Hiorns, of Ward End, for damages for breach of contract. Mr. Hurst (instructed by Mr. C. E. Parish) appeared for the plaintiff, and Mr. Cave (instructed by Messrs. James Barton and Kentish) for the defendant. It appears from the evidence that in 1907 the Birmingham Corporation were in negotiation with the various property-owners for acquiring various strips of land on either side of St. Margaret's-road, Ward End, for the purpose of widening same. Prior to being approached by the defendant, the plaintiff had already negotiated for two property-owners for the frontage of about 300 yards extent, and in each case the fees due to him for such negotiations had been paid by the corporation. The defendant appears to have been desirous that under no circumstances should he be liable for any fees, and to this plaintiff assented, the only stipulation being that if the matter was carried through he should carry out the negotiations and other work incidental thereto, and be allowed the opportunity of obtaining his fees from the corporation. Plaintiff accordingly prepared plans which were amended from time to time to conform to the requirements of the defendant, and ultimately prepared working drawings of what was required. The matter was then shelved for a time owing to the adjoining owner declining to relinquish a portion of his land for the purpose of road-widening, but was reopened in the early part of 1910. The defendant then, however, instead of engaging the plaintiff to complete the negotiations instructed a Mr. Francis, a builder, to get out plans and estimate, and these were ultimately accepted, and the scheme carried through on same. The plaintiff gave evidence at length, and was supported by Mr. J. Coulson Nicol, A.R.I.B.A., of Colmore-row, as to the value of the work done. Mr. Lee, the building surveyor, also gave evidence as to the interviews with plaintiff. Defendant gave evidence, and was supported by Mr. Francis, the builder, and Mr. Siward James, a member of the firm acting for defendant, and Mr. Cave contended on defendant's behalf that it was expressly stipulated by the terms of the contract that defendant was not to be liable to pay plaintiff, who was to look to the corporation for payment, also that the negotiations of plaintiff went off, and that it was a new scheme opened in 1910, and which was ultimately carried through. His Honour, in giving judgment for the plaintiff for £20, held that defendant in instructing other agents to complete the negotiations had broken the agreement, and prevented plaintiff receiving payment from the corporation for his services; also that the negotiations of 1907 were merely shelved and reopened in 1910.

IN RE W. BROWN AND SONS, SALFORD. —In the Manchester County Court on Tuesday a third application was made arising out of his honour Judge Parry's decision of a week ago in the motion brought by Mr. James Cremer, a creditor, against the trustees (Messrs. J. H. Scott and John Collier) and the special managers (Messrs. James Blakey and John Collier) in the bankruptcy of Messrs. William Brown and Sons, the Salford builders. Eventually the judge said that he was not prepared to make any further order until he had heard the ins and outs of the matter fully, and had the views of Mr. Cremer upon it. He therefore adjourned the matter until Friday (to-day), when he would hear it in the Salford County Court.

WATER SUPPLY AND SANITARY MATTERS.

KINGLASSIE.—The extension of Kinglassie Waterworks, which has been in progress for the past four months, was opened on Wednesday week by the Kinglassie Special Water Supply District Committee of the Fife County Council. The supply, before this extension, was 15 gallons per minute at the high reservoir, and 3 gallons per minute at the low reservoir, total 18 gallons, sufficient for 900 population. That had cost for works about £800. The supply now—as measured on January 25, 1911—is 73 gallons per minute at the high reservoir, and 12 gallons per minute at the low reservoir; total, 85 gallons—sufficient for 4,250 population. This is all spring or subsoil water. The cost of the additional works has been about £500. Thus the total cost of works to date is about £1,300. The said supply of 85 gallons per minute will dwindle considerably during the summer. Still, it will then be about 52 gallons per minute; that is, sufficient for 2,600 population. All through the year the water will be good, but it will be markedly good, cool, clear, and bright when there is least of it. Kinglassie water supply therefore now stands thus: cost of works, £1,300 for sufficient water for 2,600 population. The gathering drains have been arranged and left suitable for further extension over Inchdairnie estate, and also westwards over Kinninmonth. By a further extension of works, costing, say, £2,700—which, added to the cost to date, £1,300, makes £4,000—a water supply for about 6,000 population is obtainable. The engineer is Mr. D. Livingston, C.E., of 50, High-street, Leslie, Fifeshire.

Among the private measures read a second time in the House of Commons on Monday were the Kingston-upon-Thames Bridge Bill and the Thames Conservancy Bill.

At Hindringham, North-West Norfolk, a new church institute was opened last week. The building, which is of brick and flint, is 60ft. long by 22ft. wide inside. The work has been carried out by Mr. G. Riches, of Dersingham, from plans prepared by Mr. Louis Eagleton, of King's Lynn.

At the meeting of the Montreal Art Association a fortnight ago, the secretary, Mr. J. B. Abbott, stated that in order to obtain the highest possible type of a modern art gallery and school of art, it was decided to appoint Mr. E. M. Wheelwright, of Boston, to pronounce upon the merits of certain plans submitted to him in competition, and to act in conjunction with the successful architect in the preparation of the final plans. The competition was decided in favour of Messrs. Edward and W. S. Maxwell, Messrs. G. A. Fuller and Co., Ltd., of New York, the lowest tenderers, have taken the contract for the erection of the whole building in marble for $301,087.

The *Diario do Governo* (Portugal) of February 3 contains a notice, issued by the Ministry of Fomento, inviting tenders for the construction of a building intended for the offices of the Civil Government and other public offices at Vianna do Castello. The upset price is put at 54,000 milreis (about £11,000), and a deposit of 1,500 milreis (about £300) will be required to qualify any tender. Tenders, which will be opened on April 6, should be made out in Portuguese and addressed to the "Repartiçao da Direcçao Geral das Obras Publicas e Minas, Ministerio do Fomento," Lisbon. This contract is open to foreign competition; but foreign tenders will not be eligible unless countersigned by a Portuguese Consul and legalised in the "Ministerio dos Negocios Estrangeiros" (Ministry of Foreign Affairs) at Lisbon.

Our Office Table.

The Departmental Committee appointed by the President of the Board of Education in February, 1910, to investigate the possibility of reducing the cost of school buildings has now presented its report which was laid on the table of the House of Commons on Monday [illegible] the appointment of the Committee [illegible] by the anxiety felt by Mr. Runciman [illegible] by heavy expense involved [illegible] in accordance [illegible] standards should prevent the Local Education Authorities from keeping pace with the needs of the districts under their administration in respect of the provision of new schools or the replacement of unsatisfactory buildings. The President of the Board of Education desired to ascertain whether any of the new methods of construction or new materials which have been introduced offered any prospect of relieving the financial strain placed on the authorities in the fulfilment of their obligations to the children for whose education they are responsible. The report will be issued to the public in the course of a few days.

A committee of artists to plan the street decorations for the Coronation procession is proposed by Sir W. B. Richmond, R.A., Mr. Frank Brangwyn, R.A., and Professors Gerald Moira and E. Lanteri (of the Royal College of Art). In a letter to the mayor and councillors of Westminster they suggest that in the matter of providing triumphal arches and in the decoration of the streets unity of design and colour scheme should be preserved, and that different parts of the route should be so treated as to represent in symbolical form the various States and Dominions of the Empire. They generously add that their services for the work of design and supervision would be gratuitously placed at the disposal of the City Council. The scheme has the warm approval of Sir L. Alma-Tadema and many other distinguished artists, and it is to be hoped that the disinterested offer will commend itself to the Westminster City Council.

Professor Patrick Geddes delivered a lecture on Wednesday, under the auspices of the Sociological Society, on the Cities and Town-Planning Exhibition now open at Crosby Hall, Chelsea. He said that the plans and models there were the essential summary of the exhibition held last year at the Royal Academy and were going on tour. The committee of the society had been organising a series of city and town surveys, which served to reveal the whole situation and life of a community in the past and the present, which should be considered in any new planning scheme. He drew attention to a couple of maps of Surrey—one prepared in 1787, before the social and industrial revolution, where the coaching routes and country seats were emphasised, and another dated 1837, after the great Reform Act, in which huge Parliamentary constituencies were prominent. One thing about London to be noticed was the magnificent and lucid plan of Sir Christopher Wren and his two rivals to do away with the labyrinth that had previously existed, and then to realise what London had lost in not carrying it out. In regard to the new dock project for the Port of London, he pointed out that the plans still left the dockers to live in the squalid confusion of Canning Town and similar localities, and the effect on future generations would be increasingly disastrous. It was right for them to ask that while eighteen millions sterling were to be spent on docks at least eighteen pence should be spent on the dockers. The sociological survey already started would show the relations between towns and villages. What was sociologically required was the co-ordination of art and science, of economics with ethics, in order to produce better conditions of life.

The old Chantry Chapel of St. James, Okehampton, is the subject of considerable discussion amongst the inhabitants of the little moorland township. The edifice is so unfortunately placed that it creates in the important highway from Fore-street to the station an obstruction which has in the past proved itself a serious danger to vehicular traffic. It is proposed to demolish the chapel but to leave standing the fine and lofty 15th-century tower. The principal internal feature of the building is the carving which adorns the old pulpit. The present trustees are only called upon to provide one service every month, and one service per annum to be attended by the mayor and corporation, whilst the curfew bell tolls forth its futile call each evening. The building was the property of the old, unreformed corporation, who used to appoint a chaplain and maintain the fabric.

The Society of Antiquaries has communicated with the Marquis of Anglesea inviting his attention to the condition of the Cromlechau at Bryn Celli Ddu and Plas Newydd, and the chambered mound at Plas Newydd, and suggesting the desirability of placing these valuable and interesting prehistoric remains under the protection of the Ancient Monuments Act. One of the two cromlechs referred to is the largest and most complete yet remaining. The Society, having heard with regret that the ruins of Beaumaris Castle are in a dangerous condition through neglect and the growth of ivy, has suggested to Sir Richard Williams-Bulkeley the urgent need of prompt action which may insure the effective preservation of this historic building. Beaumaris Castle, in shape an irregular octagon within an outer wall, was built by Edward I. about the year 1295, from the designs of Henry de Elreton, who also designed Carnarvon and Conway Castles. In 1643 the Castle was held for King Charles against the Parliamentary forces, but surrendered in 1646. There are considerable remains of the Great Hall, of the Early English chapel, and of the domestic apartments.

At the Royal College of Surgeons on Monday Professor G. Elliot Smith, of Manchester University, delivered the first of three lectures on "The History of Mummifications." He discussed the origin of the idea of mummification. In remote prehistoric times, he said, the Egyptians were in the habit of burying their dead in shallow graves in the fringe of the desert sands. The extreme dryness of atmosphere and soil, aided by the heat of the sun often led to the desiccation and preservation of the body intact. There could be no doubt that the general diffusion of the knowledge that the body did not always suffer corruption coloured the religious ideas of the prehistoric Egyptians and shaped their beliefs into the conviction that the preservation of the body was the condition necessary for the attainment of immortality. This naturally led them to lavish still more care on the housing of their dead, as was shown by the rapid evolution of their tomb-architecture and equipment. This was rendered possible in the middle of the known predynastic period by the discovery of copper; and the vastly enhanced scope that metal tools gave to the carpenter and stonemason by the end of the predynastic period was at once demonstrated in the aggrandisement of the tomb and the invention of coffins of wood or stone.

Efforts have been made from time to time to direct attention to some of the lesser-known Queensland timbers, several of which are of a choice character; but, in consequence of the want of knowledge on the part of the "timber getters," are ruthlessly cut down for the commonest purposes. Thus, in the Laidley district, a valuable timber—a so-called rosewood, of considerable utility, by reason of the beauty of its colouring, for cabinet making purposes—is largely used for building selectors' homesteads. A kind of forest oak, found at Laidley Creek, is very red, and shows beautiful markings. The common yellow wood is much used for building purposes, as the white ant will not touch it. It is also used by carriage builders. Among the lesser-known Queensland timber trees is the cockspur thorn (Cudrania javanensis), the wood of which is a rich dark yellow colour. It would be much appreciated by cabinet makers, being of an extremely fine grain, and taking a high polish. Another neglected timber is the common Elæodendron australe, which has a pinkish or flesh-coloured wood, with a close grain, and capable of a high polish. The black brigalow should have a good sale among cabinet- and picture frame makers, as it splits well, takes a fine polish, and when old closely resembles ebony.

Mr. F. W. Crane, (late) clerk to the City of London Guardians, writing from 61, Bartholomew-close, E.C., with reference to "The Local Government Annual and Official Directory" (the twentieth annual issue of which will be published next week), says: "What 'Whitaker' is to the general public 'The Local Government Annual' is to all those engaged in Poor-law and parochial life." We entirely endorse his verdict: there is no other reference-book of the kind comparable to it. In addition to the directory, there is a large quantity of useful information relating to baths and washhouses and electric-light undertakings in the boroughs of London, and the abstract of the Local Government legislation of 1910 cannot fail to be of the greatest service. The price of "The Local Government Annual," which has been corrected and brought up to December 31, remains at 1s. 6d.

A composition for making building-blocks, etc., patented by J. F. Goddard, 59, Tytherton-road, Holloway, London, consists of cement, cork or other bark containing tannin, and silicate of soda. The cork is washed and allowed to soak in water, excess of moisture is removed, and the wet grains are mixed with cement, the proportions varying from equal parts of each to seven parts of cork and one part of cement, according to requirements. This mixture is moulded or laid *in situ*, and after setting is immersed in, or sprayed with, silicate of soda.

According to a recent patent by A. Zboril, Gerlgasse, Vienna, Oct. 1, building blocks or slabs are made by impregnating a core of fibrous material, such as wood-wool, with a hardening substance such as a solution of mangesium oxide and magnesium chloride or zinc chloride, packing the impregnated fibrous materials in moulds until it has hardened, and finally coating the core with a covering of stone, wood, cement, or like dense material. The blocks may be reinforced by metal insertions.

Alderman Thomas Edward Atterby, J.P., of Stockton-on-Tees, builder, left personalty amounting to £26,448.

The new church of St. Mary, Rochdale, was consecrated by the Bishop of Manchester on the Festival of the Purification. The new edifice is on the site of an older church which was built in 1741, as a chapel-of-ease to the parish church of Rochdale. Mr. J. N. Comper is the architect, and the cost has been £12,000.

The formal opening took place on Monday of St. John's Day Schools, which have been erected in Bath-lane, Newcastle-on-Tyne. The building is three stories in height, and accommodation has been provided for 320 children. The architect is Mr. Charles S. Errington, of Newcastle, and the contractors were Messrs. Lowry.

The new street which will connect the Market-place, York, with Piccadilly and Walmgate, and necessitating a bridge over the River Foss, is now being proceeded with. The site of the White Swan Hotel, facing the Market-place, and having a frontage of 190ft. to the new street, has been sold by the corporation to the People's Refreshment House Association, Ltd., of Westminster, who propose to rebuild the hotel, together with offices etc., according to designs deposited with the council by their architects, Messrs. W. Mortimer and Son, of London and Lincoln.

The builders have almost finished their work on the new Swedish church in Harcourt-street, Marylebone, and the opening ceremony will be performed by a Swedish archbishop or bishop. The old church in Princes-square, St. George's-in-the-East, where the body of Swedenborg lay for many years before its transference to a Swedish resting place, is to be sold when opportunity arises. The church, which has cost £20,000, is approached by staircases, and will seat 700 people. The old altar-piece and reredos from Princes-square have been transferred to the new premises. These are classrooms, a hall, which will be used as a Swedish gymnasium, and will be let for concerts, a library, and a manse. The architect is Mr. H. H. Wigglesworth, F.R.I.B.A., of High Holborn.

LATEST PRICES.

IRON.

	Per ton.				Per ton.
Rolled-Iron Joists, Belgian	£5	7	6	to	£5 12 6
Rolled-Steel Joists, English	7	5	0	,,	7 15 0
Wrought-Iron Girder Plates	7	0	0	,,	7 5 0
Bar Iron, good Staffs	8	5	0	,,	8 10 0
Do., Lowmoor, Flat, Round, or Square	20	0	0	,,	20 0 0
Do., Welsh	5	15	0	,,	5 17 0
Boiler Plates, Iron—					
South Staffs	8	0	0	,,	8 15 0
Best Snedshill	9	0	0	,,	9 10 0

Angles 10s., Tees 20s. per ton extra.

Builders' Hoop Iron, for bonding, &c., £8 15s. to £9.

Builders' Hoop Iron, galvanised, £14 to £15 10s. per ton

Galvanised Corrugated Sheet Iron—

	No. 18 to 20.				No. 22 to 24.
6ft. to 8ft. long, inclusive gauge	Per ton. £13	0	0	...	Per ton. £13 10 0
Best ditto	13	0	0	...	14 0 0

Wire Nails (Points de Paris)—

3 to 7	8	9	10	11	12	13	14	15	B.W.G.
8 3	8 9	9 3	9 9	10 3	11/-	11 9	12 6	13 6	per cwt.

	Per ton.				Per ton.
Cast-Iron Columns	£6	10	0	to	£8 10 0
Cast-Iron Stanchions	8	10	0	,,	8 10 0
Rolled-Iron Fencing Wire	8	5	0	,,	8 10 0
Rolled-Steel Fencing Wire	6	5	0	,,	8 10 0
,, ,, ,, Galvanised	7	15	0	,,	6 5 0
Cast-Iron Sash Weights	4	17	0	,,	4 17 0
Cut Floor Brads	10	5	0	,,	—
Corrugated Iron, 24 gauge	16	0	0	,,	—
Galvanised Wire Strand, 7 ply, 14 B.W.G.	14	5	0	,,	—

B.B. Drawn Telegraph Wire, Galvanised—

0 to 8	9	10	11	12	B.W.G.
£10 5 0	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.

Cast-Iron Socket Pipes—

3in. diameter	£6	2	6	to	£6 7 0
4in. to 6in.	6	0	0	,,	6 5 0
7in. to 24in. (all sizes)	5	7	6	,,	6 0 0

[Coated with composition, 5s. 0d. per ton extra; turned and bored joints, 5s. 0d. per ton extra.]

	Per ton.				
Pig Iron—					
Cold Blast, Lilleshall	110s. 0d.			to	117s. 6d.
Hot Blast, ditto	70s. 0d.			,,	75s. 0d.

Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.) :—

Gas-Tubes	75 p.c.
Water-Tubes	72½ ,,
Steam-Tubes	67½ ,,
Galvanised Gas-Tubes	65 ,,
Galvanised Water-Tubes	62½ ,,
Galvanised Steam-Tubes	57½ ,,

OTHER METALS.

	Per ton.				Per ton.
Spelter, Silesian	£23	5	0	to	£23 10 0
Lead Water Pipe, Town	16	17	6	,,	—
,, ,, ,, Country	17	12	6	,,	—
Lead Barrel Pipe, Town	17	17	6	,,	—
,, ,, ,, Country	18	12	6	,,	—
Lead Pipe, Tinned inside, Town	18	17	6	,,	—
,, ,, ,, ,, Country	19	12	6	,,	—
Lead Pipe, Tinned inside and outside, Town	21	7	6	,,	—
,, ,, ,, ,, Country	22	2	6	,,	—
Composition Gas-Pipe, Town	19	17	6	,,	—
,, ,, ,, Country	20	12	6	,,	—
Lead Soil-pipe (up to 4½in.) Town	19	17	6	,,	—
,, ,, ,, ,, Country [Over 4½in. £1 per ton extra.]	20	12	6	,,	—
Lead Shot, in 28lb. bags	24	15	0	,,	—
Copper Sheets, sheathing & rods	70	0	0	,,	70 10 0
Copper, British Cake and Ingot	58	15	0	,,	59 5 0
Tin, Straits	178	10	0	,,	179 0 0
Do., English Ingots	194	0	0	,,	194 10 0
Do., Australian	174	15	0	,,	175 0 0
Do., Bars	195	0	0	,,	196 0 0
Pig Lead, in 1cwt. pigs	14	5	0	,,	—
Sheet Lead, Town	16	7	6	,,	—
,, ,, Country	17	2	6	,,	—
Genuine White Lead	21	0	0	,,	—
Refined Red Lead	19	0	0	,,	—
Sheet Zinc	32	5	0	,,	—
Old Lead, against account	12	2	6	,,	—
Tin	10	10	0	,,	—
Cut Nails (per cwt. basis, ordinary brand)	0	10	6	,,	—

TIMBER.

CONSTRUCTIONAL.

Per St. Petersburg Standard (100—12ft. by 11in. by 11in.)

Yellow Pine Deals, Quebec, 1st quality	£31	0	0	to	£42 0 0
,, ,, ,, 2nd ,,	21	0	0	,,	26 0 0
,, ,, ,, 3rd ,,	15	0	0	,,	18 0 0
Spruce Deals: St. Johns	8	0	0	,,	11 0 0
,, ,, Miramichi	7	5	0	,,	8 10 0
,, Boards: Swag	7	0	0	,,	8 0 0
Red Deals: Archangel 1st quality	20	10	0	,,	21 10 0
,, ,, ,, 2nd ,,	15	0	0	,,	17 0 0
,, ,, ,, 3rd ,,	11	0	0	,,	12 0 0
,, ,, St. Petersburg—					
,, ,, 1st quality	16	0	0	,,	17 0 0
,, ,, 2nd ,,	13	0	0	,,	14 10 0
,, ,, Wyburg & Uleaborg	10	0	0	,,	12 0 0
,, ,, Gefle, Gothenburg, and Stockholm	10	0	0	,,	17 0 0
White Deals: Crown	10	0	0	,,	12 0 0
,, ,, Seconds	9	10	0	,,	10 0 0
Flooring: White and Planed—					
1st and 2nd quality mixed	9	0	0	,,	9 5 0
1st, 2nd, and 3rd quality mixed	8	5	0	,,	8 10 0
Red Planed, 1st quality	11	5	0	,,	11 10 0
Pitch Pine: Prime Deals and Boards	17	0	0	,,	20 0 0
Lignum Vitæ	5	10	0	,,	12 0 0

	Per foot super, as 1in.				
Yellow Pine Logs (waney board)	0	2	9	,,	0 4 3
Pitch Pine Logs	0	1	6	,,	0 1 10
Canary Whitewood: Prime	0	3	6	,,	0 3 9
Birch: Quebec Logs	0	2	0	,,	0 2 6
Oak: Austrian Wainscot	0	7	0	,,	0 8 0
Mahogany: Gaboon	0	0	1¼	,,	0 0 2½

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (50c.ft.)	£20	0	0	to	£21 10 0
,, Java ,, ,,	15	0	0	,,	18 0 0
Canary Whitewood: Prime bds. 14in. average	Per cubic foot. 0	3	0	,,	0 3 3
Canary Whitewood: Medium bds. 11in. average	0	2	2	,,	0 2 6
Oak Planks: U.S.A., imported	0	1	9	,,	0 2 6
,, Boards ,, ,, Prm.	0	2	4	,,	0 2 9
,, ,, ,, Mdm.	0	1	10	,,	0 2 2
Sequoia (Californian Redwood)	0	3	0	,,	0 3 6
Birch: Quebec logs	0	1	8	,,	0 2 2
,, ,, sawn planks	0	1	0	,,	0 1 2
Oak: Austrian Wainscot	0	6	0	,,	0 7 0
Walnut: Prime boards & planks	0	5	0	,,	0 6 0
,, Mdm. ,, ,,	0	3	4	,,	0 3 6
Greenheart: Hewn logs	0	3	6	,,	0 4 6
Cedar: Cigar box	0	3	6	,,	0 4 6
Satin Walnut: Imp. sawn boards, prime	0	2	3	,,	0 2 6
Orham: Imp. sawn boards, prime	0	1	10	,,	0 2 2
Mahogany: St. Domingo, Cuba, and Honduras	Per foot of 1in. 0	0	5½	to	0 0 6
,, African, Assinee, &c.	0	0	4½	,,	0 0 9
,, Lagos and Benin	0	0	3½	,,	0 0 4½
,, Sekondi and Cape Lopez	0	0	2½	,,	0 0 3½
,, Gaboon	0	0	1½	,,	0 0 0
Satinwood: West Indian	0	0	10	,,	0 2 2
Rosewood: Per ton	7	0	0	,,	12 0 0
Lignum Vitæ ,,	4	0	0	,,	11 10 6

STONE.*

Red Mansfield, in blocks per foot cube	£0	2	4		
Darley Dale, ditto ,, ...	0	2	3		
Red Corsehill, ditto ,, ...	0	2	2		
Closeburn Red Freestone, ditto ,, ...	0	2	0		
Ancaster, ditto ,, ...	0	1	10		
Greenshill, ditto ,, ...	0	1	10		
Chilmark, ditto (in truck at Nine Elms) ,, ...	0	1	9		
Beer, ditto ,, ...	0	1	6		
Hard York, ditto ,, ...	0	2	10		
Ditto ditto 6in. sawn both sides, landings, random sizes per foot sup.	0	2	8		
Ditto ditto 3in. slab sawn two sides, random sizes ,, ...	0	1	3		

* All F.O.R. London.

Bath Stone, delivered on rail at quarry stations per foot cube	£0	1	0		
Delivered on road waggons, Paddington Depot ,, ...	0	1	6½		
Ditto ditto, Nine Elms Depot ,, ...	0	1	6½		
Beer Stone, delivered on rail at Seaton Station ,, ...	0	1	0		
Ditto, delivered at Nine Elms Station ,, ...	0	1	6		

Portland Stone, in random blocks of 20ft. average :—

	Brown Whit Bed.				White Base Bed.		
Delivered to railway depot at the quarry per foot cube	£0	1	5½	...	£0	1	7½
Delivered on road waggons at Paddington Depot ... Ditto, Nine Elms Depot ... Ditto, Pimlico Wharf ... ,, ...	0	2	1	...	0	2	2½

BRICKS.

(All prices net.)

Hard Stocks	£1	6	6	per 1,000 alongside, in river	
Rough Stocks and Grizzles	1	6	0	,, ,,	
Picked Stocks for Facings	2	10	0	,, delivered at railway station.	
Flettons	1	6	0	,, ,, ,,	
Pressed Wire Cuts	1	18	0	,, ,, ,,	
Red Wire Cuts	1	14	0	,, ,, ,,	
Best Fareham Red	3	12	0	,, ,, ,,	
Best Red Pressed Ruabon Facing	5	0	0	,, ,, ,,	
Best Blue Pressed Staffordshire	3	15	0	,, ,, ,,	
Ditto Bullnose	4	0	0	,, ,, ,,	
Best Stourbridge Fire Bricks	3	14	0	,, ,, ,,	
2¾in. Best Red Accrington Plastic Facing Bricks	4	13	0	,, Net, delivered in full truck loads in London.	

GLAZED BRICKS.*

HARD GLAZES. (PER 1,000.)

White, Ivory, and Salt Glazed. Best.	Seconds.	Best. Buff and Cream.	Other Colours.	Second Colours.
Stretchers—				
£10 17 6	£9 7 6	£12 7 6	£16 7 6	£10 17 6
Headers—				
10 7 6	8 17 6	11 17 6	15 17 6	10 7 6
Quoins, Bullnose, and 4½in. Flats—				
13 17 6	12 17 6	16 7 6	19 17 6	14 7 6
Double Stretchers—				
16 7 6	14 17 6	19 7 6	22 17 6	16 7 6
Double Headers—				
13 7 6	11 17 6	16 7 6	19 17 6	13 7 6
One side and two ends, square—				
17 7 6	15 17 6	20 7 6	24 17 6	17 7 6
Two sides and one end, square—				
18 7 6	16 17 6	21 7 6	25 7 6	18 7 6
Splays and Squints—				
15 17 6	14 7 6	20 7 6	23 7 6	15 17 6

Plinth and Hollow Bricks. Stretchers and Headers—
5d. each 4d. each 6d. each 6d. each 5d. each

Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres—
5d. each 4d. each 6d. each 6d. each 5d. each

Rounded Internal Angles—
4d. each 3d. each 5d. each 5d. each 4d. each

MOULDED BRICKS.

Stretchers and Headers—
8d. each 8d. each 8d. each 8d. each 8d. each

Internal and External Angles—
1 2 each 1 2 each 1 2 each 1 2 each 1 2 each

Cill Bullnose, Stretchers and Headers—
5d. each 4d. each 6d. each 6d. each 5d. each

	Per 1,000			
Majolica or Soft Glazed Stretchers and Headers	£21	17	6	
,, ,, ,, Quoins and Bullnose	26	17	6	
Compass bricks, circular and arch bricks of single radius £6 per 1,000 over above list for their respective kinds and colours	Not exceeding 9in. ×			
Camber arch brick, any kind or colour, 1s. 2d. each	4½in. × 2½in.			

Stretchers cut for Closers and Nicked Double Headers, £1 per 1,000 extra.

* These prices are carriage paid in full truck loads to London stations.

	s.	d.	
Thames and Pit Sand	7	0	per yard, delivered.
Thames Ballast	5	6	,, ,,
Best Portland Cement	28	0	per ton, ,,
Best Ground Blue Lias Lime	19	0	,, ,,

Exclusive of charge for sacks.

Grey Stone Lime 11s. 6d. per yard, delivered

Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. stn.

SLATES.

	In.	In.	£	s.	d.	
Blue Portmadoe	20 × 10	..12	12	6	per 1000 of 1200 at r.stn.	
,, ,,	... 16 × 8	.. 8	12	6	,, ,,	,,
Blue Bangor	20 × 10	..13	2	6	,, ,,	,,
,, ,,	... 20 × 12	..13	17	6	,, ,,	,,
First quality	20 × 10	..13	0	0	,, ,,	,,
,, ,,	... 20 × 12	..13	15	0	,, ,,	,,
,, ,,	... 16 × 8	.. 7	5	0	,, ,,	,,
Eureka unfading green	£	s.	d.			
	20 × 10	..15	17	6	,, ,,	
,, ,,	... 20 × 12	..18	7	6	,, ,,	,,
,, ,,	... 18 × 10	..13	5	0	,, ,,	,,
,, ,,	... 16 × 8	.10	5	0	,, ,,	,,
Permanent green	20 × 10	..11	12	6	,, ,,	,,
,, ,,	... 18 × 10	.. 9	12	6	,, ,,	,,
,, ,,	... 16 × 8	.. 8	12	6	,, ,,	,,

TILES.

	s.	d.		Delivered
Plain red roofing tiles	42	0	per 1000	at rly. stn.
Hip and Valley tiles	3	7	per doz.	,, ,,
Broseley tiles	50	0	per 1000	,, ,,
Ornamental tiles	52	6	,,	,, ,,
Hip and Valley tiles	4	0	per doz.	,, ,,
Ruabon red, brown, or brindled do. (Edwards)	57	6	per 1000	,, ,,
Ornamental do.	60	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	0	,,	,, ,,
Selected "Perfecta" roofing tiles.—Plain tiles (Peake's)	46	0	per 1000	,, ,,
Ornamental do.	48	6	,,	,, ,,
Hip tiles	3	10½	per doz.	,, ,,
Valley tiles	3	4½	,,	,, ,,
"Rosemary" brand plain tiles	48	0	per 1000	,, ,,
Ornamental tiles	50	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	8	,,	,, ,,
Staffordshire (Hanley) Reds or Brindled tiles	42	6	per 1000	,, ,,
Hand-made sand-faced	45	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,
"Hartshill" brand plain tiles, sand-faced	50	0	per 1000	,, ,,
Pressed	47	6	,,	,, ,,
Ornamental do.	50	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,

OILS.

Rapeseed, English pale, per tun	£28	15	0	to	£29 5 0
Do., brown	26	15	0	,,	27 5 0
Cottonseed, refined	29	0	0	,,	30 0 0
Olive, Spanish	39	10	0	,,	40 0 0
Seal, pale	21	0	0	,,	21 10 0
Cocoanut, Cochin	46	0	0	,,	46 10 0
Do., Ceylon	42	10	0	,,	43 0 0
Do., Mauritius	42	10	0	,,	43 0 0
Palm, Lagos	32	5	0	,,	33 5 0
Do., Nut Keruel	35	0	0	,,	35 10 0
Oleine	17	5	0	,,	19 5 0
Sperm	30	0	0	,,	31 0 0
Lubricating U.S. per gal.	0	7	0	,,	0 8 0
Petroleum, refined ,,	0	0	6¾	,,	0 0 6¾
Tar, Stockholm per barrel	1	8	0	,,	1 10 6
Do., Archangel ,,	0	19	6	,,	1 0 0
Linseed Oil per gal.	0	4	5½	,,	—
Baltic Od ,,	0	4	8	,,	—
Turpentine ,,	0	5	2½	,,	—
Putty (Genuine Linseed Oil) per cwt.	0	11	0	,,	—
,, Pure Linseed Oil, "Stority" Brand ,,	0	10	0	,,	—

VARNISHES, &c.

	Per gallon.
Fine Pale Oak Varnish	£0 8 0
Pale Copal Oak	0 10 0
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 6
Extra Pale Paper	0 12 6
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

GLASS IN CRATES.

	15oz.	21oz.	26oz.	32oz.
English Sheet Glass: Fourths	1¼d.	2½d.	3½d.	4½d.
Thirds	2½d.	3½d.	4d.	5d.
Fluted Sheet	2½d.	3½d.	9d.	6½d.
Hartley's English Rolled Plate: ¼in.			⅜in. 2½d.	½in. 2½d.

Figured, Rolled, and Reponssine. White. 3½d. Tinted. 5d.

MEETINGS FOR THE ENSUING WEEK

[illegible]

Jacobs Swedenborg, [illegible] F.R.S., "[illegible]

[illegible]

[illegible]

FOR
Olivers' Seasoned Hardwoods,
APPLY TO—
WM. OLIVER & SONS, Ltd.,
120, Bunhill Row, London, E.C.

TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender; it adds to the value of the information.

BATTERSEA, S.W.—For supplying two lines of steel pipes, 200ft. in length, for crossing the railway line at Battersea Park-road, for the Metropolitan Water Board :—

Russell, J., and Son	£100 0 0
Stewarts and Lloyds, Ltd.	65 16 3
Ditto (alternative)	92 12 6
Piggott, T., and Co., Ltd.*	65 0 0
Ditto (alternative)	87 0 0

* Accepted at £87 13s. 4d. for 220ft. run of pipes.

BO'NESS, N.B.—For excavating, laying, and jointing four miles run of 10in. water-pipes, for the town council.

Robertson, A. W., Inverkeithing	£1,094 0 0

(Accepted. In lieu of tender from Hardie, J., and Son, withdrawn since acceptance.)

BORDESLEY GREEN, BIRMINGHAM.—For the erection of a council school in Cherrywood-road, Bordesley Green, for the Birmingham Education Committee :—

Crowder, E. (accepted)	£13,477 0 0

CAMBORNE.—For the partial reconstruction of the assembly rooms at Camborne :—
Bond and Mitchell (accepted).

CHILLERTON.—For erecting pumping station at Home Meadow, for the Shanklin Urban District Council. Mr. J. March, Council-chambers, Shanklin, architect :—

Streeter, A., and Co., Shalford, Guildford	£1,111 0 0
Williams, A. P., Newport, Isle of Wight	923 0 0
Kingswell, G. S., Clarence-road, Shanklin (accepted)	893 10 0

CROYDON.—For enlargement of the central polytechnic, Mr. H. Carter Pegg, F.R.I.B.A., of Thornton Heath, architect :—

Foster and Dicksee, Ltd., Rugby	£5,995 0 0
Moss, S. E., Southend	5,967 0 0
Foster, F. and G., Norwood	5,878 0 0
Spencer, Santo, and Co., Ltd.	5,834 0 0
Honour, F. W., Warlingham	5,820 0 0
Gough, F., and Co., Hendon	5,759 0 0
Fitt, McCarthy, E., Reading	5,679 0 0
Akers, W., and Co., Norwood	5,539 0 0
Moss, W. and Sons, Ltd., Loughborough	5,430 0 0
Bowyer, J., and Co., Norwood	5,376 0 0
Smith, W. and Sons, Croydon	5,357 0 0
Everitt, G., Croydon	5,350 0 0
Saunders, E. J., Croydon	5,340 0 0
Smith, J. & Sons, Ltd., Norwood*	5,252 0 0

* Accepted.

DENTON, NORTH KENT.—For making-up Victoria-road, Denton, for the Strood Rural District Council :—

Road Maintenance Co. (accepted)	£364 14 4

DEPTFORD.—For painting work at Deptford pumping station, for the London County Council :—

Beeley, J. H. Lewisham, S.E.	£364 17 7
Loasby, F. W., Lewisham, S.E.	772 0 0
Dudley, W., New Southgate, N.	696 11 11
Wollaston, R., and Co., Limehouse, E.	553 0 0
Inns, A. H., Bishopsgate, E.C.	538 0 0
Vigor and Co., Poplar, E.	531 10 0
Brown, T., and Son, Dulwich, S.E.	526 18 3
Bailey, W., East Greenwich, S.E.	519 19 11
Lole and Co., Chelsea, S.W.	514 1 6
Hudgell, H., Hendon, N.W.	500 17 11
Proctor, E., and Sons, Plumpstead, S.E.*	487 9 7
Townsend, H. E., Shaftsbury-avenue, W.	474 14 5

* Recommended for acceptance.

ECCLESHALL.—For alterations and repairs to Birch House Farm, Eccleshall, for the Staffordshire County Council :—

White, A. H., Stafford (accepted)	£71 0 0

EDENBRIDGE.—For the rebanging and repair of the bells at the parish church :—

Gillett and Johnson, Croydon (Accepted.)	£250 0 0

EDENDERRY.—For extension of hospital lavatory, for the guardians. Mr. T. Humphrey F. Bor, Edenderry, Ireland, architect :—

Price, H. A., Water-st., Sheffield	£10 15 9
Jennings, G., Ltd., Lambeth-place, London*	8 2 6

* Accepted, less 2½ per cent. discount.

EPPING.—For erection of workhouse infirmary and master's house, for the guardians. Messrs. Tooley and Foster, Queen's-road, Buckhurst Hill, architects :—

Lown, L., and Co.	£8,585 0 0
Wood, P., and Sons	8,052 0 0
Parren, J., and Son	8,006 10 9
Webb, A.	7,945 0 0
Trudgott, J. W.	7,729 0 0
Nightingale, B. E.	7,575 0 0
Chessum, J., and Sons	7,492 0 0
Brown, E. G.	7,490 0 0
Leslie and Co.	7,360 0 0
Young, H., and Sons	7,256 0 0
Warriner, R.	7,231 0 0
Lowe, R. A., and Co.	7,221 0 0
Webb, H. F., and Co.	7,092 0 0
Burtwell, F. W.	7,074 10 0
Roberts, C. P., and Co.	7,013 0 0
Coxhead, F. J.	6,964 0 0
Foster, F. and G.	6,881 0 0
Parker, G., and Sons	6,859 0 0
Paul, P. R.	6,838 10 0
Smith, J., and Sons	6,798 0 0
Davy, F. and E.	6,747 0 0
Horswill, H. C.	6,693 0 0
Whitlin, J., and Sons	6,662 18 1
Lawrence, W., and Son	6,642 0 0
Day, J.	6,620 16 0
Fairhead, A.	6,616 0 0
Fitch and Cox	6,599 0 0
Fryd, A. H.	6,668 0 0
Foster, C. S., and Son	6,446 0 0
Mattock Bros.	6,407 0 0
Clark and Sons (accepted)	5,997 15 0

HAUGHTON.—For alterations, additions, and repairs to Houghton House Farm, for the Staffordshire County Council :—

White, A. H., Stafford accepted)	£1,100 0 0

HEREFORD.—For erecting a sale ring and shedding at the cattle market, for the city council —

Alexander and Duncan (accepted)	£497 10 0

HEREFORD.—For carrying-out extensions at the free library, for the city council. Messrs. Groome and Bettington, Hereford, architects :—

Wilks, E. W., and Son (accepted)	£3,455 0 0

(Lowest tender received.)

HORSHAM.—For erecting condensing plant, for the urban district council. Mr. S. Mitchell, 14, Market-square, Horsham, architect —

Dean, E., & Beale, Ltd., Old Kent-road	£1,292 0 0
Ledward & Beckett, Ltd., Tothill-street, Westminster (accepted)	1,195 0 0

LEEDS.—For the construction of brick sewers, for the sewerage committee. Mr. W. T. Lancashire, Municipal-buildings, Leeds, city engineer :—

Braithwaite, A., and Co., 2, Crown Point-street, Leeds	£2,013 18 7

LEICESTER.—For new factory and warehouse for Messrs. B. Russell and Sons. Mr. J. W. Simpson, Berridge-street, Leicester, architect :—

Chambers, A. and W.	£9,498 0 0
Bentley, J., and Co.	9,435 0 0
Haskard, Rudkin, and Beck	9,375 0 0
Sharp, W. M.	9,343 0 0
Herbert, H., and Sons	9,269 0 0
Bradshaw Bros.	9,167 0 0
Bowles and Son	8,998 10 0
Chapman, J. (accepted	8,530 0 0

LEIGH, KENT.—For the construction of sewage disposal works at Leigh, for the Sevenoaks Rural District Council :—

Burrows, T., Maidstone (accepted)	£927 0 0

(Lowest of eleven tenders received; highest from Wallis, Sevenoaks, £1,317. Engineer's estimate, £1,100.)

LONDON, E.C.—For the repair of sewers at a schedule of prices for three years, for the City Corporation :—
Mowlem, John, and Co., Ltd (accepted).

LONDON.—For the provision of new and the alteration of existing switchgear, and the provision of transformers, at the Camberwell, Elephant and Castle, Holborn, New Cross, and Wandsworth substations, and No. 23, Belvedere-road, for the London County Council :—

Beyrolle, A., and Co., Hebburn-on-Tyne	£8,846 0 0
Ferranti, Ltd., Hollinwood	8,639 13 1
Electric and Ordnance Accessories Co., Ltd., Birmingham	8,491 10 0
General Electric Co., Ltd., Witton	7,975 9 4
British Westinghouse Electric and Manufacturing Co., Ltd., Manchester	7,884 18 0
Electric Construction Co., Ltd., Wolverhampton	7,224 0 0
Johnson & Phillips, Ltd., Charlton*	7,056 0 0

Estimate of the chief officer of tramways, £6,200.
* Recommended for acceptance.

MACCLESFIELD.—For the carrying-out of alterations at the general infirmary, for the governors. Mr. A. E. Haurahan, General Infirmary, Macclesfield, secretary. Quantities by Mr. N. Hartley Hacking, 50, Blackfriars-street, Manchester :—

T. Roylance Lawton	£520 0 0
Clayton Bros., Poynton	515 0 0
Gorton and Wilson	492 0 0
Simpson, G., and Son	480 0 0
Clayton, J.	476 0 0
Cooke, B., and Son	464 0 0
Roylance, G., and Co., Ltd.*	450 0 0

Rest of Macclesfield.
* Accepted.

MAUGHOLD HEAD, ISLE OF MAN.—For the erection of a lighthouse on Maughold Head, for the Northern Lights Commissioners :—
McDougall, D. and J., Crescent-road, Oban (accepted).

MERTHYR.—For erection of infant-school at Lower Pentrebach, for the education committee :—

Williams, E., and Sons, 22, Wyndham-street, Dowlais (accepted)	£3,759 0 0

NORWICH.—For addition and alterations to drapery shop, 21, St. Benedict's-street. Mr. Arthur J. Chambers, Norwich, architect and surveyor :—

Johnson, T.	£600 0 0
Hawes, G. E., and Sons	597 0 0
Gill, T., and Son	578 0 0
Daws, R., and Son	548 0 0
Smith, J. S. (accepted)	544 0 0

All of Norwich.

PLYMOUTH.—For making-up and completing (a) Broad Park-road, and (b) Durham-road, for the corporation :—

	A.	B.
Doney, T. (accepted)	£437 16 10	£249 4 9

ROCHDALE.—For laying a further extension of the tramways towards Whitworth from the Red Lion Inn, Shawforth :—
Underwood, W., and Co., Ltd., Dukinfield (accepted).

SEDGLEY.—For the construction of conveniences at the Queen Victoria Council School, Sedgley, for the Staffordshire Educat on Committee :—

Pearcey, A. H., Upper Gornal (Accepted.)	£235 0 0

ST. ALBANS.—For improving the ventilation of the assembly room at the town hall, for the city council :—

Gentle and Son, St. Albans (Accepted.)	£153 10 0

STRATFORD, E.—For the provision and erection of a 7ft. 6in. diameter hinged flap-valve required in connection with the enlargement of the Abbey-mills pumping station, for the London County Council :—

Glenfield and Kennedy, Ltd., Kilmarnock	£184 0 0
Cochrane, J., Barrhead	140 0 0
Blakeborough, J., and Sons, Brighouse	130 0 0
Markham and Co., Ltd., Chesterfield*	125 0 0

* Recommended for acceptance.

WALSALL.—For additions to electricity generating station, for the electricity committee. Mr. John R. Cooper, Council House, Walsall, town clerk :—
Gough, H., and Son, Wolverhampton (accepted).

WANDSWORTH, S.E.—For the execution of the wiring and the supply of fittings at the Wandsworth fire-station, for the London County Council :—

Fryer, W. J., and Co., Bravington Works, Paddington	£190 10 0
Malcolm & Allan, Ltd., Hanover-street, W.	174 0 0
Hawkins, A., and Sons, 125-128, London-road, Southwark*	157 10 0

Chief engineer's estimate, £180.
* Recommended for acceptance.

LIST OF COMPETITIONS OPEN.

Corbridge—Sewerage and Sewage Disposal Scheme	£15 (merged) and £10	J. H. Nicholson, Clerk, Midland Bank Chambers, Hexham	Feb. 28
Southmoor—Parochial Hall and Institute (cost, £1,500)	£15, £5	The F. S. Myers, South Moor, Stanley, S.O., Durham	Mar. 15
Swansea—Castle-street Improvement (Assessor, S. S. Reay, F.R.I.B.A.)	£50	The Town Clerk, Guildhall, Swansea	,, 24
San Thomé, Portuguese West Africa—Laying-out Streets, Sewerage, Water Supply, and Lighting		The President of Municipal Council, San Thomé, Portuguese West Africa	,, 25
Gidea Park—Town Plan of Gidea Park (E. G. Dawber, H. V. Lanchester, and M. E. Macartney, Assessors)	£100, £50	The Secretary, Town Planning Exhibition, 33, Henrietta-st., W.C.	,, 31
Manchester—Library and Art Gallery (Prof. Reginald Blomfield, A.R.A., assessor)		Thomas Hudson, Town Clerk, Town Hall, Manchester	,, 31
Covetry—Municipal Buildings and Proposed Town Hall. (E. Guy Dawber, F.R.I.B.A., 22, buckingham-street, W.C., Assessor.)		Geo. Sutton, Town Clerk, 10, Hay-lane, Coventry	April 1
Carlton—Sewage Disposal Scheme		James Senior, Clerk, Carlton, near Barnsley	,, 6
Corbridge, Hexham—Sewerage and Sewage Disposal Scheme	£15, £10	J. H. Nicholson, Clerk, Midland Bank Chambers, Hexham	,, 13
Aspatria—Sewerage Scheme		F. Richardson, Clerk, Aspatria, Cumberland	June 10
Athens—Court of Justice (cost £160,000)	£800, £320	Comm. Intel. Branch, Board of Trade, 73, Basinghall-street, E.C.	Aug. 8
Glasgow—Alexander Thomson Travelling Studentship	£60, £20	C. J. Maclean, Secretary, 115, St. Vincent-street, Glasgow	Dec. 29
Penistone—Carnegie Free Library		The Clerk to the District Council, Penistone	No date
Swinton, Rotherham—Parish Hall		The Rev. C. Steele, Swinton Vicarage, Rotherham	do.
Lowestoft—Elementary School (Limited to Norfolk and Suffolk Architects)	20gs., 10gs., 5gs.	R. B. Nicholson, Town Clerk, Town Hall, Lowestoft	do.

LIST OF TENDERS OPEN.

BUILDINGS.

London, E.C.—Ink and Seal [illegible] Royal Mint	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	Feb. 17
Newtownards—Print works	Ulster Printworks, Ltd.	Ernest L. Woods, C.E., 97, Main-street, Bangor	,, 17
Brighton—School [illegible]	Education Committee	T. Simpson and Son, Architects, 16, Ship-street, Brighton	,, 17
Acton—Branch Post O[illegible]	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 17
Tylorstown—School [illegible]	Rhondda Urban District Council	Jacob Rees, Architect, Hillside Cottage, Pentre	,, 17
New Malden, Surrey—[illegible] [illegible]ere-road	[illegible]	Belfrage and Saville, Architects, 27, Chancery-lane, W.C	,, 17
Cardiff—Renovat[illegible]	Town Council	W. Harpur, M.I.C.E., City Engineer, City Hall, Cardiff	,, 17
Stanbar[illegible]—Alterat[illegible]	Haigh, Wright, and Co.	C. F. L. Horsfall and Son, Architects, Lord-st. Chmbs., Halifax	,, 18
Liskeard—Alt[illegible]	Ed. Hicks	John Sansom, F.R.I.B.A., Greenbank-lane, Liskeard	,, 18
Chelmsford—Boar[illegible]	Guardians	Chancellor and Son, Architects, Duke-street, Chelmsford	,, 18
York—Saw M[illegible]	Cattley, Ernest, and Co., Ltd.	W. R. de Burgh, Architect, 32, Coney-street, York	,, 18
St. Albans—Ad[illegible]	[illegible]	P. C. Blow, A.R.I.B.A., 7, London-road, St. Albans	,, 18
Newport, Mon.—Repairs, Hard[illegible]	Guardians	A. H. Rees, Clerk, Union Offices, Newport	,, 18
Leigh-on-Sea—[illegible]	Urban District Council	J. W. Liversedge, A.M.I.C.E., Engineer, Leigh-on-Sea	,, 18
Ammanford, Wales—Mod[illegible]	[illegible]	David Thomas, M.I.M.E., Architect, Quay-street, Ammanford	,, 18
Pwll, Wales—Pair Houses	Thomas John	J. Evans, C.E., Architect, Frederick-street, Llanelly	,, 20
Rishworth—Cottage at Spa C[illegible]	Wakefield Corporation	C. C. Smith, M.I.C.E., Waterworks Eng., Town Hall, Wakefield	,, 21
Ewell—Extending Indust[illegible]	West Ham Education Committee	W. Jacques, A.R.I.B.A., 2, Fen-court, E.C.	,, 21
Brantby—Pair of Cottages	[illegible]	John Potts, 54, Fox-street, Scunthorpe	,, 20
Rishworth—Cottage at Great Reservoir	Wakefield Corporation	C. C. Smith, M.I.C.E., Waterworks Eng., Town Hall, Wakefield	,, 20
Gloucester—Drill Hall	Territorial Force Association	J. Crait, Architect, 12, St. Stephen's-street, Bristol	,, 20
Aberkenfig—Fourteen Houses	Pandy Estate Building Club	F. W. Burnett, Architect, Tondu, Glam	,, 20
Wheatley—Farmstead	West Riding Small Holdings Com.	The West Riding Architect, County Hall, Wakefield	,, 20
Farrow-in-Furness—Two Shops	Co-operative Society, Ltd.	H. T. Fowler, A.R.I.B.A., 6, Cornwallis-street, Barrow-in-Furness	,, 20
Saffron Walden—Stable, &c., Hill-street	Highways Committee	A. H. Forbes, Borough Surveyor, Saffron Walden	,, 20
Derby—Corn Mill, St. Michael's-lane	Corporation	J. Ward, M.I.C.E., Borough Surveyor, Babington-lane, Derby	,, 20
Blackwood, Mon.—Thirty-six Houses, Woodbine Estate	Building Club	Ralph Simmonds, Architect, High-street, Blackwood, Mon.	,, 21
Redcar—Fire Station, Pierson-street	Urban District Council	James Howcroft, Surr., Council Offices, 2, West-terrace, Redcar	,, 21
Mallow—Residence, Short Castle	[illegible]	W. H. Hill and Sons, Architects, 28, South Mall, Cork	,, 21
Birkenhead—Additions to Workhouse Main Block	Guardians	E. Kirby and Sons, Architects, 5, Cook-street, Liverpool	,, 21
Knottingley, Yorks—Fourteen Houses	W. Bagley, J.P.	W. J. Tennant, Architect, Pontefract	,, 21
Rochdale—Portable Bandstand, Falinge Park	Parks Committee	S. S. Platt, Borough Surveyor, Town Hall, Rochdale	,, 21
Boston, Lincs—Additions to Skirbeck Police Station	Holland Standing Joint Committee	E. J. A. Christie, Market-place, Boston, Lincs	,, 21
Dublin—Alterations to Nurse's Home at Workhouse	South Dublin Guardians	F. Bergin, B.E., Architect, 31, Westmoreland-street, Dublin	,, 22
Dalton—Two Semi-Detached Houses, Long-lane	[illegible]	J. Berry, Architect, 3, Market-place, Huddersfield	,, 22
Portsmouth—Additional Wards (465 beds) at Infirmary	Guardians	G. E. Smith, Architect, 145, Victoria-road North, Portsmouth	,, 22
South Elmsall—P.M. Church and School	[illegible]	J. W. Winter, St. Peter's Close, Sheffield	,, 23
Milnthorpe—Residence, Garage, and Motor Car Works	John Fawcett	John F. Curwen, F.R.I.B.A., F.S.A., 26, Highgate, Kendal	,, 23
Adwick-le-Street—Woodlands New School	West Riding Education Committee	The Education Architect, County Hall, Wakefield	,, 23
Stockwell, S.W.—Slating Roof of Shed at Landor-road	Lambeth Borough Council	H. Edwards, C.E., Engineer, Lambeth Town Hall, Brixton-hill	,, 23
Boscombe—New Buildings at Sanitary Hospital	Bournemouth Town Council	F. W. Lacey, Borough Engineer, Bournemouth	,, 23
Paisley—Works at New School, Renfrew-road	[illegible]	Craig, Barr, and Cook, Architects, 5, Gilmour-street, Paisley	,, 24
Harrogate—Chapel, Woodard Society Girls' School	[illegible]	W. H. Wood, F.R.I.B.A., Architect, Durham	,, 24
Falmouth—Operating Theatre at Hospital	[illegible]	Noel Lake, Joint Hon. Sec., 11, Market-strand, Falmouth	,, 24
Staioland—Farm House and Dairy	[illegible]	C. F. L. Horsfall and Son, Architects, Lord-st. Chambers, Halifax	,, 25
Bath—Engine House, Midland-road	Corporation	W. H. Radford, C.E., Albion Chambers, King-st., Nottingham	,, 25
Prospect, near Carlisle—New P.M. Chapel	[illegible]	W. Serginson, Architect, Prospect, Bullgill, Carlisle	,, 27
Manchester—Atherton-street Municipal School	Education Committee	The Education Offices, Deansgate, Manchester	,, 27
Swansea—Additions to Morriston School, North-road	Education Committee	A. W. Halden, Clerk, 9, Grove-place, Swansea	,, 27
Dundee—Concrete Roof at Lawton Reservoir	Water Commissioners	G. Baxter, Engineer and Manager, 93, Commercial-st., Dundee	,, 27
Barry—Training College for Women	Glamorgan County Council	The Council Offices, Westgate-street, Cardiff	,, 27
Golborne—New Elementary School (474 places)	Lancashire Education Committee	H. Littler, County Architect, 16, Ribblesdale-place, Preston	,, 27
Spittall—Rocket Apparatus House	[illegible]	The Assistant Secretary, Board of Trade, 7, Whitehall-gds., S.W.	,, 27

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THE BUILDING NEWS

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Bristol Royal Infirmary: New Surgical Pavilion and Operating Theatres. Messrs. H. Percy Adams, F.R.I.B.A., and Charles Holden, A.R.I.B.A., Architects.

Building News Designing Club: Village Reading-room, Greenkeeper's Lodge, and Gateway to Recreation Ground. Three Designs.

Reinforced Concrete Buildings in London: Photographs and Sections.

The Churches in the Isle of Wight.

ABERDEEN AND THE POLISHED GRANITE TRADE.

The polished granite trade of Aberdeen presents many features of interest to architects and builders and, from another point of view, to students of economics. Situated in the far north-east of the island, the granite city lies quite off the main lines of traffic, and the traveller from the South, arriving in the small hours, feels that he has almost reached the end of everywhere, a conviction which is quite changed if he should have to proceed to Wick or Thurso. But the more he sees of the city and its people, the more evident becomes the importance of the place. Aberdeen is no mean city. It is rich in tradition, in civic spirit, in its university, in its site, and in its noble architecture. It has been identified with the Devena of Ptolemy; in the 12th century it was a town of importance, and its borough records date so far back as 1398. This environment and history go to the explanation of its self-contained-ness, and the doggedness and quiet assurance of its people, who appear to possess the quintessence of all the peculiarly Scotch qualities illustrated in Dean Ramsay's "Reminiscences." This is discovered by the English buyer who goes North for the first time to place a contract, and especially by the salesman who endeavours to introduce a novelty into the polishing yards. Persuade he never so seductively, he is met by a stolidity as difficult to move as the granite hills. The deliberate speech, its unfamiliar accent, and the "ums" and "ahs" by which it is punctuated drive him to distraction, and he says in his haste that Aberdonians are fit for nothing but the making of tombstones. As he comes to understand the men he is dealing with his opinion changes, and he realises that the intense conservatism he is combating arises not from deficiency but from fullness of knowledge. "What the Aberdonians do not know of the working of granite is not worth learning" is a wonderfully close approximation to the truth. Not for them risky experiments and costly pioneer work. They know their trade, the possibilities of their material, and are confident in their knowledge.

In another respect this trade is exceptional. Few, if any, other towns possess so complete a monopoly of so important an industry. Axed granite for architectural work and granite setts are imported in large quantities or are found in other districts; but except for the Cornish works—which deal only with the local light grey stone—the polishing yards outside of Aberdeenshire are few and of comparative unimportance, and there is but an insignificant amount of polished granite imported. This places in a uniquely strong position the Granite Association, which includes every firm in the city, and controls the trade. The Association is one of the best modern analogues of the merchant guilds of the 13th 14th, and 15th centuries, and the resemblance is being increased by its recent policy. Like its predecessors of the Middle Ages, the Association controls what is largely a monopoly. It demands from its members a heavy entrance fee and subscription to the rules and regulations for the time being in force. It now controls the minimum selling price of manufactured work, and the customers with whom its members may deal. It has an inspector, or warden, with power to enter any yard and examine books, to assure himself that the regulations are being observed. It deals with the trades union as the merchant guild negotiated with the craft guild. As of old, it works for mutual help, mutual enjoyment, and mutual encouragement, and, apparently, the mutual exchange of information. It is a defensive and offensive alliance. The duties of the old guilds in the prevention of deception and the assurance of good workmanship are not yet so well developed by the Association as could be wished; but a recent all-round advance in the prices of monumental work—probably to be followed shortly by a similar advance in other departments—has been ordained on the ground that ruling rates have made good work impossible. The granite polisher's knowledge is as thorough in one direction as in the other, and he is an artist in the "faking" and patching of his material. This side of his nature also appears in the careful conditions prescribed by the Association, and attached to all quotations, which make it extremely difficult for the unwary buyer to obtain redress in case of failure to perform the contract. One condition reads:—"Delivery at a date is subject to strikes, lock-outs, accidents, failure of material, and unforeseen circumstances." In few cases of default would not one or more of these excuses be available, and in actual practice the clause is made to cover not only unavoidable delays, but the holding up of the contract, for it may be weeks, until a block can be obtained of the exact dimensions required, so saving the waste of, perhaps, an inch or two of raw material. Meanwhile, the consequent delay in completion of the work may mean to the builder the loss of as many pounds as the manufacturer saves pence. All quotations, too, are given subject to "buyer's acceptance and seller's confirmation," a clause which is pleaded whenever it suits the seller to back out of a quotation, irrespective of the fact that the buyer may have entered into engagements on the basis of the price given. This difficulty of holding Aberdeen granite firms to their quotations is a serious reflection upon their commercial candour.

The most recent step of the Association is a determined attempt to eliminate the merchant, or "middleman"—immediately as regards monumental work, and prospectively as regards building contracts. The Association argues that all orders for polished granite must come to Aberdeen, so that the effect of merchants or "middlemen" is to interpose an unnecessary profit between manufacturers and consumers, and artificially lower prices by the competition between themselves. Whether the Association has quite realised the full effect of this policy is doubtful, and it is pretty certain that the smaller firms—that is, the large majority of the sixty or seventy firms in the trade—have not understood some of its effects. Very few, indeed, of the polishing yards have an output large enough to warrant the sole expense of a traveller; but under the new regulation these few will gain at the expense of the many, whose interests will be without direct representation with the consumers, and for whom the merchants have done valuable and necessary service, not only in securing orders, but also in discussing details with the architects, preparing drawings, taking dimensions from the site, supervising erection, and in other ways. Indeed, from this point of view it is doubtful whether even the larger firms gain much by dealing direct with the buyers, for the expense of special journeys from Aberdeen forms an appreciable percentage in the cost price of the average contract. It is a fact, also, that merchants have increased the use of granite by their suggestions to, and persistence with, the architects, who, on the other hand, have found the advantage of having a responsible firm within easy reach.

Profound issues are raised by the policy of the Association—a policy apparently inspired more by a seeming immediate advantage and a theoretical saving of expense than by a full consideration of the question in all its aspects—present and future. This is a Free Trade country, and its atmosphere is not good for monopolies. What Belgian manufacturers have done in the marble trade may be done by Belgian or German firms in granite, given the inducement of higher

[illegible]

THE [illegible] OF BUILDING STONES*

[illegible] of [illegible] has [illegible] author, [illegible] for he [illegible] directly, [illegible] the architect and engineer, and presumably for all those engaged in building. We are told that in the course of practice our builders will sooner or later need some geological knowledge based on them; but it is not easy to say what the author exactly means by "some geological knowledge" for the need of knowing much that is in his book will never occur to anyone engaged in building. If a boy is struck on the head with a stone he gains some geological knowledge at the expense perhaps, of a painful experience; but our author very leniently means nothing so superficial as this, for his treatise is an elaborate one, and it is addressed to the inside of the head rather than to the outside. We can assume Mr. Howe that some of the best builders in the country carried on their businesses and lived and died without ever having had the need of any geological knowledge, in the sense in which he understands it forced on them. We have now a builder in our mind who, during the Gothic revival covered the land with church restorations from Aberystwith to Great Yarmouth; he could not tell a limestone from a sandstone except by working it with mallet and chisel, and it would have been an impossibility to get any knowledge of geology into his head, except through the medium of his working tools, for he was by trade a stonemason. He was a first-class tradesman, but he never had that amount of geological knowledge forced on him that would enable him to distinguish an igneous rock from a sedimentary one. Touching any particular building stone the only questions which ever occur to a builder are those which refer directly to its true working qualities, and its capacity to resist the weather in our climate. A knowledge of its mineral constituents or even of the geological formation to which the stone belongs is information of a kind which does not concern him [illegible] way affords the slightest clue to what he desires to know. The author of this work speaks to the point when he says that geology is not to be learned from books and that nothing short of a personal acquaintance with the things themselves will give any knowledge of building stones. Geologists would therefore do well to spend a few years' apprenticeship to a builder before they write on building stones for practical men.

The first portion of this book is taken up with a description of the mineral constituents of building stone all of minute value to the student of science as a help to South Kensingtonian honours and medals; to the architect and engineer it is interesting for the moment, but to the [illegible] [illegible] any way [illegible] intelligence [illegible] the [illegible] examine [illegible] stones [illegible] for [illegible] purposes in [illegible] fifteen constituents [illegible] six varieties on page 29. [illegible] and water and lime are [illegible] the majority of engineers, architects, [illegible] and they would [illegible] what conceivable value would [illegible] information be to them? Some of the minerals analysed contained titanium [illegible] Does this substance help serpentine to retain its polish if exposed to the weather? One specimen, it is noted, contained a trace of phosphoric pentoxide. Of what value is this to the stone? All certain large proportions of silica and alumina are suspicious substances when found in combination in a building stone. How do they affect its weathering qualities? No information is given on these points in this or any other textbook. Unless all this theoretical information can be applied in practice it is worse than useless, for valuable time is wasted in acquiring it which might have been spent to advantage in discovering and examining specimens already worked, and which have for some years been exposed to the weather. It would be impossible to write a theoretical work on the mineralogy of building stones without repeating almost word for word what has already been published on the subject, and the various analyses given here have, in consequence, a great family likeness to those we are already familiar with. The igneous rocks, from granites to basalts, are carefully described, as can only be done by those having ample time to examine them; but the shonkinites, the adamellites, and the monzonites are not attractive, and will fail to interest the engineer or the architect though some few souls among them, thirsting for knowledge, may be concerned to know that a holocrystalline granular, or a glassy non-crystalline rock, may occasionally have spherulitic structures developed internally, as well as one or several porphyritic growths. It is alarming to be told that there are no characteristic properties in stones quarried from hypabyssal rocks by which they may be recognised so that they may be actually in our buildings without our knowledge. This being so, we must put up with them, and hope that their weathering qualities are in no way inferior to those of better-known igneous rocks.

Sandstones and grits come next; how they were produced, from the degradation of "pre-existing rock masses" by tidal waves, rains, and frost, is described as only a painstaking skilful geologist can describe it, and all through the book where the information given is that within the special province of the geologist, it would be impossible to imagine it more correctly stated or so clearly, within the limits of a little over four hundred pages 8vo. All sandstones consist of grains of sand held together by some kind of cement and this determines its weathering qualities. The builder will do well to look with great suspicion on all fine-grained sandstones. We have invariably found them treacherous building stones; but those with a coarse grain, and isolated small quartz pebbles are fairly reliable, though they do not work well. In an old church we once examined for restoration, every fine grained sandstone was decayed, while coarser-grained stones used in the base course were as sound as when they were worked 300 years ago. We noticed, too, that sandstones coloured red were more liable to decay than those coloured green, and that face bedding or joint bedding did not appear to affect the weathering power of the stones in any way: this refers to plain ashlar work only. A singular thing in connection with the working of all sandstones is that chiselled or tooled faces comes away from the stone in thin slabs, even when quarry bedded. Working the stone confers a fissile property on it, as far as the effects of the chisel can be traced. The analysis of sandstones given on page 127 goes to show that a sandstone in which the cementing material is silica resists the weather better than one where the cement is too highly aluminous or ferruginous; but the presence of even 12½ per cent. of alumina or ferric oxide in a sandstone does not apparently affect its weathering properties, for "Pennant," which is a good stone, contains these substances in this proportion. The best sandstones for building are those found associated with the Coal Measures, and underlying them, and the worst are the "New Red," if the cretaceous do not excel them in this respect. The limestones are next dealt with, and their name is legion, varying as they do from pure calcium carbonate to mixtures of that substance with silica and alumina.

Geology would be a dismal science indeed if something in connection with it did not occur occasionally to enliven us; and here, indeed, we have cause to rejoice, for we are seriously informed that an architect has used chalk for door and window dressings. We should not be surprised to hear that this gentleman read a paper before the Institute on its value as a material for dressed stonework, seeing that the idea of using it never occurred to anyone before; and we are all so ignorant of its behaviour under the influence of a sharp frost, we would like to see it given a fair chance. We would say to the builder after this revelation, "Why use Portland, when you can get chalk?" Engineers will no doubt soon discover that chalk is the best material to carry the ends of heavy girders—its resistance to a crushing stress is so great. When they use it for abutments or piers, as our architect uses it for doors and windows, we can only pray that we may never have to travel on the road where it supports the bridge, or if we must do so, that we may get due notice to insure our life.

Slate roofs are dealt with shortly; but the explanations given are to the point and a few chapters follow on the decay and testing of stones. All of them—from granite to, we were going to say chalk, but we will put clunch instead—are liable to decay, and the architect will do well to study what the author has to say on this subject, comparing his own notes with those of the gentlemen mentioned here. We unhesitatingly assert that the chief cause of decay in our building stones is frost after heavy and continuous rain, and that those stones most liable to failure—whether sandstones or limestones, are those in which the constituent minerals are in an earthy condition. We have exposed hundreds of samples of building stones to confirmed frost, and in every case we found that failures, or partial failures resulted from the cause stated above. A stone whose pores are filled up with fine earthy matters appears to hold water, and when it freezes the stone is burst to pieces where the water has no room to expand; but in a stone where the pores are open and free from matter in an earthy condition, the water in freezing forces its way outwards and does not injure the stone. Several trial cubes of hard and soft stones, saturated with water, then dried on the outside and frozen, showed beyond doubt that in some cases the water was frozen *in* the stone, and in others that the water had come out to the faces of the stone and

* "The Geology of Building Stones." By J. Allen Howe, B.Sc., F.G.S. London: Edward Arnold, 7s. 6d.

had formed a thin coating of ice on them. With regard to the testing of stones, architects and engineers have at their disposal an immense laboratory and irresistible forces free of charge—namely, Nature itself. Does the architect want to know if chalk is a good weather stone? Let him look at any building where it has been used in the chalk counties. Does he want to know about the Upper Greensand? Let him go to Merstham Church and examine it there, noticing how beautifully it flakes off in slabs from 4ft. to 6ft. square. Does he want to test any of the New Red sandstones? Let him go to Chester. Or any of the "Old Red"? Let him go to Herefordshire and examine the east end of the Cathedral Lady-chapel. The principal quarries in this county have for ages furnished stones for all our buildings, and everywhere Nature is testing them for the benefit of those who will open their eyes and look at them. Any artificial tests, whether chemical or mechanical, will not give such reliable results as nature gives, and they cost nothing more than a little time, careful attention, and serious thought.

The author of the work before us has in his charge an extensive collection of building stones, and he is, as we have already said, an accomplished geologist, and eminently qualified to write for geologists; but we maintain that a man who has spent his life in building, and who knows something of geology, can produce a work of more value to builders, though he could teach nothing of geology to its professors. In this Journal in 1894* a quarry list was published which gave the fullest particulars of all the principal building stones in the United Kingdom; it was followed by a description of the building stones in every county, and the information given in these articles has not been superseded by anything published since. In the quarry list, the weights of the stones per cube foot were given, as also the quantity of water they take up, and this information was obtained by actual experiment on the stones themselves. Mr. Howe possibly has not thought the information worth his attention; at any rate, he vouchsafes no mention of it in his bibliography on pp. 443–436.

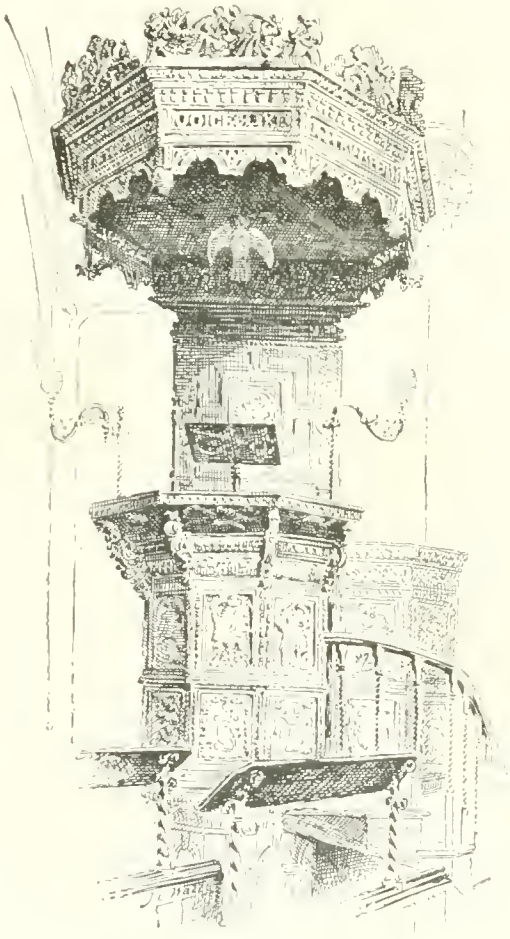
THE CHURCHES IN THE ISLE OF WIGHT.†

The publishers have been happy in their selection of Dr. Cox as the author of this volume of their excellent series of "County Churches." His personal knowledge of the island is considerable, and he has supplemented it by recourse to good information, principally availing himself of Mr. Percy Stone's "Architectural Antiquities" of the island, the "Victoria County History of Hampshire," and the co-operation of several well-informed local clergy—notably, that of the Rev. G. E. Jeans, F.S.A., the vicar of Shorwell. Dr. Cox's assimilation of the latter, however, is always acknowledged; he differs intelligently (and, we think, in one or two cases, with reason) occasionally with his authorities, and the only slight drawbacks to the result of his labour of love, executed with discretion and good judgment, are a perhaps too marked condemnation of some of the "restorers," who, after all, were not much worse than the rest of us in the early

MOTTISTON CHURCH, *c.* 1800.

Victorian epoch of zeal without discretion, and a slight lapse from good taste in his footnote on p. 103, wherein the Prince Consort is described "as a foreigner, who had no particular reverence or regard for the old fabrics and ancient shrines of the Church of England." Among the few who knew and worked with a much misunderstood man, whose early death was probably England's greatest loss during the second half of the nineteenth century, we venture to suggest this footnote should be removed from the subsequent editions the little volume will doubtless reach. The church at Newport may or may not be "a most beautiful building"; but that the Prince's warm support of the scheme for its erection was simply that of a kindly-hearted gentleman locally interested in the provision of adequate religious accommodation for his neighbours there is no doubt, and architects, at any rate, had no reason to regret his co-operation and that of Queen Victoria in "the Isle of Wight, Surrey, and elsewhere," in the building of new churches, which we much needed.

Among the traces of Romano-British civilisation, which, as Dr. Cox remarks, are so abundant in the Isle of Wight, there are none of Christian religious buildings. It was the last of all the provinces of Britain to accept Christianity in Saxon times, and yielding towards the latter end of the seventh century with some shyness to the missionary efforts of Wilfrid, who was probably regarded with jealousy as the nominee of the usurper Cedwalla, King of Wessex, and whose efforts seem to have been pretty much limited to a committal of the island to the care of Bernwin, one of his clerks, and a priest named Hiddila. The evidence that the name of St. Boniface, the apostle to Germany, is "stamped on the history of the Isle of Wight at Bonchurch," is, to say the least, in our opinion, slender. At the time of the Domesday Survey in 1087, there were certainly ten churches on the island. In 1284 there were twenty-eight. The island, which was at that time the see of a suffragan bishop, felt to the fullest extent of the religious zeal of Henry VIII. and his want of money—notably in the suppression of Quarr Abbey. He seems to have spent a good deal on forts on the island seaboard. Nonconformity seems to have gained a good foothold during the Commonwealth, and John Wesley made a considerable impression during the eighteenth century, at the close of which Leigh Richmond, the author of



THE PULPIT, NEWPORT.

* See tables of English stones, Feb. 16, March 2, 9, and 30, April 30, May 4, and June 15 and 22, 1894. Irish stones, July 13, 1894; Scottish stones, July 20 and 27 and Aug. 17 and 24, 1894. For quarry lists of English Building Stones see further the BUILDING NEWS for Jan. 12 and 26, March 7, April 20, July 13 and 20, August 3, 10, 17, 24, and 31, Sept. 21 and 28, Oct. 5, 19, and 26, Nov. 23, Dec. 7 and 28, 1900; Jan. 25 and Feb. 8, 1901. Welsh stones: March 8, April 5 and 12, May 17, 24, 31, June 28, Aug. 23 and 30, 1901. Scotch stones: Oct. 11, Nov. 1 and 29, Dec. 6, 13, and 27, 1901, and March 7, 1902. Irish stones: Oct. 30, Nov. 13 and 27, and Dec. 25, 1903; Jan. 22, Feb. 12 and 19, March 4, April 1 and 8, May 6, 13, 20, and 27, 1904.

† Isle of Wight: its Churches and Religious Houses. By J. Charles Cox, LL.D., F.S.A. London: Geo. Allen and Sons, Ruskin House. 2s. 6d.

the once famous "Dairyman's Daughter," held the churches of Brading and Yaverland.

It is quite true, as Dr. Cox points out, that while there is really no memorable church on the island from an architectural point of view, there is much variety, and diversified interest, in those churches that are left that were built in any similar area. Of the [illegible] there are few traces, and of priories have entirely disappeared; there is little left of Quarr Abbey (Cistercian), but the old pharos in St. Catherine's Downs, which the practical piety of its custodians raised to warn the mariners in the Channel, remains. The only visible pre-Conquest work is at Arreton. Norman work is visible at Carisbrooke, Freshwater, Northwood, Shalfleet, Whitwell, Woolton, and Yaverland. Transition Norman at Arreton,

ST. HELEN'S TOWER.

Brading, Brighstone, Chale, Carisbrooke, Freshwater, Newchurch, and Niton. Early English at Arreton, Brading, Carisbrooke, Newchurch, and Whitwell. Decorated at Arreton, in the clerestory windows, Calbourne, Carisbrooke, Chale, Freshwater, Shalfleet, and Woolton. Perpendicular in the towers of Carisbrooke, Chale, Gatcombe, Godshill, and Whitwell. Parts in almost every church are Perpendicular; Godshill is so throughout. The number of churches was certainly remarkable. There were one hundred in the reign of Edward III., according to Sir John Oglander, so that, although twenty-five churches have been built during the last hundred years, the accommodation is nothing like so great—even including other places of religious worship—as was provided in pre-Reformation times.

Dr. Cox gives full particulars of thirty-two parish churches, or religious houses, and nine plates, and 12 illustrations in the text. Three of the latter we reproduce. That of the Church of Mottiston, as it existed *c.* 1800, will be compared with interest with our own illustration of the existing building by Mr. Ingalton Sanders, in our issue of Sept. 30, 1910, when we also gave Calbourne Church, and an interior of Freshwater, neither of which is included by Dr. Cox. We also give the Carolean pulpit at Newport, which was saved when the new Church was built, and the west tower of the Priory of St. Helens, built early in the reign of Henry III., which still remains, having been buttressed up with brick by the Trinity Board, about the time the new church was built, as it formed a valuable landmark for the sailors.

As regards Church furniture, the Vectensian churches are rather notable for the amount of well-carved Elizabethan or early 17th century woodwork they contain. The pulpit we illustrate is one example, and there are others at Carisbrooke, Brighstone, Northwood, and Whitwell. There are richly lettered altar tables at Arreton, Brading, Gatcomb, Godshill, and Whitwell; and planner ones at Newchurch, Thorley, and Yarmouth. The remains of one has been recently "worked up" into a reredos at Shalfleet. The fonts are of no special interest. Stone Mediæval pulpits are rare; but there is one of 15th-century date, forming part of the North arcade at Shorwell, and some remains of another of the same period at Chale. The only fragment of an old rood-screen is at Arreton. That rood lofts were general is evident. A good chest of 1512 is to be found at Shanklin, and later examples at Brading and Arreton. The monuments are numerous, and of almost every date and style, from the 12th Century incised slab at Carisbrooke, bearing the figure of a prior, down to the much-admired memorial by Marochetti at Newport to Charles the First's second daughter, Elizabeth, erected in 1856 by Queen Victoria. Brasses are fairly numerous; there is no pre-Reformation plate, nor many bells.

Not only by "Church-loving visitors, and resident Churchmen," as Dr. Cox hopes, but by all who are interested in one of the most beautiful of England's islands, and its past history, and that of its religious buildings, will his volume be found of service.

REINFORCED CONCRETE DESIGN.

By Richd. Coulson, Licentiate R.I.B.A., and Richd. Coulson, Jun., Assoc. R.C.Sc.I.

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Although much has been written on the Theory of Reinforced Concrete during the past ten years, nothing has yet been published which is sufficiently clear and concise to be of any real use to the general practitioner, who, without making a very exhaustive study of the underlying principles, is still desirous of being able to either design for himself, or, at the least, to effectively check the designs of others. So far the attempts of authors have been almost exclusively confined to the latter, and even then the diagrams and formulæ are of such a complex or abstruse character, involving in most cases so many preliminary operations, as to discourage rather than help the busy man, or the man of only moderate mathematical attainments. In the following articles all extraneous or superfluous matter is excluded, and the subject presented in the simplest possible form. The leading feature of novelty is the fact that in all the direct formulæ, and diagrams based upon them, the weight of the concrete and steel forming the beam or slab is automatically included, thus entirely obviating the necessity for any trial and error, or other preliminary calculations, the diagrams themselves giving, in all ordinary cases of distributed loads, complete dimensions of beam or thickness of slab, together with area of reinforcement, weight, and approximate cost, direct from span and superload per foot, without any calculations whatever. This, it will be observed, is a most important departure, as in many instances the weight of the materials will amount to from one-fourth to one-half the total load. Another prominent feature, calling for special remark, is the "Rational" treatment of the Stirrup Theory, which is here presented for the first time. A new and "suggestive" system of Notation has also been introduced, a complete table of which follows, and should be kept for future reference.

NOTATION.

A—Area of cross-section of pillar in square inches.
A_c—Area of tensile reinforcement in square inches.
A_c—Area of tensile reinforcement for negative bending moment.
B—Breadth of footing in feet.
C_s—Area of compressive reinforcement in square inches.
D—Total depth of beam in inches = $d + c$.
E_c—Modulus of elasticity of concrete in compression.
E_s—Modulus of elasticity of reinforcement.
I—Moment of inertia of a section about the neutral axis.
L—Span of beam or slab in feet.
M—Moment of load on beam or 1ft. width of slab in tons-inches.
N—Number of positions of stirrups in each half of a beam.
P—Total load on a pillar in tons.
P′—Total load on a footing in tons.
P″—Total load on soil in tons.
R—Moment of resistance of beam or 1ft. width of slab in tons-inches.
S—Proportionate distance (relative to span) of 1st. stirrup position from centre of beam.
T—Total thickness of slab in inches = $t + c$.
V—Maximum vertical shear on beam or 1ft. width of slab in tons.
W—Load on beam in tons per foot.
W′—Weight of beam in tons per foot.
a—Arm of resistance couple.
b—Breadth of rectangular beam or acting-breadth of T-beam flange in inches.
b′—Breadth of web of T-beam in inches.
c—Thickness of concrete cover below centre of tensile reinforcement in inches.
d—Depth of beam or footing from upper surface to centre of tensile reinforcement in inches.
d′—Depth of T-beam at centre of support in inches.
f_c—Compressive stress in concrete at extreme edge of section in tons per square inch.
f_s—Tensile stress in reinforcement in tons per square inch.
f_s'—Compressive stress in reinforcement in tons per square inch.
$j = d' \div d$.
$k = b \div d$ for rectangular beams only.
l—Distance from centre of support to point at which increase in depth of T-beam commences in feet.
m—Bending moment factor.
n—Number of stirrups at each position.
p—Ratio of negative R to positive R in T-beams.
p_s—Safe stress on soil in tons per square foot.
$q = C_s \div A_c$ for beams with compressive reinforcement.
$r = E_s \div E_c$
s_c—Shearing stress on concrete in pounds per square inch.
s_s—Shearing stress on reinforcement in tons per square inch.
t—Thickness of slab from upper surface to centre of tensile reinforcement in inches.
u—Diameter of circular or transverse horizontal dimension of rectangular stirrup in inches.
v—Dimension of rectangular stirrup measured along length of beam in inches.
w—Load on slab in cwts. per square foot.
w′—Weight of slab in cwts. per square foot.
w_c—Weight of concrete in pounds per cubic foot.
w_s—Weight of reinforcement in pounds per cubic foot.
w_c'—Weight of reinforced concrete in pounds per cubic foot.
x—Proportionate depth of neutral axis from compression edge.
y—Distance between centres of compressive and tensile reinforcement in beams with compressive reinforcement.

The General Theory, with complete symbolic formulæ, will be given first, and then the reduced formulæ for fixed values, with diagrams and examples illustrating their use for various types of isolated beams or bressummers and slabs, with single or double reinforcement, T-beams, pillars, and footings, in the order named, the following assumptions being made:—

1. That the moduli of elasticity in both concrete and steel are constant.

2. That the tensile strength of the concrete is nil.

3. That the compressive stress in the concrete is directly proportional to the distance from the neutral axis; therefore any cross-sectional plane in an unloaded beam or slab will remain plane when load is applied.

4. That the stress in the reinforcement is constant over a cross-section.

5. That there is perfect adhesion between the concrete and the reinforcement under ordinary working stresses.

BEAMS AND SLABS.—POSITION OF NEUTRAL AXIS.

Let Fig. 1 represent a longitudinal section of a beam, A B a plane in the cross-section before the load is applied, A' B the

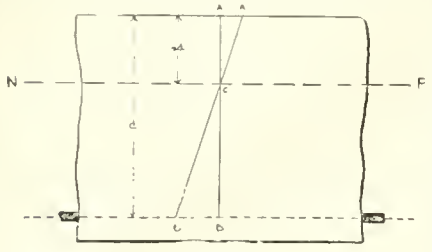


FIG. 1.

same plane after the load is applied. Then—

$$\frac{AA'}{AC} = \frac{BB'}{BC}$$

but— $AA' = f_c \cdot E$

$$BB' = f_s \cdot E_s = \frac{f_s}{r}E$$

therefore— $$\frac{f_c}{x\,d\,E_c} = \frac{f_s}{d\,(1-x)\,r\,E_c}$$

and— $$x = \frac{r f_c}{r f_c + f_s} \quad \ldots\ldots\ldots\ldots(1)$$

Equation (1) thus shows that the position of the neutral axis in a reinforced concrete beam is independent of the strengths of the materials, and depends only on the ratio of their moduli of elasticity, and the maximum stress each is subjected to.

EQUIVALENT RESISTANCE AREA.

Let Fig. 2 represent the cross-section of a beam, where A B C D is the area in compression. Then, since the stress varies uniformly from nothing at the neutral axis to a maximum of f_c at the compression edge, the average stress over the depth $x\,d$ will be $\frac{1}{2}f_c$, and the total compressive resistance of the area A B C D will be $\frac{1}{2}b\,x\,d\,f_c$, so that the equivalent resistance area for maximum f_c may be represented by a triangle with the compression edge of the beam as base,

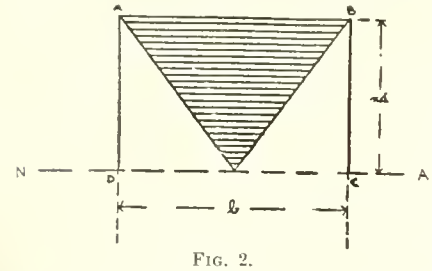


FIG. 2.

and having its apex on the neutral axis, as shown in the figure. Since a constant stress over the cross-section of reinforcement is assumed, the actual and equivalent resistance areas are identical.

ARM OF RESISTANCE COUPLE.

The arm of the resistance couple is the distance a between the centroids of the equivalent resistance areas; therefore—

$$a = d\,(1 - x) + 2x\,d\ 3,$$

or— $$a = d\,(1 - x\ 3)$$

MOMENT OF RESISTANCE OF RECTANGULAR BEAM.

The equivalent resistance area of concrete multiplied by f_c, and by the arm of the resistance couple, will give the moment of resistance of the section:—

$$R = \tfrac{1}{2}b\,x\,d\,f_c\,d\,(1 - x\ 3)$$

But— $$x = \frac{r f_c}{r f_c + f_s}$$

Therefore— $$R = \frac{b\,d^2\,r\,f_c^2\,(2\,r f_c + 3\,f_s)}{6(r f_c + f_s)^2}$$

If a beam is required to resist a given bending moment M, R must equal M; therefore—

$$b\,d^2 = \frac{6\,M\,(r f_c + f_s)^2}{r f_c\,(2\,r f_c + 3 f_s)} \quad \ldots\ldots\ldots\ldots(2)$$

If $b = k\,d$—

$$d^3 = \frac{6\,M\,(r f_c + f_s)^2}{k\,r f_c^2\,(2\,r f_c + 3 f_s)} \quad \ldots\ldots\ldots\ldots(3)$$

Thus equations (2) and (3) give the dimensions of a beam under the action of a given bending moment, the maximum stresses in the concrete and reinforcement having been fixed.

AREA OF REINFORCEMENT.

For a horizontal beam with vertical supports and normal loading, the total tension will equal the total compression; therefore—

$$A_s f_s = \tfrac{1}{2}\,b\,x\,d\,f_c$$

Substituting for x—

$$A_s = \frac{b\,d\,r\,f_c^2}{2\,f_s\,(r f_c + f_s)} \quad \ldots\ldots\ldots\ldots(4)$$

If $b = k\,d$—

$$A_s = \frac{k\,d^2\,r\,f_c^2}{2\,f_s\,(r f_c + f_s)}$$

Floor loads being usually stated per superficial foot, for purposes of calculation, a slab may be considered as a beam, where b = 12in.; then, substituting t for d, the foregoing equations become—

$$t^2 = \frac{M\,(r f_c + f_s)^2}{2\,r f_c^2\,(2\,r f_c + 3 f_s)} \quad \ldots\ldots\ldots\ldots(5)$$

$$A_s = \frac{6\,t\,r\,f_c^2}{f_s\,(r f_c + f_s)} \quad \ldots\ldots\ldots\ldots(6)$$

THICKNESS OF CONCRETE BELOW REINFORCEMENT.

For beams a minimum cover of 2in. should be allowed, so that if the reinforcement consists of one row of 1in. rods, the value of c would be 2½in. For slabs, a minimum cover of 1in. should be allowed, so that if the reinforcement consists of ½in. rods in one direction, the value of c would be 1¼in.; if reinforced in two directions, c would be 1½in.

WEIGHT OF BEAM.

The weight of a beam per lineal foot will be—

area of cross-section in square feet × w_c' 2,240,

or— $$W' = \frac{w_c'\,b\,(d + c)}{144 \times 2{,}240} \text{ tons.}$$

FORMULÆ FOR RECTANGULAR BEAMS—WEIGHT OF BEAM INCLUDED.

The bending moment due to weight of beam of span L_1, using a bending moment factor of m, will be—

$$\frac{w_c'\,b\,(d + c)\,L^2}{12 \times 2{,}240\,m} \text{ tons-inches.}$$

The bending moment due to a uniformly distributed load of W tons per foot will be—

$$\frac{12\,W\,L^2}{m} \text{ tons-inches}$$

Putting these in equation (2), we have—

$$b\,d^2 = \frac{L^2[72\,W + .000223\,w_c'\,b(d+c)]\,(r f_c + f_s)^2}{m\,r f_c^2\,(2\,r f_c + 3 f_s)} \quad \ldots(7)$$

which is a linear equation for b if d is known, and a quadratic in d if b is known. If $b = k\,d$—

$$L^2 = \frac{d^3\,m\,k\,r f_c^2\,(2\,r f_c + 3 f_s)}{[72\,W + .000223\,w_c'\,k\,d\,(d+c)]\,(r f_c + f_s)^2} \quad \ldots(8)$$

The solution of this equation may be obtained by assuming values of d, finding the corresponding values of L_1 and plotting them on sectional paper.

WEIGHT OF SLAB.

The weight of a slab per superficial foot will be—

thickness in feet × w_c' 112

or— $$w' = \frac{w_c'\,(t + c)}{12 \times 112} \text{ cwts.}$$

FORMULÆ FOR SLABS—WEIGHT OF SLAB INCLUDED.

The bending moment due to weight of slab of span L_1 using a bending moment factor of m, will be—

$$\frac{w_c'\,(t + c)\,L^2}{2{,}240\,m} \text{ tons-inches}$$

The bending moment due to a uniformly distributed load of w cwts. per square foot will be—

$$\frac{12\,w\,L^2}{20\,m} \text{ tons-inches}$$

Putting these in equation (5), we have—

$$t^2 = \frac{L^2[.3\,w + .000223\,w_c'\,(t + c)]\,(r f_c + f_s)^2}{m\,r f_c^2\,(2\,r f_c + 3 f_s)} \quad \ldots(9)$$

a quadratic in t.

SPACING OF RODS IN SLABS.

The area of reinforcement required in a breadth of 12in. is, by equation (6)—

$$\frac{6\,t\,r\,f_c^2}{f_s\,(r f_c + f_s)}$$

The number of rods in a breadth of 12in. will be—

$$\frac{12}{\text{spacing of rods in inches}}$$

which must be equal to—

$$\frac{A_s}{\text{area of one rod}}$$

Therefore spacing of round rods in inches will be—

$$(\text{diam. of rod})^2 \cdot \frac{1.57\,f_s\,(r f_c + f_s)}{t\,r\,f_c^2} \quad \ldots(10)$$

BENDING MOMENT FACTOR FOR SLABS REINFORCED IN TWO DIRECTIONS.

Considering a slab, as shown in Fig. 3, having equal areas of reinforcement per foot of breadth, in each direction, and

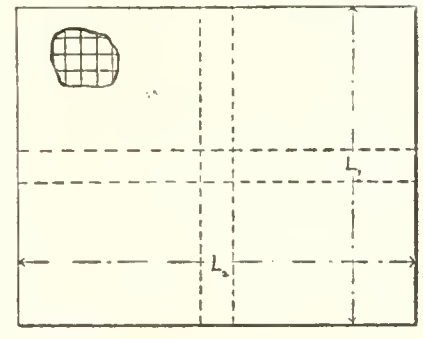


FIG. 3.

supported or fixed on all four sides. The dotted lines show the two principal 12in. breadths of the slab, each of which helps to support the load on their intersection; then, if w_1 = load per foot on span L_1 and w_2 = load per foot on span L_2—

$$w_1 + w_2 = w.$$

Since the deflection is the same for each

$$w_1\,L_1^4 = w_2\,L_2^4.$$

Therefore— $$w_1 = w\,\frac{L_2^4}{L_1^4 + L_2^4}$$

For slabs of equal span—

$$M \propto w\ m.$$

Suppose the slab reinforced in the direction L_1 only, a certain bending moment factor, m, would be used, depending on the condition of the ends; then, if the slab is reinforced in two directions, the bending moment factor used should be—

$$\frac{L_1^4 + L_2^4}{L_2^4}\,m$$

and— $$M = \frac{12\,(w + w')\,L_1^2}{20\,m\,\dfrac{L_1^4 + L_2^4}{L_2^4}}$$

or— $$M = \frac{.6\,(w + w')\,L_1^2\,L_2^4}{m\,(L_1^4 + L_2^4)} \quad \ldots\ldots\ldots(11)$$

Reinforcement in two directions is uneconomical if L_2 is greater than 1.25 L_1.

(To be continued.)

ARCHITECTURAL ASSOCIATION

Mr. Alan Snow, opening the discussion, said that to really approach a settlement, we required to bear in mind (1) the nature of large town buildings, and their necessary architectural character, and (2) the qualities, defects, and limitations of brickwork. These were much the same as Mr. Newton's two premises, but there was this difference: he would determine the material and then its effects, whilst the opposite course, the speaker held, was the proper one. The architectural world has now practically agreed that geometrical planning was desirable in large towns. This, with its angles, long lines, and curves, required geometrical elevations, depending for their effect upon continuous horizontal lines, such as stringcourses and cornices, perhaps varied, but to a very limited extent, by gables, or a small group of vertical lines. This could not be so well done in brick as in stone or some other material. It was not possible in brickwork to insure that these lines should be strongly enough marked, sharply enough defined; they lost themselves too soon in the distance. Neither was it possible to give to the projections the boldness, and to the enrichments the clear-cut expression so necessary for the attainment of true dignity and beauty. No one would assert that the intended purpose and effect of a cornice or stringcourse was as well realised in brick as in stone. Did anyone really hope to obtain the beautiful effects of a long length of curved moulding when he must construct even its simplest curve in two or three horizontal divisions, or else make it so small as to be without effect? The small unit of brick warred against the desired effect of mass and dignity; it was out of scale, and was only successfully used in subordinate positions, in buildings where the principal lines and effects were due to the use of stonework. Suppose we built our town building six or seven stories high, and several hundred feet long, entirely and naturally of brick. What was it going to look like? What was going to happen to it? Perhaps we might rely on texture and beautiful colour. Warmth of colour and variety of texture were the distinctive qualities of good brickwork; but those same qualities, which were amongst the chief reasons for the revival of brick building in our country work, could not be relied upon in our large towns. The brick was either a hard and repellent material, or its surface made of it a natural collector of dust, inevitably present in all large towns, and which adhered to the brickwork, and in time became ingrained in it, when our once beautiful piece of colour became dull and of a drab monotony. The effects of colour and texture, of which Mr. Newton spoke, could be only appreciated when within the natural range of the eye. The old brick buildings of which we were so fond were seldom more than three stories high. The chambers of Gray's Inn and the Temple could not be likened to the modern block of flats or offices. Perhaps we might go further than to simply rely on colour and texture, and aim at obtaining effect by pilaster or panel treatment, but could one finish this at the top in a satisfactory manner? If one was aiming at effects of line, obtained by shadows cast by one plane upon another, here, just as with the horizontal lines, the material would prevent one from really gaining one's end. One could not get the lines sufficiently defined owing to the joints, and, worse still, the shadows were dulled and spoilt. Here we came up against one of the chief objections to the use of bricks in towns. The dull surface was incapable of reflecting light, and, indeed, might be said to absorb it. Our towns, being the dull places they were, and our streets of lofty buildings excluding all the light they do, this was a very serious defect. Let them call to mind some of our streets of brick, and say if they admired them. Let them think of Victoria-street, Harley-street, Tottenham Court-road, and innumerable streets in Bloomsbury and Kensington, but, collectively what poor, dull streets they formed. Which were preferable, the stone or the brick buildings of London, or Liverpool, or Berlin, or any other large town? Brick, in fact, had proved unsuitable in every way in large town buildings. It became dirty, losing colour and light, and the size of the brick, a dimension far too familiar to all the world, was quite out of scale with the size of the building. Large town architecture required a larger treatment than brick will allow of; the best possible effect should be aimed at, and would not be obtained by the use of brick. Large masses of brick in a town became dull and monotonous, and we could not give the brickwork that natural setting of green trees and blue sky, against which it looked so fascinating in the country. It is so much a natural material that it required a natural setting. Both Greeks and Romans used it in their largest buildings, but always concealed it, and the Byzantines evidently did this in recognition of the fact that in them brick was an unsuitable material, at any rate for display, for in their smaller buildings they used it deliberately, obtaining effects with it which were charming, but necessarily small in scale and design, and inapplicable to large building schemes. Something of the same recognition of the charm of brick in small work, and its unsuitability to large work, appeared in the buildings of our 18th-century forefathers, who knew certainly as much as we do about town architecture, and never used brick in important streets without disguising it. In the familiar Georgian buildings, old and new, which we all admire so much, all the effects which combined to make up their charm were obtained with other materials. He maintained that brick was not an eminently suitable material for large town buildings, because with it the necessary and proper effects for town architecture could not be achieved; because it did not retain its inherent æsthetic qualities, and acquired no others; and because it was possible to construct as efficiently, and often more efficiently, with other materials.

Mr. H. Franklyne Murrell thought the lecturer's appeal to the historical use of brickwork unconvincing, because it did not go sufficiently far. Mr. Newton had omitted to refer to the large proportion of joints in brickwork as compared to masonry; it might be said that the proportion of joints to solid materials was one in five in brickwork, and often not more than one in one hundred in stonework. One result of this was the liability to dilapidation in brickwork; the direction, "rake out and repoint," occurred only too frequently in the specification.

Mr. G. Fildes supported the lecturer in his views, as he regarded brick as a suitable material for town buildings. As for the trouble with the mortar joints in brickwork, masonry was very liable to scale off in a town atmosphere, and the replacement of decayed stones was even worse than repointing.

Mr. Herbert A. Hall differed from Mr. Newton. He thought serenity and quietness were not the qualities we needed in a city building. An architect had no right to use stone unless he had evolved a good design. He should like to see appointed a Minister of Fine Arts, who should decide upon the facing material in relation to the character of the design; an admirable scheme should be licensed for execution in Portland stone, and a very poor one should be condemned to be carried out in brickwork. An architect in practice often had visits from men who produced samples of hard yellow bricks, which they asserted could not be broken or eroded—bricks of an utterly unpleasant texture and colour, which they imagined would be specified by the architect solely on the ground of their excessive durability. He would say, use brickwork in the country, where the building had to be inconspicuous as possible, but in a city employ stone. An objectionable and too common use of the two materials was to employ the poorer and less expensive material, brick, as a panel, enframed in stone. To set narrow bands of brickwork, two or three courses deep, in a stone frontage flush with the masonry was also very unpleasing, and showed a want of appreciation of the relations of the two materials. A hewn material was intrinsically nobler than a plastic material afterwards burnt.

Mr. D. A. Foster thought brickwork eminently suitable for city architecture. Stone surfaces grew just as dirty as those of brick in a smoke-laden atmosphere, and brickwork had one great advantage for cities which had been overlooked in its fire-resisting properties.

Mr. V. R. Talvalker also supported the lecturer's views, observing that the Pantheon and other great Roman buildings of brick were large in scale and monumental in character and effect. As for public buildings, our libraries and hospitals and other institutions were nearly all of brickwork.

The President, in putting the vote of thanks to the meeting, said it was with peculiar interest he had listened to the paper, owing to his own long association in business with the lecturer's father. He could not agree with Mr. Newton in coupling terracotta with brickwork. The two materials were quite dissimilar in character and expression, and terracotta demanded a treatment such as was given to stonework. Again, brickwork was used in this country long before the 17th century. In older work, brick walls, and even brick chimneypieces, were plastered over and jointed to resemble stonework. Mr. Newton was right in laying emphasis on the permanent character of brickwork. He felt that brickwork was not the best material for city buildings, for architecture in cities depended for its effect on long horizontal lines, and these could not be secured in the material, owing to its small parts. Cornices had either to be executed in stone or woodwork, or to be kept very shallow in projection. A very successful modern building in brickwork was the town-hall of Leicester, but this owed, it must be admitted, much of its character to the contrast with its bricks of stone dressings very boldly used. Wren employed brickwork for many of his smaller City churches, and always in a homely, domestic manner, very quiet and charming in effect.

The vote of thanks was passed by acclamation, and was briefly acknowledged by Mr. Newton.

BUILDING NEWS DESIGNING CLUB.

A VILLAGE READING-ROOM AND GREEN KEEPER'S LODGE, WITH ARCHED GATEWAY TO RECREATION GROUND.

It may be a commonplace, but the remark is, nevertheless, true, that some of our most eminent architects in their "day of small things" first obtained recognition for minor domestic work, and in this category rank the notable red-brick lodges in Regent's Park and Kew Gardens which the late Eden Nesfield designed half a century ago, when both were much talked about, and they have often been alluded to since by foreign writers on modern architecture. The advances made meanwhile, however, in this class of architectural undertakings have outdistanced most of the examples then thought remarkable, and English architects stand to-day well ahead of their contemporaries abroad in this particular of domestic architecture. The widespread response which we have received in the present competition for a countryside lodge and gateway to a village green, combined with a small reading-room, may, perhaps, be said to go far to maintain the correctness of this asseveration, while the general standard of merit displayed by our contributors, at any rate, can be described as very satisfactory. The draughtsmanship is less flippant than some students have thought fashionable of late, and it is encouraging to note that the criticisms which it has been our business to continually make when reviewing the designs submitted by members of our Club, appear on this occasion to have been acted upon more than heretofore, greatly to the improvement of the competitive contributions.

The combination of a lodge, reading-room, and gateway on the skirts of a village green or recreation-ground presents an ideal opportunity for imaginative ideas, comprehending as it does the attractions consequent upon being new, picturesque, and practical. Unfortunately, some of the competitors have failed to attend to the plainest of plain instructions, worded as they were, so carefully that no one was left an excuse for making any such mistakes as some of the members have fallen into. We stated, as clearly as words would permit, that the archway must be set back ten feet from the frontage line, and having the custodian's room, opening out of the reading-room, contiguous to this

a lawn along the frontage, with forecourts and posts with chains to each.

"Mount Zion" is also too ambitious, piling up his centrepiece over the gate, and putting the bedrooms there so as to warrant this sixteen on. The projecting octagonal turrets, with their ill proportioned doors to the porches, cannot be accounted a success. The back elevation is much the better of the two.

"Liver" adheres to "the order of the going," but makes his side buildings too tall for good effect, and by contrast the central opening looks unduly dwarfed with its elliptical arch. The tools place out of this throughway spoils the porch and cramps the vestibule. The cottage is convenient with bedrooms on the upper floor, and generally the plan is well arranged and not badly drawn.

"Grasshopper" marks the pleasure ground entry by a saddle back roofed tower, which serves no practical use, and even the niche, so conspicuous on the front, is empty. The plan has a very dark central hall in the lodge, but otherwise the scheme shows merit and follows the instructions.

"Briton" puts a sort of double-fronted, villa like building on the right hand, with bays, and a not inconvenient reading room to the left, and connecting both by means of wing walls to the detached central gateway, beyond which is a drinking fountain in the middle of the roadway, where children would congregate and mess about with the water. The design is commonplace.

"Cada" possesses a sense of the unsophisticated simplicity embodied in the truly picturesque, and this recognition of his appeals to our approval; but in working out his scheme he fails because of two initial faults: firstly, the poverty of his planning, both in defiance of the conditions, and secondly because he has made the premises look so like a stable building. His sectional details are poor, and drawings somewhat indifferent.

"Pylon" shows little idea of grouping the drawings on his sheet, so that had we wished to reproduce his work we could not have done so without cutting up and rearranging it for illustration. His plans are quite good, and comply with the provisions stipulated. The elevations also are unexceptional and cottage like; but the view fails to give a favourable idea of the proposal, which, on the whole, deserves no higher place in the list. The author ought to do really better things.

"Kay" submits a symmetrical scheme, distinguished as too ambitious a conception of our intentions by furnishing a severe rendering of Late Classic ponderousness, which suggests a frontispiece to a dismal looking 18th century mansion instead of a village playing field. The plan, however, is rather a good one, and the balance externally is complete. The stove in the middle of the reading room spoils that apartment, and the scullery ought to be next the yard, instead of being set right in front of the house. At any rate, "Kay" does work to a given style, and draws in sympathy with it. His lettering, however, is much too big for the title, and monstrously out of scale with his delineations.

"Granite" is modern or nothing. The brick oven out of the living room nevertheless ill accords with contemporary usages; but then the ingle to the reading room had to have its counterpart, and so the oven occurs in the space left by the canted projection, introduced to balance the plan with the other side. The lay-out generally complies with our stipulations, and "Granite" did try to do the proposal justice. The semicircular-headed window to the first floor bedroom does not match that of the reading room, but the effect is most indifferent.

"Prospero" is simple and elementary, compiling a design which, with a little more judgment might have ranked much higher. The shaped aprons to the reading room windows are a mistake, and the great archway to the porch looks out of scale. The porch and custodian's room should have been recessed. The tiled top to archway wall is in a way quite good, but is not important enough as here managed. The lodge plan is poor.

"Batten" suggests a village school of Early Victorian date. The plan is indifferent, with an open gallery at the end of the living-room by which to reach the cramped-in bedrooms above at the rear, set under the steeply-pitched roof.

The remaining designs are by "Toby," "Mike" (who uses odd pieces of paper), "Arte et Labore," and "Ink Splash." The instructions were as follows:—

A Village Reading-Room and Green-keeper's Lodge, with Arched Gateway between. The site stands on the verge of a village recreation-common, already enclosed for public use with a 6ft. oak fence by the county council and by the local landowner's liberality. These buildings are to be erected close to the parish church, so that a picturesque and simple treatment architecturally is intended. The style suggested is plain "Queen Anne" or Early "Georgian." The ground is level, and the front faces S.E. On the west or left-hand of the central archway, the reading-room, 30ft. long by 18ft. wide, is to be put, with an outside porch facing N.E. at the rear end, and a small room for the custodian and storage of books, say, 9ft. square or of that area, is to be located projecting on the N.E. side contiguous to the archway, which is to set back 10ft. from the frontage line. The public path in front of that line is 10ft. wide. The lodge is to occupy a similar position to the right-hand of the archway, and it must balance the composition in a general sense, though, of course, the arrangement of the house may qualify its external design in contrast with the reading-room so far as need be. Each building should, however, be treated as a counterpart to the other. The lodge, which must be in a small yard, enclosed by a screen wall at its rear, is to provide a good roomy porch entered from the high road, and to correspond in the lay-out of the plan with the room on the other hand of the archway as to size. A living-room fitted with a kitchen range, scullery, and offices, and two bedrooms all on one floor, perhaps; but this point is left optional as to one floor or two. The archway to be 10ft. wide *in the clear*, and to have a gable or pediment over, with flanking piers or buttresses to give a solid look, and to have a good pair of wrought-iron gates not over-florid in design. Materials brick and tile, wooden window-frame, and iron casements. A view required. Scale 8ft. to inch.

MONUMENTAL BRASSES.

By the aid of the brasses now preserved in St. Albans Cathedral, Mr. Chas. H. Ashdown, on Thursday afternoon in last week, described to members of the St. Albans and Herts Architectural and Archæological Society, at the cathedral, the origin, use, prevalence, composition, and production of monumental brasses. He also described the military garb displayed in those brasses, while Mrs. Ashdown dealt with the civil and ecclesiastical costumes. The meeting took the form of a peripatetic lecture. The study of monumental brasses, said Mr. Ashdown, is becoming more and more popular every year; but to the great majority of those visiting a church they are merely objects of passing interest. Beyond knowing the simple facts that they are memorials of persons buried there, that a large number of them are of considerable antiquity, and that some present grotesque figures habited in strange garbs, the general knowledge of the public does not extend. To the ecclesiologist and the antiquarian generally they are a priceless possession, recalling as they do the habiliments of bygone centuries, the art of the engraver, the skill of the workers in metals, and, chiefly, the name, age, and date of demise of thousands of persons whose names might otherwise have been lost. These almost imperishable monuments of past ages were introduced early in the 13th century, and are particularly prevalent in those counties where stone suitable for effigies is not to be found. Remembering the enormous expense of transporting heavy loads of stone over the execrable roads prevailing in the Mediæval period, and also the delicate nature of stone effigy and its liability to damage by frost, fire, and vandalism, the advantages of a brass slab were readily recognised. As a consequence, we find brasses only in particular localities. Broadly speaking, they are confined to the south-eastern and south-western counties of England and the South Midlands; there are only about ten brasses in the whole of Wales, eight in Cumberland, and not a single one of ancient date in Scotland. Upon the Continent practically none are in existence, the many revolutionary changes having swept them away. Hertfordshire, though a comparatively small county, ranks fifth in the list as regards numbers of these memorials, Kent and Norfolk are the richest, with Essex and Oxford coming next; Hertfordshire ties with Suffolk and Buckinghamshire, each containing about half as many as Kent. At the Reformation about 20,000 brasses were in existence, of which probably 5,000 still remain. It is necessary to be vague in estimating numbers, for brasses are continually coming to light, and still occasionally disappearing. The vicissitudes of brasses form very interesting reading. Hundreds have been melted down for making bells, scores have formed the bronze from which cannon have been cast. At times they have been sold by the ton. Gough mentions two tons sold to a brazier. One brass, at least, was recovered, after having served as a fire-back for centuries, little the worse for its experience. Mediæval brasses are intensely hard; their composition varies, but generally approximates to an alloy of 64 parts of copper, 30 of zinc, 3 of lead, and 3 of tin. Imported plain brass sheets generally came from Cologne, seldom more than 3ft. long. It is a true brass, similar to our door-knockers, taps, etc. In ancient times it was always termed latten. Many churches (like St. Albans Abbey Church) contain matrices or indents of lost brasses, indicating the spoliation which has occurred. Hitchin Church was at one period paved with brasses, as may be seen at the present day by the matrices. A brass was fixed down to its matrix by means of pitch and brass rivets embedded in lead. The matrix is at times called the indent, or casement. The earliest brasses were richly enamelled, all the heraldic charges, the colours of ecclesiastical vestments, the jewels upon croziers, and ladies' necklaces being faithfully rendered. The "Say" brass in Broxbourne Church still preserves some of its enamel. Unfortunately, the expansion and contraction of the metal, through variations of temperature, caused the enamel to become loose, and but few examples of this characteristic now remain. The art of enamelling was introduced in the 12th century, coming from the East viâ Venice. It was called Limoges enamel. St. Albans Abbey Church was exceptionally rich in brasses. Mr. W. Page has found seventy-nine matrices. The number of brasses loose or in position is about thirty. Thirteen loose brasses are preserved in the Wheathampstead (Wallingford) chantry. The oldest record of a brass is that of Simon de Beauchamp, Earl of Bedford, 1208, now lost; the oldest in existence is at Stoke d'Abernon, Surrey, 1277—that of Sir John Daubernoun, and military in character; the oldest of a lady is that of Lady de Camoys, of Troton, in Sussex, 1310. The 13th-century brasses were principally of ecclesiastics; but not one of these had survived. There were three military brasses of this period still preserved—those at d'Aubernon, Trumpington, and Bushingthorpe (Lincs.), 1290. The early British brasses were thick and heavy, and sometimes extremely large, some of the figures being nearly 7ft. in length. Describing the difference between the English and Flemish brasses, Mr. Ashdown said the former were in pieces, with the marble showing between, and the Flemish were all in one piece. He commented upon the upside-down inscriptions, because only about one in a hundred could read: hence the mistakes so frequently made by workmen in the rendering of those inscriptions. Between 1300 and 1350 the inscriptions were usually in Norman French and Lombardic characters; after 1350 they were in Latin and Church text. The earliest indent in St. Albans Cathedral was that of John de Berkhamsted, who was abbot from 1291-1302. The design and workmanship of the brasses executed between 1350 and 1400 was good, and was characterised by the use of animals at the feet of the figures—lions for gentlemen, and dogs for ladies. These animals usually faced to the left. In the case of the brass to the Lady Vernon at Tong, Salop, an elephant was introduced at the feet, which was unique. Between 1400 and 1450 the art of brass-engraving was at its zenith. During this period elaborate canopies were introduced, and the figures of children also appeared; but during the succeeding half-century cross-hatching came into vogue, which destroyed their clear simplicity. From 1500 onwards there was a decadence of brass-engraving, and the introduction of chrysoms, cadavers, and skeletons, with inscriptions in English. It was pointed out that in three instances in St. Albans Cathedral—namely, in the brasses to De La Mare, Halley, and Rowlatt—the date of death was omitted.

Mrs. Ashdown used, for the purpose of illustrating her observations, a number of brasses which are preserved in the chantry of Abbot de la Mare. The first, she said, was of date about 1465, and the person it commemorated was a merchant. The tunic was lined with fur, and had full sleeves derived from the leg of mutton which prevailed from 1400 to 1450. A large rosary depended from the girdle round the waist, and he wore the long pointed shoes of the period. The brass of Thomas Rutland, sub-prior of the monastery, who died in 1521, represented a Benedictine monk, habited in tunic and cowl. There were only about six such examples in existence. Next was a palimpsest brass, supposed to be that of Abbot de la Moote, who died in 1401. This brass was nearly complete in 1643. It showed portions of the maniple, chasuble, dalmatic, stole, and alb. A part of the pastoral staff was also shown with vexillum attached. The reverse of this palimpsest showed the lower part of the figure of a lady, at whose feet was a dog with bells round the neck. This was probably a brass which was executed about the same time, but was spoilt in the workshop. In the brass of a civilian which Mrs. Ashdown placed at about 1470, the head, unfortunately, had been broken off; the unusually large rosary had seven beads instead of the usual six. Although there were only five years' difference between this and the brass first described, the sleeves already showed the stiffness and correctness which afterwards was a prominent feature during the reigns of Henry VII. and Henry VIII. Mrs. Ashdown described the brasses of Bartholomew Halsey (or Halley), and Florens, his wife, who died in 1468. The lady's costume was the short-waisted gown of the period, with low neck, tight-fitting sleeves, with cuffs, and she wore the horned headdress with pendent veil, and there was the usual dog at her feet, with bells round its neck. Ralph Rowlatt, whose brass was next described, was a merchant of the staple of Calais, who died in 1543. He was represented as habited in a long gown edged with fur, the sleeves being decorated in the same way. The hair was long, of a fashion prevailing twenty years previously, and, as the brass was not dated, that probably showed the time when it was executed. He was one of the ancestors of the celebrated Sarah Jennings, who became Duchess of Marlborough. Coming to the brass of Thomas Fayrman and Alice his wife, Mrs. Ashdown stated that Thomas Fayrman was a merchant of the staple of Calais and bailiff of St. Albans, who died in 1411; his wife survived him, and afterwards became the wife of Adam atte Welle, who was steward to King Henry IV. They lived at Hall Place. Thomas Fayrman was represented as wearing a chaperon upon his head, and was dressed in a houppelande, with leg-of-mutton sleeves, tight at the wrist. The high collar of the houppelande was very characteristic. The shoes were long and pointed. The anelace, or short sword carried by civilians, was hanging upon the left side. The lady wore a reticulated headdress, the

wo cauls being apparent on either side of ne face, and a veil covering the head and depending in front. The humpelande she ore was, strangest to say, covered round the ecast by the broad belt so characteristic of the early part of the 15th century, but generally placed round the robe. Of the famous brass of Abbot de la Mare Mr. Andrew gave the following d[escription]: "It is interesting to note that only two [brasses] have been preserved to [the present day], and the other at Westminster Abbey, 1498. [The latter] is now very mutilated. The one at possesses because of its early [date], fine workmanship, and [illegible] that [the] time of the abbot [who died] in 1396. The name has never been [inscribed]. The [figure] is of the tall form, and decorated with leaves and two small medallions. You are probably aware that the cleft in the mitre is symbolical of the tongues of fire of the Day of Pentecost. The amice is very open at the neck (not so low, however, as the fashion prevailing before this date). It is apparently decorated with griffins. The chasuble, the essential Eucharistic vestment, has a very large orphrey, shaped like the pallium of an archbishop. The graceful folds of the chasuble of this period are quite different to the set stiffness of a later time. The maniple was formerly held in the hand, and was simply a handkerchief, in the Saxon period, with which to wipe the perspiration from the face and hands. In due time it was transferred to the wrist and ornamented; but, curiously enough, was called the maniple, though no longer held in the hand. It is here ornamented with quatrefoils and lions' heads, and the usual fringe at the ends. The gloves are jewelled, and the hands hang downwards as a token of humility. The dalmatic appears below the chasuble; it is edged with embroidery and fringed. Beneath that is worn the tunic. The stole appears beneath the tunic; but only the fringed edges are shown, which are similar to that upon the maniple. The alb is the lowest vestment to be seen, with its square apparel of orphrey-work or embroidery. The shoes are of elaborate workmanship, and the feet rest upon two animals fighting—probably symbolical of the abbot maintaining order and trampling discord under foot. The crozier lies in the bend of the left arm, and has the "Agnus Dei" in the crook. The background has an elaborate diaper-work eminently characteristic of the Mediæval period. In the delicate canopy-work above and around the figure of the abbot there are a number of figures—seven in the upper part, and fourteen in the lower. One of the most conspicuous is that of St. Alban, while the figure in a similar position on the right is that of St. Oswyn, King of Northumbria. The shrine of this saint was at Tynemouth Priory, and Abbot de la Mare was Prior of Tynemouth before being Abbot of St. Albans. This brass, quite apart from its value as being one of the only two brasses of abbots in existence, has an additional interest in being by far the most magnificent example of any ecclesiastical brass in the British Isles or on the Continent.

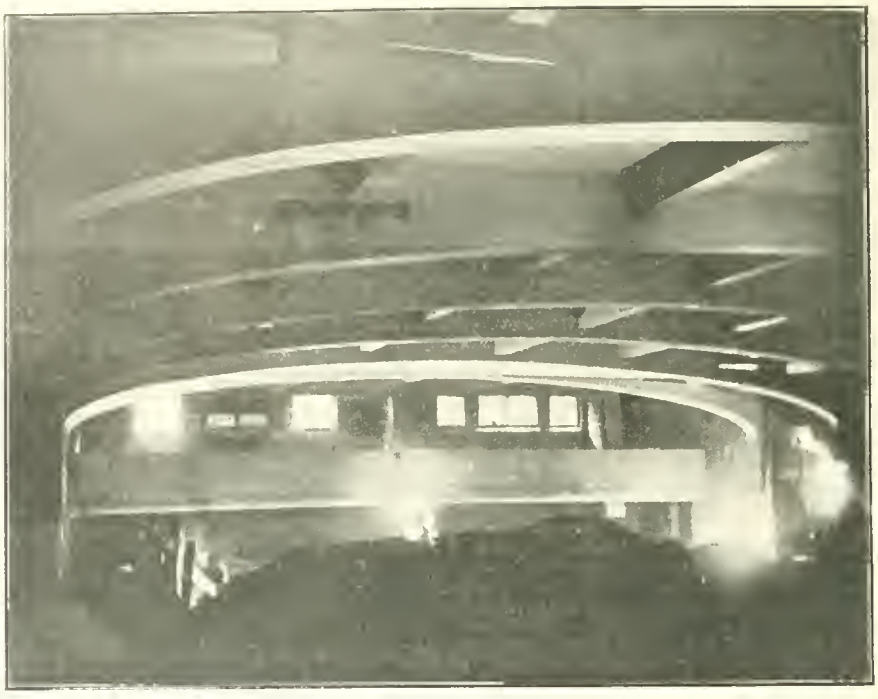
REINFORCED CONCRETE BUILDINGS IN LONDON—II

By Wm. G. Shipwright, M.C.I.

THE NEW Y.M.C.A. BUILDING, GREAT RUSSELL-STREET: ROWLAND PLUMBE, F.R.I.B.A., ARCHITECT.

The rigid rules which applied to the older type of steel joist and concrete work are not applicable to the reinforced work of to-day. The adaptability of this combination of material lends itself to practically any shape or form which the designer desires to import into his creation, and inasmuch as the confluence of design and construction is the keynote of the architect's art, it is obvious that the design should be formulated primarily with the object of advantageously expounding the new methods of construction rather than its mere adaptation to an old standard of design.

* See illustration in the Building News for October 6, 1876.



REINFORCED CONCRETE CEILING IN GYMNASIUM.

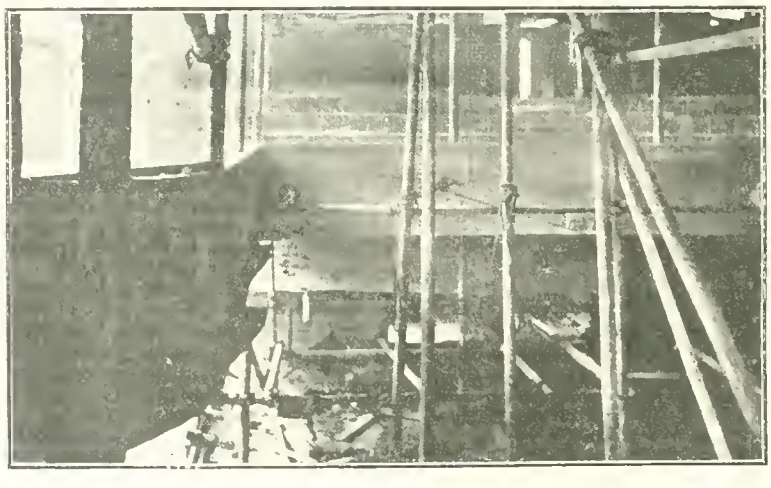
A remarkable instance of this was given in the preceding article (published Dec. 31, 1910), and another extremely interesting example from this point of view is to be found in the new Y.M.C.A. headquarters in Great Russell-street, designed by Mr. Rowland Plumbe, F.R.I.B.A., some notes on which appeared in this paper of March 25, 1910.

Some idea of the magnitude of the structure may be gathered from the fact that the block occupies an island site with frontages in Tottenham Court-road (106ft. 9in.), Great Russell-street (225ft.), Caroline-street (148ft. 10in.), and Bedford-avenue (225ft.).

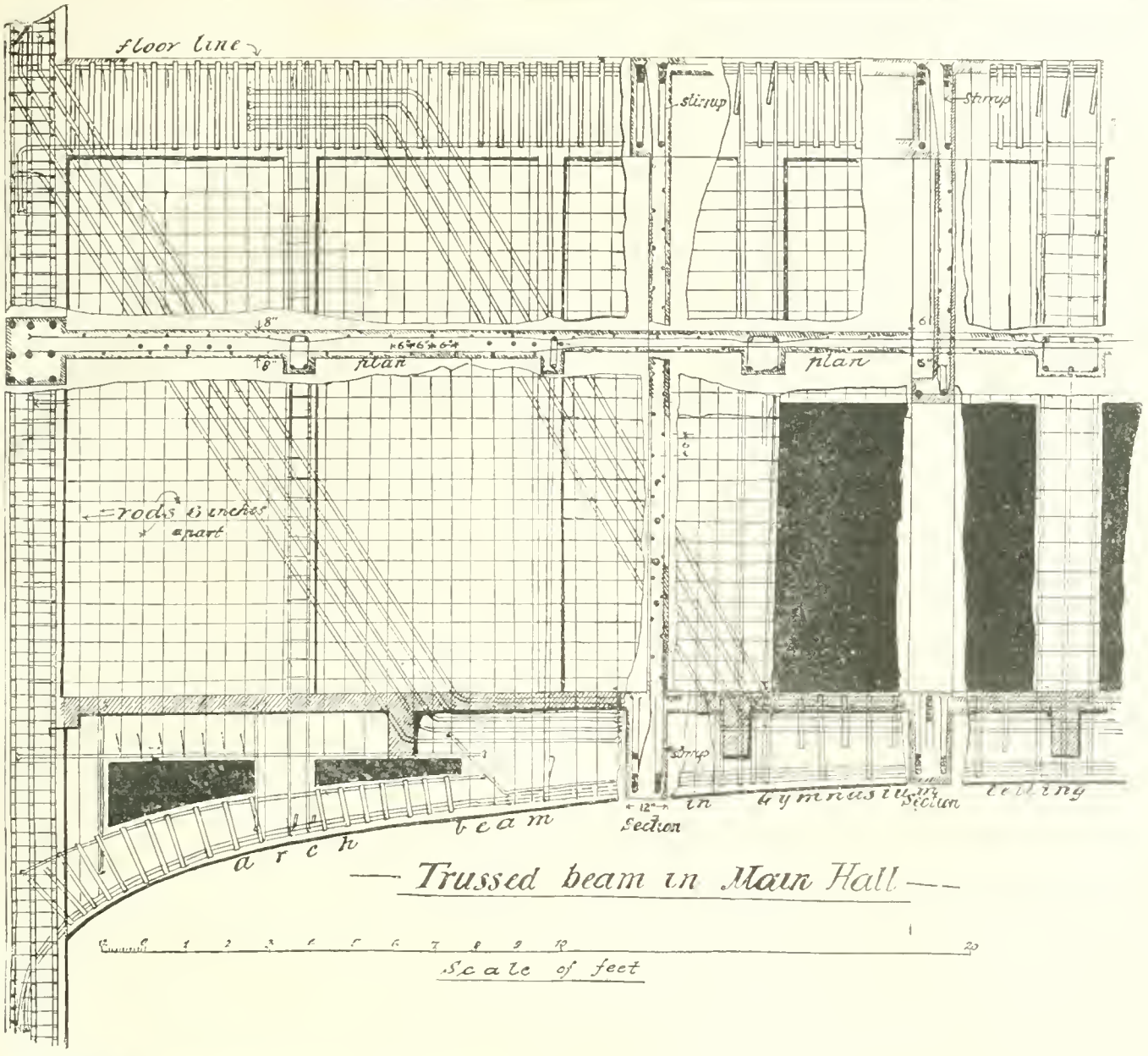
The principal entrance, which is placed centrally in Great Russell-street, gives approach to the main entrance hall, a circular chamber 43ft. in diameter. This hall affords direct access to the Club Restaurant, the public restaurant being situated beyond the club room, and provided with a separate entrance, forming the central feature on the ground floor of the Bedford-avenue elevation.

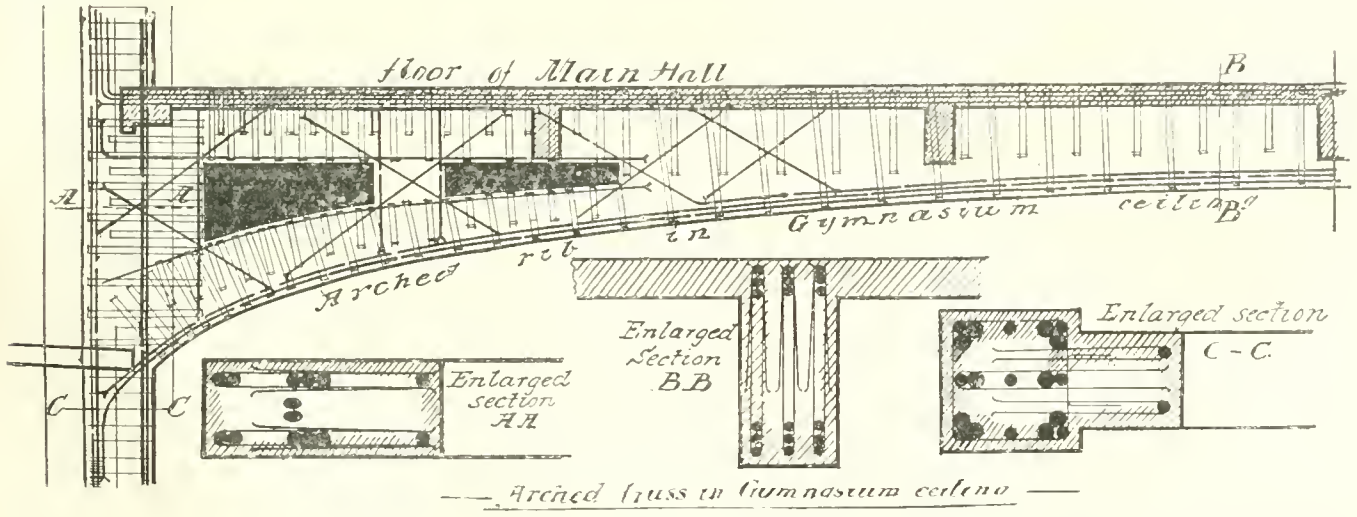
The large hall, an apartment 70ft. long and 48ft. wide, is situated to the right of the entrance hall and restaurant, and occupies the corner of the site flanking on the Bedford-avenue and Caroline-street, the small hall (52ft. by 36ft.) occupying the Great Russell-street and Caroline-street corner of the block, whilst that portion of the site between the latter thoroughfare and the entrance hall, with a frontage in Tottenham Court-road, is utilised for a range of shops, the average depth of which is about 70ft. The main hall, a lofty apartment with an arched ribbed roof, is provided with a gallery at the first floor level, whilst a large gymnasium and swimming-bath occupies the space in the basement below the main hall.

Practically the whole of the interior construction is carried out in reinforced concrete, the more interesting features from this point of view being the main hall, gymnasium, and swimming-bath, the entrance hall, grand staircase, and the roof construction. The main hall, which, as already stated, occupies the ground and first floors directly above the gymnasium in the basement, is, in conjunction with the latter, practically one piece of construction. The ceiling of the gymnasium, constructed in bays of concrete, 8ft. square and 5in. in thickness, provided with a lattice reinforcement of small steel rods, is supported by five longitudinal girders which traverse the gymnasium from front to back. These beams, in common with the generality of the rectangular beams in the building, are reinforced with stout steel rods and flat metal stirrups bent round the rods and bedded into the concrete. The longitudinal girders are supported on a series of gigantic arched ribs, having an effective span of 50ft. These arches have a maximum depth of 6ft. at the



REINFORCED CONCRETE WORK: LARGE HALL—GALLERY.

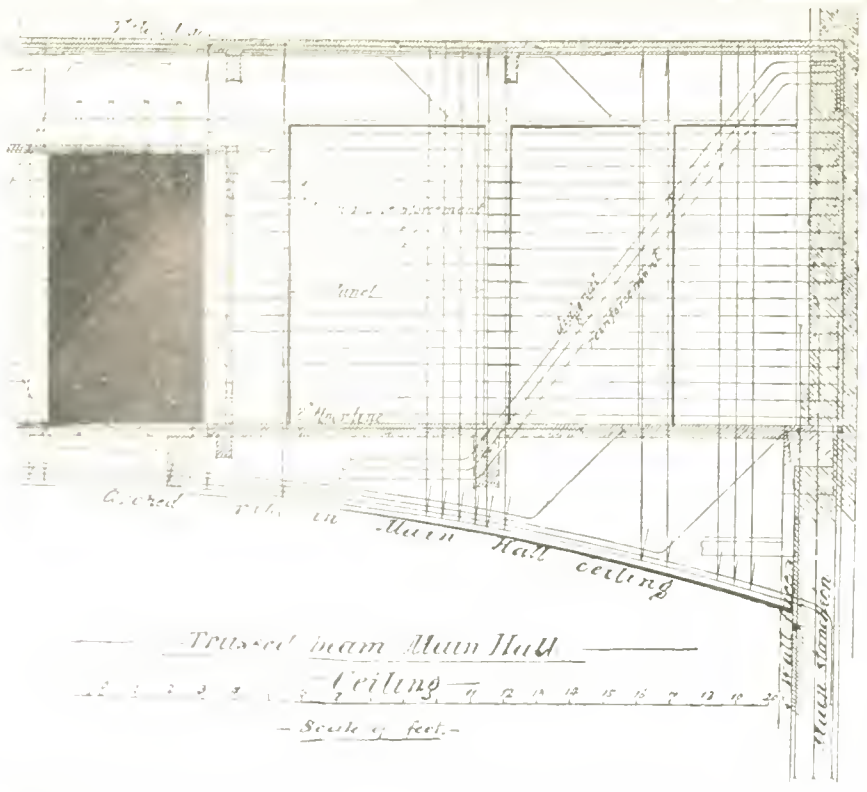




springing, and a minimum of 2ft. at the crown, the thickness being 12in. throughout. The main reinforcement, in both tension and compression booms, consists of nine large round rods, flat steel stirrup connections being provided throughout, and the shear resistance further augmented by diagonal rods disposed in lattice form. The main rods are bent and carried some distance up to the reinforced stanchions, which are built into the flank walls to support the main arched girders.

The gallery in the main hall is constructed on the cantilever principle entirely in reinforced concrete, anchored back into a reinforced beam. This beam, which has a depth varying from 17ft. 6in. to 21ft. 6in., and a span of 50ft., is designed on principles of resistance somewhat similar to those governing the construction of ordinary trussed steel girders, and, passing right through the hall floor, it performs the dual function of supporting both gallery and area floor in the main hall.

The compression boom is reinforced with eight round rods and close U stirrups, whilst the construction of the arched portion in the gymnasium ceiling has been varied from that adopted in the previous illustration by the provision of ten steel rods to render it more suitable to resist the increased tensile stresses. The diagonal and vertical members are, it will be seen, constructed with 2, 4, 6, 8, and 10 rods respectively, to meet varying stresses to which they are individually subject, whilst the panels of the partition

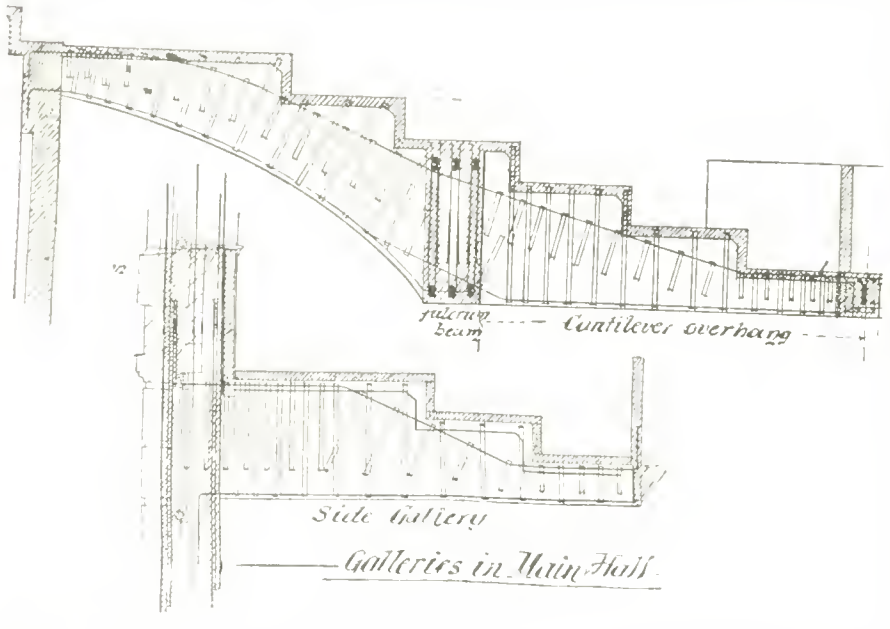


... 6½ to 8in. of solid concrete, with ... bar latticework reinforcement throughout, ... being extensively employed to ... homogeneity between the steel and ... crete at the more heavily stressed ...

... enlarged portion of the gallery which ... maximum projection of 21ft. is supported ... series of combination beams and ... the main reinforcement of which ...

Provision has been made for the accommodation of some general rooms above the main hall, the arched trusses employed to support this floor forming a feature in the design of the main hall.

From the illustration of one-half of the span of a large trussed beam in the main hall roof, it will be seen that heavy rod reinforcement is provided to resist tensional and compressional strain, the vertical members being bent round the former and returned into the solid concrete. Diagonal rods are also provided to resist the shearing stresses, assisted by bending some of the tension and compression bars, which, as the bending stresses diminish nearer the points of support, are turned diagonally into the concrete to augment the resistance to the increasing shearing stresses.



... arrangement ... the ferro-concrete ... precisely illustrated and after passing ... through ... tal ... girder ... locally ... to the reinforcement members of the ... rib.

The fulcrum beam, which is 18in. wide ... possesses a dual reinforcement of six heavy ... rods. The maximum overhang of the ... gallery is 10ft., and the ingenious manner in ... which the extra depth required at the fixed ... end of the cantilever has been obtained to ... the depth of the floor merits especial notice. ... The side galleries, which, having no ... inner lever, depend for their stability upon ... secure anchorage into the main stanchions, are also somewhat singular as ... examples of reinforced concrete applied to ... type of cantilever construction.

This piece of work, comprised in the main hall and gymnasium, is a unique illustration of harmony between design and construction, the effective appearance of both apartments owing much to ingenious execution in a method of construction for which they were designed, whilst the monolithic character of the whole piece of construction must tend to increase the stability considerably above the calculated resistance, based upon the individual capacity of its respective members.

(To be continued.)

THE COST OF SCHOOL BUILDINGS.

The Report of a Departmental Committee of the Board of Education on the Cost of School Buildings was issued on Wednesday night. The members of the Committee were Mr. J. A. Selby Bigge, principal assistant secretary of the Elementary Education Branch of the Board of Education; Mr. N. J. Kershaw, assistant secretary to the Local Government Board; and Mr. Felix Clay, architect to the Board of Education. The terms of reference to the Committee were to inquire and report as to whether the cost of buildings for public elementary schools can properly, and with due regard to their suitability and durability, be reduced by the use of materials or methods of construction different from those ordinarily employed at present; and, if so, (b) what steps should be taken to facilitate the adoption of such materials or methods, and whether any alteration in the law is required for the purpose.

The Committee first considered what is the expectation of "useful life" for which an architect should allow, and how far it is possible to make the "structural" coincide with the "useful" life. The Committee think that where it is uncertain whether a school will be required after, say, between fifteen and twenty years, something between a permanent and a temporary building is wanted, and the ingenuity of school architects is directed towards finding a satisfactory type of semi-permanent building, cheap to erect, inexpensive to maintain, cool in summer, and warm and dry in winter. During the period immediately following the Education Act of 1870 the usual cost of school building was £5 or £6 per place; but now even economically built schools cost from £10 to £13 10s. per place. Much of this increase is due to conditions not under direct local control, such as the increased area of floor space per scholar now insisted upon; new provisions for heating, light, and ventilation; but the Committee find that local authorities do not all, or always, practise reasonable economies or exercise sufficient control or self-restraint in the matter of the style and general character of the buildings. The "ecclesiastical type of school" is happily disappearing, and, in the opinion of the Committee, it was a most unhappy invention from every point of view, and has proved lamentably expensive. The Committee have received no evidence indicating that any authority is justified in spending £20 per place.

As to the possibility of saving in details, the Committee recommend: (1) That local education authorities should be encouraged to submit specific proposals for the use of novel materials or methods for public elementary schools. (2) That it should ordinarily be made a condition of the approval of such proposals that such provision as is practicable should be made for the periodical inspection of the structure. (3) That, for the purpose of facilitating the use of novel methods and materials, (a) legislation should be promoted to exempt school buildings, the plans of which have been passed by the Board of Education from the operation of local building by-laws and corresponding provisions in local Acts; (b) the Building Regulations of the Board of Education should be revised, so as to remove any difficulties placed by them in the way of the adoption of such methods or materials. (4) That, where proposals are approved for the use of novel methods or materials in the erection of permanent schools, a loan period of thirty years should be regarded as normally appropriate in such cases.

Ubbeston (late East Suffolk) which has been closed for alterations and repairs for some time was reopened on Thursday evening, when a sermon was preached by the Bishop of Norwich. The builders were Messrs. Hayward of Saxmundham, and the greater part of the outlay has been borne by Lord Huntingfield.

CURRENTE CALAMO.

The majority of its supporters, no less than its opponents, will, we are sure, join us in the wish that the Government had fewer of these intermittent attacks of fiscal fidgets. We admit fully that the whole question of what are local, and what are Imperial, burdens is a difficult and troublesome problem; but, really, till some Chancellor of the Exchequer has the pluck to tackle it, he is only harassing people, even with the best of good intentions, when he nibbles away at anomalies in the fashion announced by Mr. Hobhouse on Monday. That the Government would have to abandon the stupid idea of making the local authorities share the cost of removing the pauper disqualification for Old-Age Pensions everybody knew. That its new resolve to take back with one hand what it gives with the other, and to stick to the whole of the proceeds of the Land Value duties, instead of one-half, is a new departure which will not merely nullify its presumably good intentions, but distract all locally interested in land and building, is evident. There is no industry like our own, probably, which suffers more by these frequent and quite uncalled-for changes in the incidence and apportionment of taxation.

Take a somewhat kindred point, which many of the Government's most convinced adherents are beginning to appreciate. Round every town—round most villages—land abounds which for years will remain "agricultural land," but yet land which, if valued by any competent man for purchase of the fee simple, will certainly be judged above its "agricultural" value. Such land, largely held by small men, will be taxed under the Budget. "What does it matter," ask some, "if the value is there, even if the cultivators do not cultivate it?" Well, those who realise that if they *did* build on such land, thanks to the increased cost of labour and material, they would not get three per cent. on their money, know; and one of these days the Government will know why they know. Meanwhile, of course, legitimate enterprise is discouraged, much-wanted cottages and houses are left unbuilt, and our trade suffers.

Mr. W. G. Newton's paper at the Architectural Association on Monday night was one of the best we have had there for a long time. He gave us just enough "ancient history," and his final appeal was modest, well phrased, and practical. The discussion was rather thin. Mr. Herbert A. Hall's suggestion that a Minister of Fine Arts shall in the future decide as to the materials of our buildings, according to the character of the design, licensing good designs to be built in Portland stone, and dooming bad ones to be carried out in brick, was the sole joke of the evening. The President's reminder that brick and terracotta were really quite dissimilar, and demanded different treatment, was a timely one.

On the whole, the Institute list of prizes and subjects for 1912 is an improvement. The Essay Medal is offered for an essay on "The Principles to be Observed in Designing and Laying-out Tombs Treated from the Architectural Standpoint." That is a timely topic. The Soane Medallion will be for "A Guildhall," which the winner is at least more likely to have to build than gateways to ancient cities; and the Tite prize, for an "Exchange Covered Courtyard," more prosaic, perhaps, but more probable than campo-santos. The Grissell Gold Medal subject, a "Design for an Isolated Exhibition Building," will, we trust, bring more luck to competitors than the skating-rink did this year.

Mr. J. C. Phythian, who opened the excellent exhibition of more than 150 of Etty's pictures at York on Monday, in connection with the unveiling of the statue erected to that painter, talked some excellent commonsense. Dealing more particularly with the artist's work in the nude, Mr. Phythian said that Etty regarded woman as Nature's most glorious creation. He set himself to paint woman, if he could, as truly, and even more truly, than she had ever been painted before. His notion about humanity was not that included in the view that we were so many forked radishes. Etty's notion was that clothes disguised the beauty and character of the human form. Think of modern modes of dress, and you realise how little the human form is shown in its proportion and character or action in any way. So Etty set himself to paint the nude, and one reason, in the lecturer's view, why his pictures in his own day were not popular in York was that people were unaccustomed to seeing the nude painted. He could only say, Let them take any of the pictures in the exhibition, the charming little painting "Cupid and Psyche," for example, and ask themselves could simple, naive, sweet affection be more beautifully rendered than it was in that little picture? Etty would not have been an artist if his sensuous nature had not been strongly developed; he was highly sensuous, but there was nothing in his work which could be called sensual.

Of the great influence of Etty as a colourist on the Pre-Raphaelite school there can, as Mr. Pythian said, be no doubt, nor of the debt all owe to him who can appreciate his interpretation of the old mythological stories in terms of such splendid flesh painting and colour. In these days of the cult of smug comfort, and decorous delight in the commonplace, it is refreshing to listen to hearty, honest appreciation of work like that of Etty, as enunciated by Mr. Phythian.

The vision of a bishop keeping his position with difficulty on a narrow ledge in front of the altar, or Communicating ladies with large-rimmed hats with torment to himself over high and spiky altar rails, ought really to have elicited the sympathy, and not the laughter, of Dr. Gore's hearers at the Birmingham Architectural Association last Friday. What Birmingham has to say about his "melancholy" walk amid its stained-glass windows, and his reprobation of much of the brasswork of recent times, we shall wait curiously to hear. For ourselves, except under the encouragement of a handsome retaining fee, we should rather object to supply the parish with a design for the gradual beautification of its church, so as to keep out the "memorial fiend," who *will* contribute incongruous and soul-distracting brasses, and windows, and lecterns, as souvenirs of his mother or other pious founders and patrons. Pay us our commission, and let us go, once the average cheap church is built, and we shall resign ourselves to the strictures of our spiritual pastors, and never trouble to hint that, not unseldom, the little troubles Dr. Gore deplores are made by our clients, the clergy, and their zealous co-helpers.

All will congratulate those concerned on the appointment of Mr. Mervyn Macartney as supervising architect to Durham Cathedral in the place of the late Mr. Hodgson Fowler. As architect to the Dean and Chapter of St Paul's, Mr. Mervyn Macartney has boldly and intelligently voiced due warning of the dangers threatened to the fabric of the Metropolitan Cathedral by underground transit schemes. He may be implicitly trusted to guard the amenities of the great Northern fane, which owes so much to its situation.

We trust something may come of Mr. A. W. Gattie's proposal to improve London's transport, as embodied in his lecture on Wednesday evening at Anderton's hotel, which we briefly report elsewhere. The man who will give us traffic tubes for London, and by their means distribute the goods which to-day wastefully block the streets in vans, will do more to relieve the congestion which seems the despair of every administrator than all the projectors of new streets. Is it hopeless to speculate on the possibility of railway companies awaking to the desirability of moving along the lines Mr. Gattie suggests? or must the traders of London await the advent of another Yerkes before what has been done for passenger traffic by the tubes can be accomplished for the relief of the streets from the lumbering transit of merchandise and the waste of six millions a year on cartage and terminal charges?

The Liverpool King Edward Memorial Committee held another meeting on Wednesday, to further consider the variation of the scheme suggested by the Finance Committee. It will be remembered that the latter body adopted, by a large majority, the proposal to cut steps in the podium; but they unanimously suggested that, instead of a central site for the statue, there should be two sites, and that the equestrian statue to King Edward should go on the Lime-street corner of the podium. Upon this recommendation the Memorial Committee have again consulted their expert advisers in London, and on Wednesday they decided to lay a suggestion before the Finance Committee with a view to furthering a settlement of the difficulty.

The *Daily News* last Friday published an excellent drawing by Mr. H. Cecil Hartley visualising the proposal of Mr. Leonard Stokes with reference to the approach to St Paul's from the proposed new bridge across the Thames. We entirely endorse our daily contemporary's hope that the City memorial to King Edward VII. may form part of a great simultaneous London improvement, the building of a new bridge across the Thames, and the opening out of St. Paul's Cathedral in some such worthy fashion as Mr. Leonard Stokes has suggested.

It was the workmen's dinner to celebrate the finish of the new Village Hall, and young Mr. Georgius Oldhousen, the architect, was to support the squire, who had really done things well. Georgius was on the show early, and much disappointed that some adornments for the porch and passage, on which he rather prided himself, had not arrived, after all. "Haven't those bas-reliefs come, Johnson?" he demanded of the Cockney foreman. "No, sir," was the reply, "there's no Bass reliefs; but there's plenty of stunning old and bitter!"

A GOODS CLEARING HOUSE FOR LONDON.

Mr. A. W. Cutler last Wednesday evening delivered a lecture before the Farringdon Ward Club at Anderton's Hotel, on "How to Improve London's Transport." The cheapening the transport to send the goods to the profit of the trader; but we were [illegible] to a year or carriage and [illegible] which amounted to [illegible] per cent. of the [illegible] from the streets [illegible] were conducted [illegible] Bankers' Clearing [illegible] not only be [illegible] the Londo[illegible] streets, but a[illegible]

Describing [illegible] proposed to [illegible] that it would be [illegible] and that the [illegible] gate 600ft., with [illegible] would be [illegible] with St. Pancras, King's Cross, Liverpool-street, Broad-street, Bishopsgate, and the Blackwall and London and Southend Railways. The Clearing House would be able to receive trains at the rate of one a minute, and each could be unloaded and reloaded in twenty-four minutes by electric apparatus. This, however, would be a condition of exceptional pressure, for the number of goods trains now dealt with daily was really about 200. The sorting floor of the Clearing House, with its ingenious system of moving platform automatically delivering goods at their appointed places, was explained.

It was not proposed to deal with coals or live cattle, and fish would be despatched from a wharf at Blackfriars Bridge through the tube to the Clearing House. He estimated that 55,000 tons of merchandise passed through London daily, 25,000 tons arriving by rail for consignees in London, 5,000 tons being carted from one railway to another, 15,000 tons being sent away by London merchants, and 10,000 tons arriving and departing by road. The scheme, in addition to relieving the traffic of London, would benefit railway shareholders by substituting an economical for a wasteful method, under which the mobility of a goods truck was only six months in a life of seventeen years.

A discussion followed, and in it, while the necessity for improving the transport system was fully recognised, one speaker believing that in fifteen years it would be impossible for the streets to accommodate 50 per cent. of the traffic, several practical difficulties in the way of the proposed remedy were suggested.

COAST EROSION.

At the ordinary meeting on Tuesday, February 21, of the Institution of Civil Engineers, Mr. Alexander Siemens, President, in the chair, the paper read was "Coast Erosion," by Mr. W. J. Douglass, M.Inst.C.E. The following is an abstract of the lecture:—

The paper deals with the causes of the erosion of foreshores and of the adjacent bed of the sea; it points out the considerations to be taken into account in designing works effective for sea defence, while having regard to the limitations imposed by Nature on engineering activity in this direction. The author shows what has been accomplished successfully in different parts of the country, and treats generally of the expenditure necessitated by such works from his own standpoint. The disappearance of historic landmarks is alluded to, as are also the encroachments of the sea and the enormous expenditure such encroachments have entailed on the local authorities.

The terms of reference submitted to the Royal Commission on Coast Erosion are set forth: this Commission, presided over by Mr. Ivor Guest, M.P. (now Lord Ashby St. Ledgers), has taken evidence from England, Scotland, and Ireland, and for the more complete discharge of their duties the Commissioners have not only visited the coasts of the United Kingdom, but also the coasts of Holland and Belgium. The third and final report is expected to be presented shortly.

It is then pointed out that the coasts subject to erosion are mainly those consisting of friable cliffs and low-lying lands. Where the coast line is constituted of hard rock the problems connected with erosion do not occur. The erodible shores to be found, therefore, on the east and south coasts of England are nearly between Berwick and the Start Point, and of this there is abundant historical and contemporary evidence. Beach material is the result of the crumbling away of friable cliffs, and is subject to the action of tides and winds, whereby it is deposited in sheltered spots. Its movements can be ascertained with precision only by careful observation locally of such facts as depth of water, set of tide, and direction of prevailing winds. Admiralty charts, geological maps, and the publications of the Meteorological Office are helps to the formation of a correct opinion. Shingle or beach material travels between high and low water mark, generally in line with the flood tide, but subject to modification according to the force and direction of the wind. It is to be borne in mind that the flood tide is stronger than the ebb tide, and as a mover of beach material it is much the more effective of the two. The movements of shingle are affected also by obstacles, natural or artificial, such as headlands or solid-work piers. The coast on the down-stream side of such obstacles, owing to the free movement of the tide, becomes eroded. The maximum erosive effect is to be met with where several causes of erosion are found in combination. In illustration of this point the author mentions that the occurrence of an equinoctial spring tide high water simultaneously with a north-west gale immediately following a southerly gale, will bank up the water in the North Sea to an abnormal level. Fortunately, this combination of the elements does not occur more frequently than once in six years, on an average. When, however, it does take place, the foreshores on the East Coast are seriously depleted, the cliffs are undermined, and the sea defence works are strained to the utmost. Shingle is always in a very restive condition during on-shore winds. Foreshores are built up most readily when the winds are off-shore, since the water is then less disturbed, and the sand becomes deposited. The author emphasises the importance of bearing in mind, therefore, these three points: First, that all beach material is the result of the breaking away of cliffs or land; secondly, that shingle travels along the coast between high- and low-water mark; and, lastly, that no shingle is procurable by tidal or wave action from the deep sea. He protests strongly against beach-removal and dredging in adjacent waters, as having a weakening effect on the coast.

The means for effective coast-protection are sea-walls and groynes, not separately but in combination, though a natural storm beach is the ideal bulwark. A wall as the sole defence of a friable cliff is invariably undermined. Groynes are effective in proportion to their length. Their spacing must depend on circumstances; but the main consideration which should govern decision as to the distance apart at which groynes are built is the obliquity of the prevailing impinging wave on the foreshore. Groynes require a sea-wall as an adjunct, since, without it, material accreted by them is liable to be carried around the shoreward ends by an abnormal high tide, when accompanied by a storm of great violence. The total quantity of beach-material travelling on the foreshores is not sufficient for the defence of all of them. The author shows that this fact bears on the present unshackled liberty of any local coast authority to protect itself, as best it may, without reference to the interests of its neighbours.

Details are given, with illustrations, of the sea-defence works carried out at Hornsea in Yorkshire, Sheringham in Norfolk, and Lowestoft in Suffolk, where the encroachments of the sea on the land have been very persistent. These sea-defence works have been the means of raising the foreshore permanently to one continuous level, which is 6ft. to 11ft. above that which obtained at the time of the designing of the works. Where defences of this character are in existence, erosion has, in point of fact, ceased.

The author concludes by pointing out that the foregoing problems of coast-defence—constructive, economic, and legal—are of national importance.

INSECT AND FUNGUS ENEMIES OF TIMBER.

Dr. R. Stewart MacDougall, of the University of Edinburgh, delivered last week, under the auspices of the Royal Society of Arts, the first of the Keith lectures for 1911. The subject of the lectures, which number four, is "The Insect and Fungus Enemies of Timber."

Insects and Fungi.

Dr. MacDougall said, in dealing with insects and fungi, they had to recognise, as with trees and men, that they were dealing with living bodies. Fungi might be lowly members of the plant world, and insects of the animal world, but the laws of life applied equally to the lower forms as to the higher. Judged alone from the harm insects and fungi did, and the toll levied on them on various crops, their importance could scarcely be exaggerated. A fungus wiped out coffee plantations in Ceylon. The Nun moth several years ago cost the Government of Bavaria, in destruction of spruce forest, £100,000. The money loss on account of insects and fungi in the United States represented in a year a sum of money greater than the cost of the year's upkeep of the American Army and Navy, and over a ten years' period the amount of timber killed and reduced in value in America by insects represented an average loss of 62,500,000dol. a year.

A Struggle for Existence.

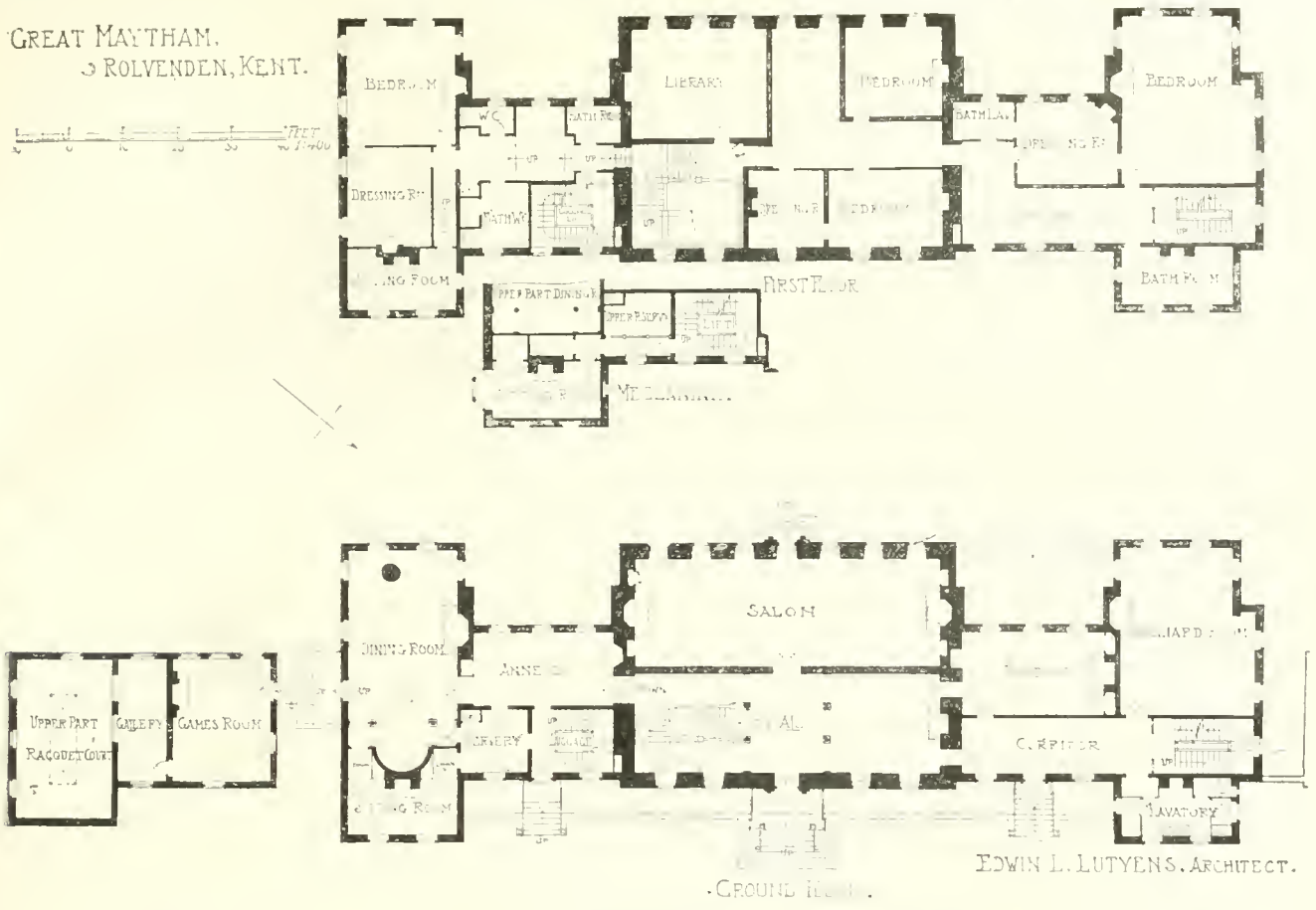
There was in nature—outside of human nature—a struggle for existence which might end in an adjustment and an inter-relationship and a balance; but man as a factor in the environment interfered and altered the conditions, and destroyed the balance, with the result that unless he was consistent and took measures to guard against the consequences of his interference, disease, weakness, and death followed in both animals and plants. Man's duty in that matter of fungus and insect attack was, seeing that he entered and altered natural conditions, to expect attack and to be ready for it by measures of prevention and remedy. He should "resist the first advances, for too late was the remedy applied when, by long continuance, the malady had waxed strong." Insects were distinguished from all other invertebrate animals by their body showing three distinct regions—head, thorax, abdomen—by their having a single pair of antennæ, six legs when adult, and their respiration being by trachæ. These trachæ were tubes and finer tubules branching throughout the entire body of the insect. As these tubes opened to the outside, advantage was taken whereby, by means of sprays and dressings, insects could be suffocated. In connection with insects injurious to timber, while the adult insect laid the eggs, it was typically the caterpillar or the grub from the egg which did the damage. The adult wood-boring and bark-boring beetles, however, were harmful as well as their grubs.

Knowledge Necessary for Treatment.

Fungi were plants which, in addition to having no distinct root, stem, and leaf, but really just a mass of branching threads for their vegetative structure, contained no chlorophyll. By virtue of the possession of chlorophyll (the green colouring matter of the plant) other plants were capable of leading an independent existence. No fungus was independent. In order to live, therefore, a fungus must strike up a partnership with an independent plant, as was the case in lichens, or must prey on live animals, as with the ringworm fungus, or must prey on live plants, as the fungus causing larch disease, or must live saprophytically on breaking-down organic matter, like the mushroom and some moulds and rots. Both insects and fungi passed through a definite life-cycle, and as aids in the solution of their life-struggle had various ways of tiding themselves over untoward conditions, and of spreading themselves when the conditions were favourable. A knowledge of the different life histories was necessary before treatment against their attacks could be rational.

At the London Consistory Court, on Tuesday, a faculty was granted for the addition of a clergy vestry to the parish church of Great Stanmore.

Mr. Charles Baker, architect, of Leicester, died last week, aged 77. Mr. Baker, who was the architect of the Wyggeston Schools and other buildings in Leicester and neighbourhood, was a member of the firm of Shenton and Baker, which was merged in 1906 in the business of Messrs. Tate and Herbert, of Friar-lane, Leicester.



Our Illustrations.

ROYAL INSTITUTE OF BRITISH ARCHITECTS' PUGIN TRAVELLING STUDENTSHIP, 1911. PRIZE DESIGNS.

EDINGTON CHURCH, WILTS.

SS. Mary, Katherine, and All Saints' Church, Edington, was connected with a small monastery of the Bonhommes, founded by William of Edington, who preceded William of Wykeham in the Bishopric of Winchester. The first stone was laid in 1352, and the church was dedicated in 1361, five years before Bishop Edington's death. The church is cruciform on plan, with a central tower, and is built of Bath stone. It contains some interesting 14th-century stained glass, three canopied tombs, one 14th, one 15th, and one 17th century, an octagonal Jacobean pulpit, and a 15th-century oak screen, the last much spoilt by restoration. The south porch is an addition, dating from about 1450. Of the monastery itself, which lay to the north of the church, there remains the Prior's house, now a farmhouse, and containing some fine oak panelling and modelled plaster ceilings, some garden-walls, and the fishponds. Monastic buildings were originally attached to the church along the north wall on the north aisle and transept. The church was considerably restored by Mr. C. E. Ponting, F.S.A., of Marlborough, some two and twenty years ago. This plate is reproduced from the sheet of general drawings by Mr. T. F. W. Grant, A.R.I.B.A., the holder of the Pugin Travelling Studentship for 1911. At an early date we shall give some of the detail drawings of this church from the same excellent set for which the Council awarded this prize. Two double-page sketches of the exterior of this very interesting church, by the late F. C. Deshon, appeared in the BUILDING NEWS for July 12, 1872; the west front was shown by J. H. Parker, in his "Introduction to Gothic Architecture," and in our issue of August 12, 1887, we published a sketch of the west front by Maurice B. Adams, and Mr. Ponting's measured plan.

GREAT MAYTHAM, ROLVENDEN, KENT.

This double-page plate was reproduced from the water-colour view hung on the line at the Royal Academy Exhibition last season. The plans given with the view of Great Maytham show the mansion as rearranged and extended by Mr. Edwin L. Lutyens, F.R.I.B.A., with the extensive scheme of gardens indicated by the accompanying block plan; but we have no further particulars of the work to hand.

BRISTOL ROYAL INFIRMARY: NEW SURGICAL PAVILIONS AND OPERATING THEATRES.

This view shows the works in progress, from the plans of Messrs. Percy Adams, F.R.I.B.A., and Charles Holden, A.R.I.B.A., the architects. We gave the general drawings of this great Infirmary in the BUILDING NEWS for July 30, 1909, and two further illustrations of the buildings on July 29, 1910, at which time particulars of the undertaking were printed, and need not be repeated here. This drawing is a fresh one, showing the work from a different point of view.

A VILLAGE READING-ROOM AND GREENKEEPER'S LODGE.

(For assessor's award in this BUILDING NEWS Designing Club competition, see p. 271.)

A skyscraper for New York which will outrival in altitude the Metropolitan Tower has been designed by Mr. Cass Gilbert, of that city. It will be known as the Woolnoth Building, will occupy the entire block of Broadway between Barclay-street and Park-place, and will be fifty-five stories in height, reaching 750ft. from pavement to roof-edge. Next, please!

The parish church at Stanley, near Wakefield, was completely destroyed by fire on Saturday, only the outer walls remaining. The fire is supposed to have originated in the heating apparatus. The church was built in 1820-4 at a cost of £12,000, and was of the phase of Perpendicular then being revived. A recent local historian, Mr. W. S. Benks, describing the church, says it was an ill-arranged construction, "incapable of effectual alteration by any means short of pulling down and rebuilding."

COMPETITIONS.

BRIGHTON.—The plans submitted in open competition by Messrs. Russell and Cooper, of London, have been selected for the Brighton, Hove, and East Sussex Grammar School, to be erected at the junction of Dyke-road and Old Shoreham road.

NOTTINGHAM.—The board of guardians have adopted a scheme for providing for the workhouse children, the cost of which is estimated at from £15,000 to £25,000, and have decided to offer a premium of 50 guineas for the best design. The proposal is to provide accommodation for about 150 children on a site near the workhouse by the erection of six cottages, four to hold 30 children each, and two 15 each. A hall is to be provided in connection with the scheme.

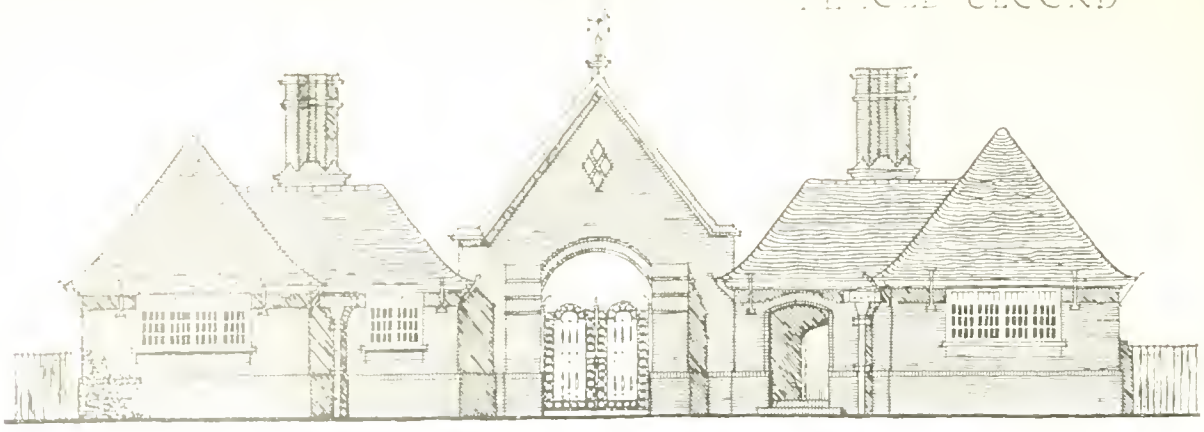
R.A.O.B. ORPHANAGE, ALDRIDGE, STAFFS.—A meeting of the general committee of the above institution was held at Nottingham on Saturday, the 18th inst., to consider a report from the directors on the plans recently submitted in competition for the enlargement of the orphanage. Three sets of plans had been selected for final consideration, under the *noms de plume* of "Staffordshire Knot," "Staffs," and "Airy." The former design was unanimously adopted, and found to be the work of Messrs. Jeffries and Shipley, of Walsall. The additional accommodation provides for fifty-five cots.

The Margate Town Council has accepted a tender for £16,449 for carrying out general builders' work in connection with the proposed concert-hall, arena, and colonnade at the Fort.

Lord Knollys having intimated that the King prefers non-equestrian statues of his late father, it has been decided to substitute for the proposed equestrian statue at Bristol one representing King Edward standing in his robes. The site is a prominent one in front of the Victoria Rooms, Clifton.

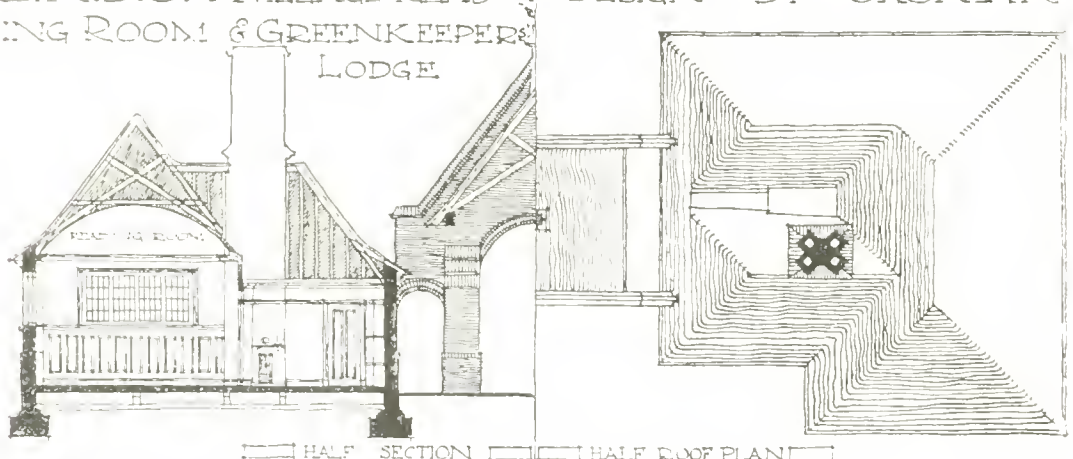
The cottage hospital at Nantwich was opened on Wednesday week by Mrs. Henry Tollemache, whose husband had given the site. It contains two wards, each of five beds, and has been built from designs by Messrs. Bower and Edleston, at a cost of about £2,500. The builder was Mr. Samuel Manley, of Aston, Cheshire.

PLACED SECOND.



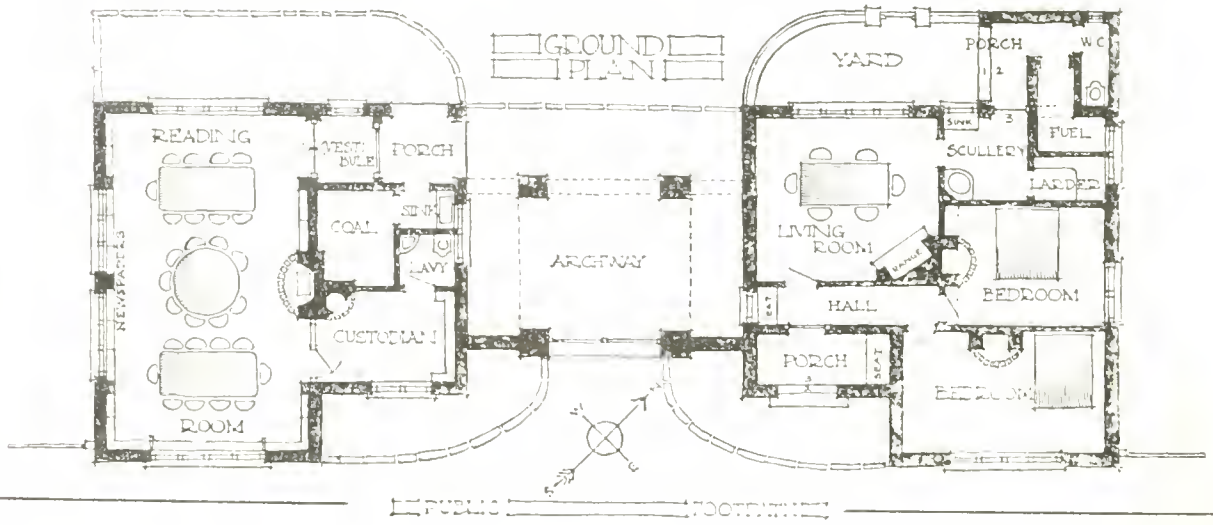
ENTRANCE FRONT

B.N.D.C. A VILLAGE READING ROOM & GREENKEEPER'S LODGE. DESIGN BY "OXONIAN"



HALF SECTION HALF ROOF PLAN

SCALE OF FEET



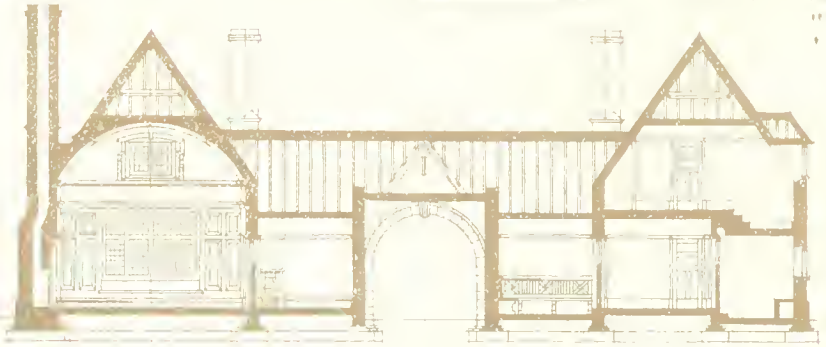
PUBLIC FOOTPATH

"BUILDING NEWS" DESIGNING CLUB

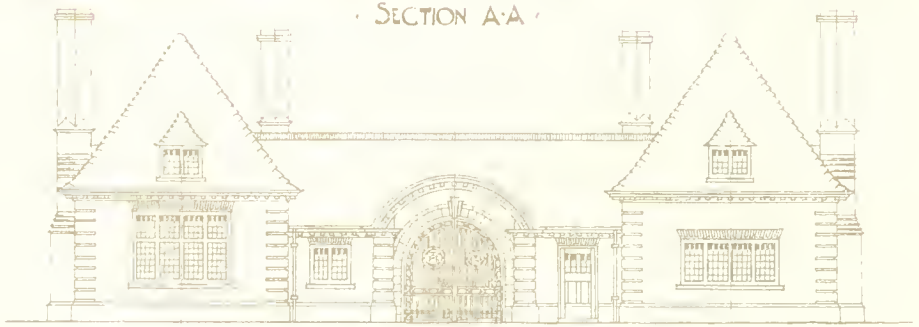
A VILLAGE READING ROOM and GREENKEEPERS LODGE with ARCHED GATEWAY between

BY "MARGIS"

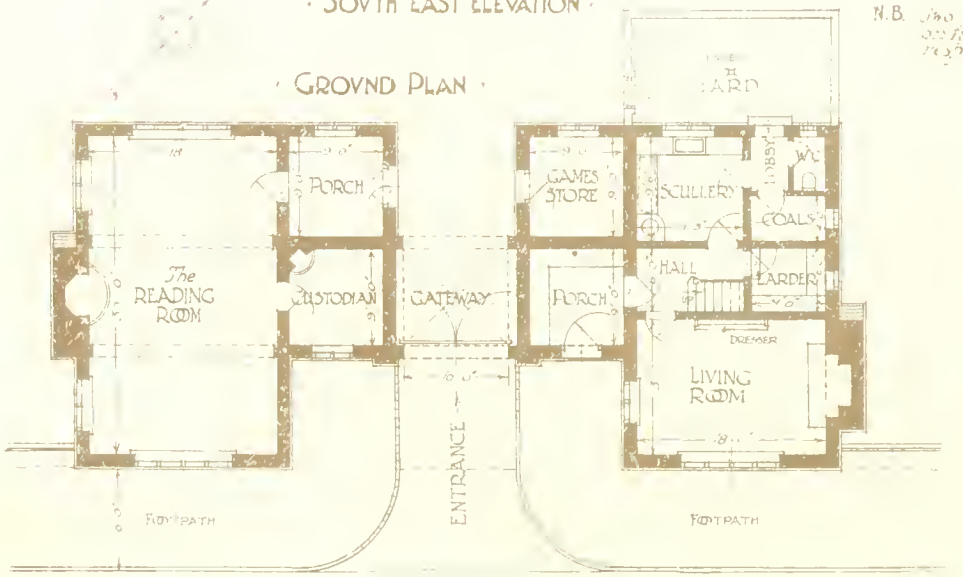
SCALE OF FEET



SECTION A-A



SOUTH EAST ELEVATION



GROUND PLAN

MATERIALS *Thin grey facings with wide pointing, arches & quoins brick dressings, Brown tiled roofs, Oak woodwork painted with Red Lead*

SOUTH-WEST ELEVATION

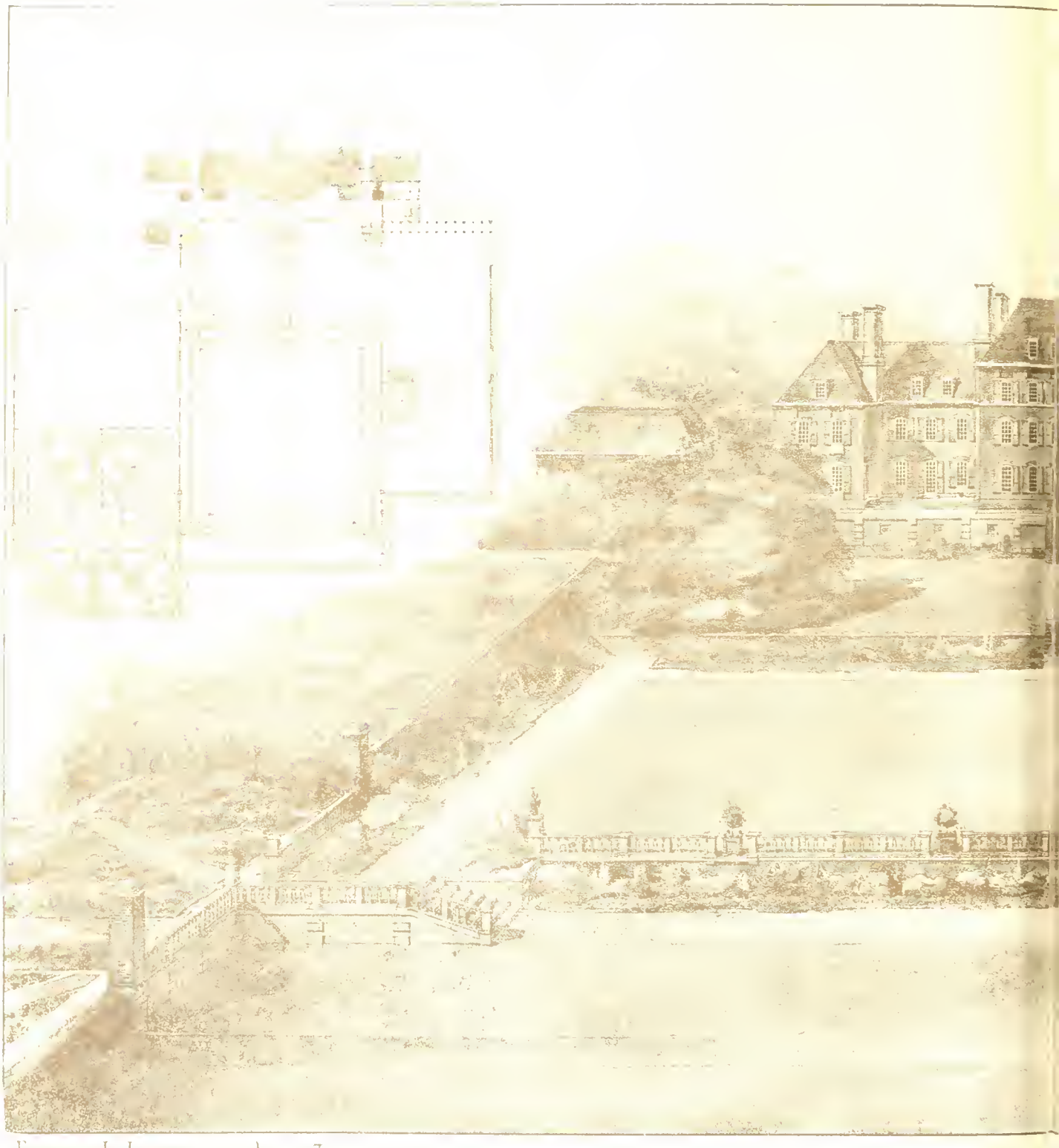
N.B. *Two bedrooms with fireplaces over first floor - 15'-12" and 12'-10" respectively & space for lumber*

NORTH-WEST ELEVATION

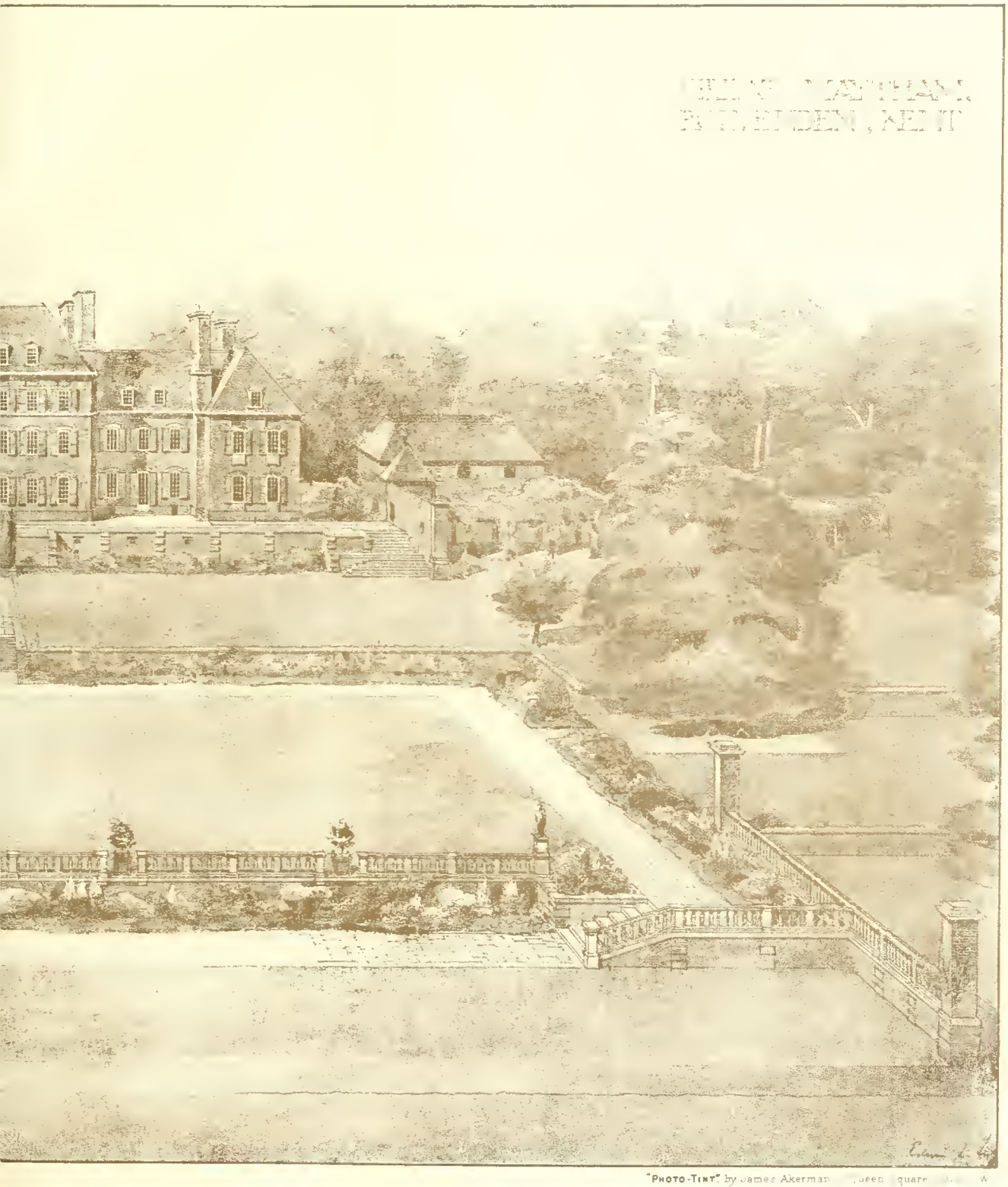
PLACED FIRST

The view of the Gateway from the Village Street

June 1911



EDWIN L LUTYENS ARCHT

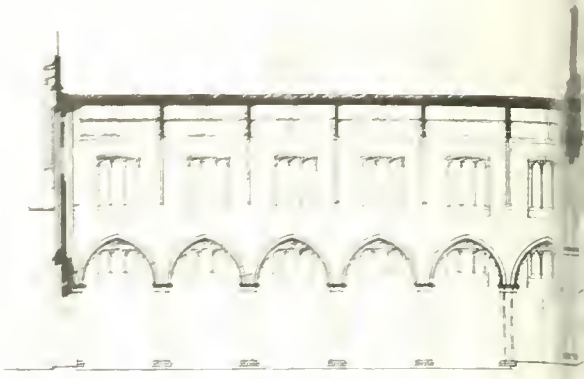


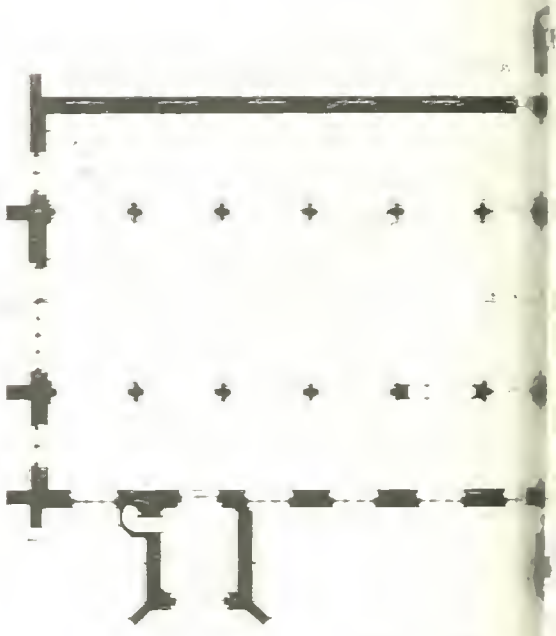
"PHOTO-TINT" by James Akerman, Queen Square, W.C.

BRISTOL ROYAL INFIRMARY.
NEW SURGICAL PAVILIONS, OPERATING THEATRES AND CASUALTY DEPT.

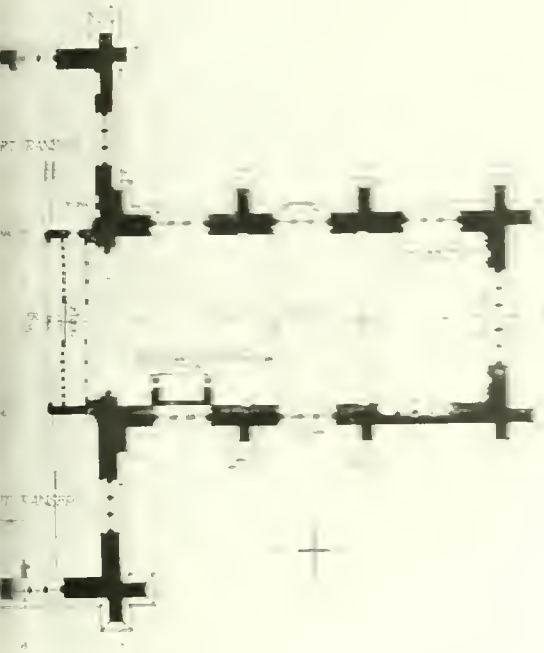
PHOTO TINT

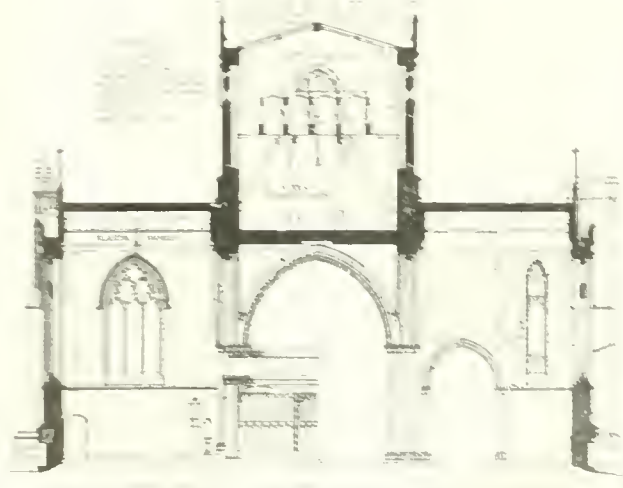
EDINGTON CH

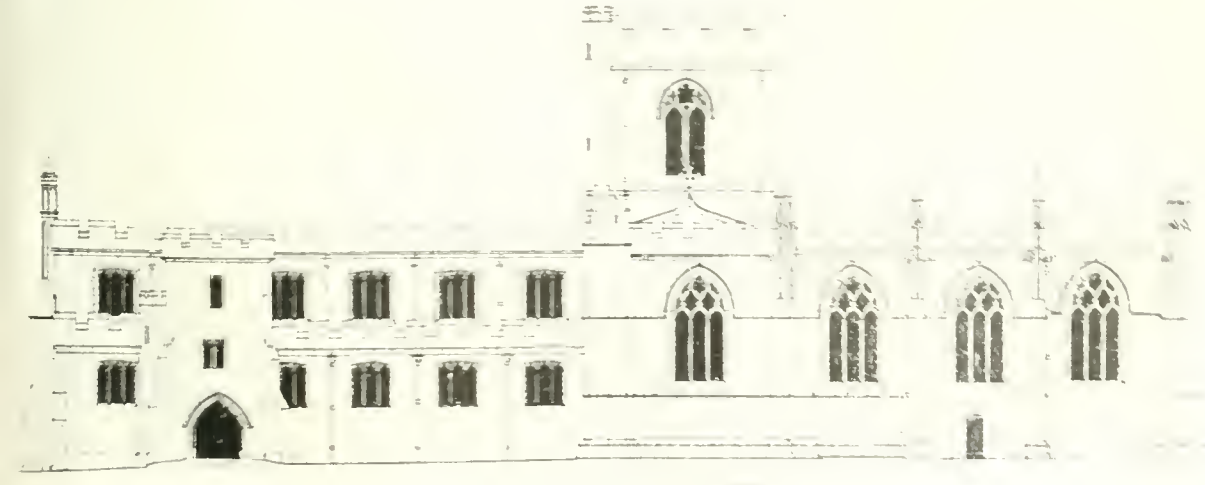




CH. WILTSHIRE. No 1







E.H. HANDUN

1911.—EDINGTON CHURCH, WILTSHIRE.

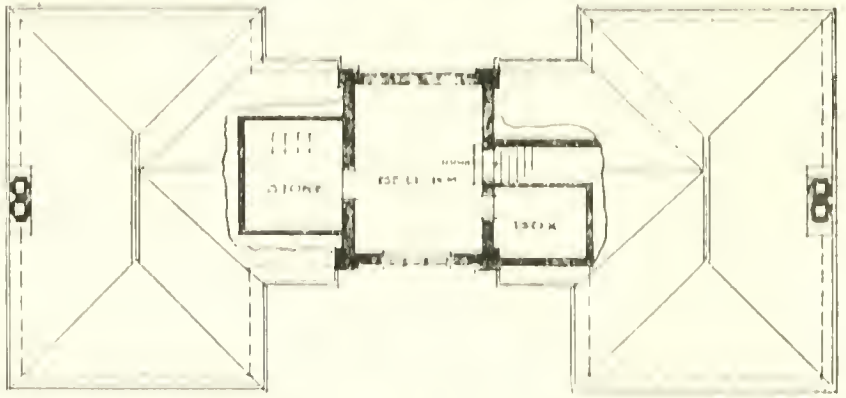
[illegible] A.R.I.B.A.

BNDC DESIGN FOR VILLAGE READING ROOM & GREENKEEPERS LODGE

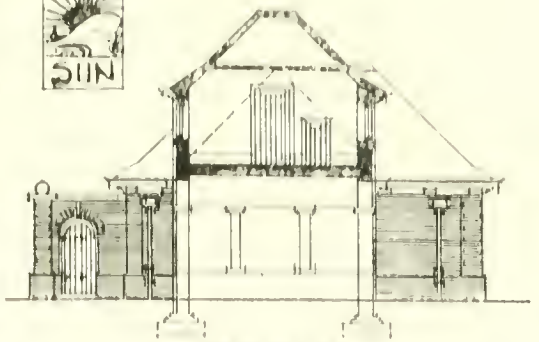
JAN 1911

SUN

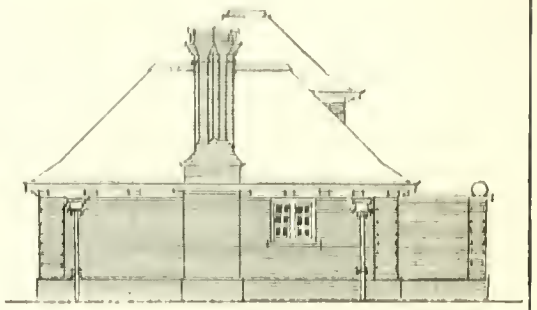
Scale 8 ft. to 1 in.



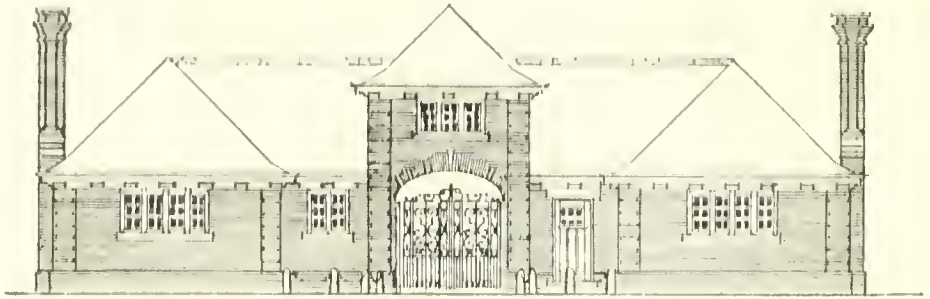
ROOF PLAN



SECTION

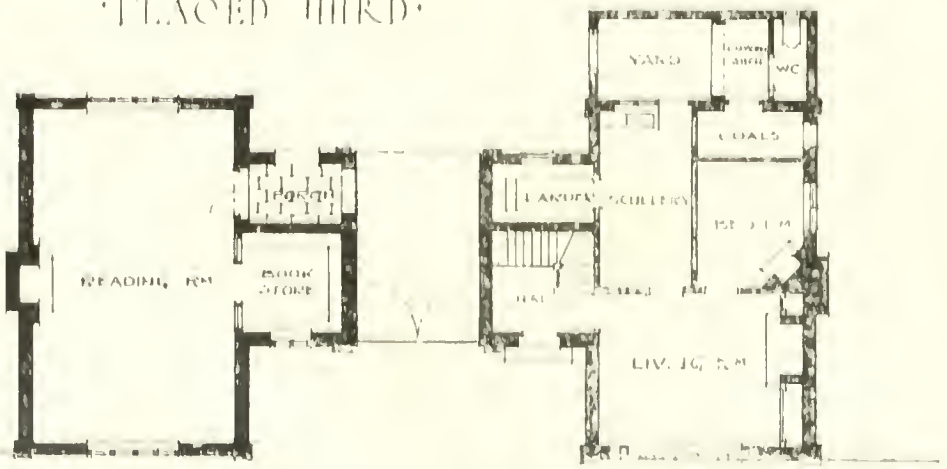


SIDE ELEVATION



FRONT ELEVATION

PLACED THIRD



PLAN

AN AMERICAN MODEL BUILDING CODE

[illegible]

[illegible] Sir Charles Chadwick Healey has offered to build and present to [illegible] Lad's Grandstand Society [illegible] Cricket Ground. The building will be erected from designs by Mr Reginald Blomfield, A.R.A.

The Lord Mayor of Sheffield opened on Tuesday a new tramway from Sheffield to [illegible]. By working in both directions the cars of the city tramways committee will save £1,722 yearly at the [illegible] of wear and tear on plant [illegible] by comparison with [illegible] and [illegible] the [illegible] recommendation to [illegible] five cars.

A new church was consecrated by the Bishop of Durham at St Nicholas Parish Church, Hebburn, on Friday. The architect was Mr Richard Grainger, of Darlington, and the contract was carried out by Messrs. Charles Clark and Sons, of Gateshead, from the designs of the late Mr. C. Hodgson Fowler, F.S.A., of the Close, Durham. The work was entrusted to Messrs. George Gradon and Son, contractors, of Durham, at a cost of £1,709.

The Bristol Builders' Association has elected the following officers for the coming year:—President, Mr John Martin, J.P.; vice-president and hon. treasurer, Mr. R. B. Henry, J.P.; Committee, Messrs. W. H. M'Laughlin, J.P., J. O. Campbell, B.A., B.E., J. Courtney Hutchins, Keith James, Leo James, Mr. Kinnimon, John South, and W. J. Stewart. Editor representative on the council of National Federation of Builders, Mr. R. B. Henry, J.P.

The City Corporation have unanimously adopted a scheme for rebuilding Gresham College on its present site. The committee have options for acquiring some adjoining property for £20,800. The area proposed to be purchased is 1,220 sq. ft., or rather more than half the present area. Buildings can be erected thereon providing accommodation for from 420 to 500 persons. The present building holds 204 persons in the body of the theatre and 139 in the gallery, but the gallery has been closed on the advice of the expert. The cost of the new buildings will be from £12,000 to £15,000.

OBITUARY

We [illegible] the death [illegible] Mr. A. [illegible] R. [illegible] Mr. [illegible] Mr. [illegible] Mr

PROFESSIONAL AND TRADE SOCIETIES.

ARCHITECTURE AND THE CRAFTS.—Mr. G. Salway Nicol, A.R.I.B.A., lectured the other evening on "Architecture and the Crafts" before the members of the Birmingham and District Clerk of Works and Building Foremen's Association. That a beautiful building cost more, or was less useful than a structure conceived with only utilitarian aims was, he said, a fallacy that had been often exposed, and they had in their streets many examples of what could be done with much thought and reasonable expense. The great difficulty they had to face in the improvement of the art of building was the want of sympathy and understanding between the various trades, or crafts, which had to be employed on the work, for however skilful the architect might be the work would be hard and uninteresting, as though it had been been carried out by a huge machine, if his ideas had not the intelligent and enthusiastic support of every craftsman employed. The great building periods of the past taught them this with varying force, and although they were mostly now concerned with ideas based on the Classical tradition, it was only by infusing into them something of the spirit of the craft guilds of the Middle Ages that they would make their work live, in the sense that the buildings of the past had lived, to inspire every succeeding age.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.—Bishop Gore addressed the members last Friday on the anomalies and archaisms in modern church construction. He said it was now increasingly the custom for the minister to stand in front of the altar, and that, he believed, was the right place. "Constantly, when I go to churches," he said, "I find myself required to stand on a ledge so narrow that I am continually obliged to recall myself from that absorption of mind in higher things which ought to be my privilege, in order not to tumble off." And again: "It appears to me incredible, but it is true, that in a great number of churches Communicants are made to kneel on a lower level than the person who is to administer the cup to them. And a high rail is intruded. The result is that at the most solemn moment, when you want them to be thinking about nothing except the spiritual meaning of the act they are engaged upon, and when you yourself want to be able to perform what is an exceedingly solemn act with a totally free and disengaged mind, you are entirely occupied in trying to insert a cup in between a lofty rail—very likely with spikes of some kind—and under the rim of a large hat, and it is a tormenting process." The primary necessity, Dr. Gore explained, was that they should put the people, if possible, to kneel a little higher than the space which was within the rail. At least, the Communicants should kneel on the same level, and the rail should be low, so as not to be an obstacle. Having admitted that there had been great improvements in the arrangement of pulpits since the time when the rostrum was furnished with a cushion—"an extraordinarily inconvenient thing to put a manuscript on"—and the glare of two gas-jets, one on either side, hid the congregation from the preacher—"an absolutely monstrous thing"—the Bishop discoursed of the place and function of windows in churches. He had just returned, he said, from a holiday in Catalonia, where, partly from religious motives, the idea was to exclude light, and they succeeded remarkably well. But in English churches they wanted light, and they wanted a complete reconsideration of what was to be expected of stained-glass windows. These should not obscure the light and make the place dark; they should colour the light while they admitted it. It would be a rather melancholy walk, he thought, if one were to visit the stained-glass windows in Birmingham. In a vast number of cases they defeated the object of a window, especially in such a climate as ours, and having regard to the need of the church. Another problem the speaker asked his audience to solve was how to make the seating in a church fill the minimum space so as to let the congregation be as numerous as possible, and at the same time to make it reasonably possible to sit and kneel without distortion. At Westminster Abbey, for instance, sitting was rather painful, but kneeling was a process of physical gymnastics which could be accomplished only by the most agile. "The whole spiritual use of a building," he declared, "depends on the mind being free from preoccupations." Bishop Gore protested against the way in which the font was relegated to "a muggy little corner," in the dim obscurity of which, after stumbling over a good many hassocks, one might discern it. Finally, speaking of church decorations, he expressed the view that it would be an advantage if much of the brass work inserted in recent times were utterly cast out. It had been such as it was very difficult to find language adequately to describe. There should be attached to every church its architect's design for its gradual beautification or decoration, and he would attach as a sort of bribe, that it should be unnecessary to obtain a faculty when the decoration was in accordance with the architect's design. If that principle were once established, they would get rid of what was at present a grave disaster, namely, that every individual who wished to put up a memorial to wife or parents "goes off to an architect or designer and gets the thing drawn out, then comes with it and says, 'I want to put this up to my mother,' and considers himself aggrieved or offended in his tenderest susceptibilities unless he is allowed to put it up." Unless the churches were going to be ugly, monstrous, and offensive in their decoration, they must put an end to that kind of arbitrary treatment of them.

BIRMINGHAM MASTER PLUMBERS.—The annual dinner of the Birmingham Association of Master Plumbers was held on Saturday night at the Imperial Hotel, Birmingham. Mr. H. Pratt presided. Mr. J. P. Cox, president of the Institute of Plumbers, proposing the toast of "The Birmingham Association of Master Plumbers," spoke of the importance of the craft, the high standing of its representatives in Birmingham, and the efforts of the Institute and local organisations to bring the trade up to the status it deserved. Their work was both difficult and important, and he felt there was no plumber in the country who was paid properly for the work he did. When the work was done efficiently there was no man who helped the medical officers of health in fighting disease, filth, and squalor more than the plumber. The chairman, in responding, referred to the advance made in the plumbing trade of late, and the recognition of its importance by the public. The toast of "The City and Trade of Birmingham" was submitted by Mr. T. E. Hill, hon. secretary, and was acknowledged by Councillor Rudland and Mr. R. Webb, president of the Birmingham Building Trades Employers' Association. "The Architects and Surveyors" was proposed by Mr. A. Woodfull, and responded to by Mr. G. S. Nicol, vice-president, Birmingham Architectural Association.

GLASGOW INSTITUTE OF ARCHITECTS.—A quarterly general meeting of the Glasgow Institute of Architects was held on Wednesday week in the secretary's chambers, 115, St. Vincent-street, Mr. John B. Wilson, F.R.I.B.A., president, in the chair. Reference was made to the death of Mr. Alexander Cullen, who had been a member of the Institute since 1897, and it was reported that the council had minuted an expression of regret at his death. The council had also noted with regret the death of Mr. D. P. Low, who, though not a member of the Institute, was understood to have belonged to the old Glasgow Architectural Association. The president also referred to the loss which the profession had sustained in the death of Colonel Eustace Balfour, F.R.I.B.A. The secretary submitted a report on the matters which had been dealt with by the council since the last meeting. The R.I.B.A. Council had agreed that members of allied societies who are eligible as licentiates should be admitted as candidates for election by the Royal Institute Council if they are nominated by the council of their society, such members to be exempt from submitting drawings or other testimonies to the Royal Institute Council, provided they are certified by their own council as eligible and fit and proper persons to be admitted. The council noted with satisfaction the success of two Glasgow students in the R.I.B.A. prize competition—viz., Mr. Herbert L. Honeyman in winning the essay medal, and Mr. A. G. Henderson in winning the Arthur Cates competition. With regard to the proposed Scottish National Memorial to King Edward, it was unanimously agreed that while expressing sympathy with the proposal for the erection of consumptive sanatoria, something of a monumental nature was more in keeping with the object. The meeting unanimously favoured the restoration of Linlithgow Palace in preference to any other of the proposed schemes.

INSTITUTION OF MECHANICAL ENGINEERS.—The annual meeting was held at Storey's-gate on Friday night, Mr. J. A. F. Aspinall (president) in the chair. The annual report said that an increase of 117 in the membership had raised the total to 5,700. Progress had been made with the plans of the extension of the institution premises, and designs would shortly be under consideration. The awards included those under the Bryan Donkin fund for assisting original research to Mr. William Mason and Professor C. A. M. Smith, the Water Arbitration prize to Mr. W. R. Eckart, and the Stanley premium to Mr. L. A. Legros. The graduates' prizes had been awarded to Mr. Moss and Mr. Sanders. The ballot for officers had resulted in the election of Mr. Edward B. Ellington as president and Mr. Michael Longridge and Mr. H. F. Donaldson as vice-presidents. The new members of council are Mr. Dugald Clerk, F.R.S., Sir Robert Hadfield, Dr. Edward Hopkinson, Mr. George Hughes, Mr. Henry H. Ivatt, Vice-Admiral Oram, and Captain H. Riall Sankey. The summer meeting of the institution will be held at Zurich in July next.

THE LONDON MASTER BUILDERS' ASSOCIATION.—The usual monthly meeting of the council of this association was held at Koh-i-Noor House, Kingsway, W.C., on Thursday, the 16th inst., under the chairmanship of Mr. Leonard Horner, president. The organisation committee's report was received, and although the matter is proceeding slowly, those districts that have been taken in hand have produced good results, and many builders have become members. It is now hoped to proceed with the work of organisation much faster.

ROYAL SANITARY INSTITUTE.—A provincial sessional meeting of this institute will be held on Friday, March 17, in the Civil Court, Guildhall, Bristol, at 10.45 a.m., when a discussion will take place on "Modern Methods of Purification of Public Water Supplies," to be opened by J. A. Macpherson, B.Sc., M.I.C.E., chief engineer, Bristol Waterworks Co. It is hoped that the following will take part in the discussion:—A. P. L. Cotterell, M.Inst.C.E., F.S.I.; D. S. Davies, M.D., medical officer of health, Bristol; Herbert Jones, D.P.H., medical officer of health, Herefordshire combined districts; J. M. Martin, D.P.H., medical officer of health, Gloucestershire C.C.; T. J. Moss-Flower, Assoc.M.Inst. C.E.; J. S. Pickering, M.Inst.C.E., borough surveyor and water engineer, Cheltenham; S. Rideal, D.Sc.Lond., F.I.C.; Edward Russell, B.Sc. F.I.C., city analyst, Bristol; W. G. Savage, M.D., medical officer of health, Somerset C.C.; J. Tubb-Thomas, L.R.C.P., L.R.C.S., D.P.H., medical officer of health, Wilts C.C.; F. Wallis Stoddart, F.I.C., F.C.S. The chair will be taken at 10.45 a.m. by Louis C. Parkes, M.D., D.P.H., chairman of the council of the institute. Tickets for admission of visitors may be had on application to T. J. Moss-Flower, Assoc.M.Inst.C.E., Carlton Chambers, Baldwin-street, Bristol, who is acting as the local hon. secretary of the meeting.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.—A special meeting of the council of the above body was held on the 20th inst., Mr. R. Caulfeild Orpen, F.R.I.A.I., vice-president, in the chair. There were also present:—Messrs. F. Bachelor, J. H. Webb, G. P. Sheridan, H. Allberry, C. J. MacCarthy, A. G. C. Millar,

Hicks, L. O'Callaghan, and C. A. Owen, hon. secretary. Some correspondence was dealt with. Mr. Geo. L. O'Connor, member, was elected a Fellow of the Institute. A report from the Professional Practice Committee, in connection with the conditions of contract and other matters, was submitted and adopted. It was resolved that the suggestion contained therein should be circulated amongst the members.

"WHAT IS THE USE OF ARCHITECTURE? This question was answered at the conclusion of a lecture delivered on Mr. Hubert Rathbone's behalf at his home on Monday evening, under the presidency of Mr. A. Thornely, to the Liverpool Architectural Society, in their rooms, 13, Harrington-street. In the course of his humorous and racy remarks Mr. Rathbone answered this question by saying that the use of architecture was to stimulate appropriate feeling. All works of architecture must be social institutions; therefore the feeling to which architecture appealed must be a social feeling. The province of architecture was to assist in making the home, the city, or the church, or one of the subdivisions of one of these institutions. As it was only by means of the social instincts that society was held together, it was the business of the fine art architecture to foster these social instincts. Architecture dealt only with social institutions, as he should endeavour to prove by lantern-views which he intended to exhibit. These social instincts had evolved themselves into habits, conscious and subconscious, during the past ages of humanity. They would be able to see in Egyptian architecture the expression of the desire or pride of power in the Pharaohs. In Greek work they should see the cultured vanity of Athens; in Rome the social affection of the Roman people misled with pride and vanity. In Gothic work, veneration clearly proclaimed itself. The perfection of pure benevolence was left for the future, but the nature of that virtue was first clearly seen in the poetry of William Shakespeare, who could sympathetically understand even a Macbeth or Shylock. Whatever might be the institution—whether a lawyer's office, a small-profit and-quick-return shop, or a street down which people walked—it should have its appropriate tone and expression, which should give those who used it an agreeable sense of ease with the office performed there. A comprehensive collection of lantern-slides was thrown on the screen, to illustrate the ideas expressed. Mr. Rathbone was cordially thanked at the close.

Mr. H. R. Davies, of Ebbw Vale, has been appointed surveyor to the Panteg Urban District Council.

At Manor Park, Ilford, an institute has been built adjoining St. Michael's Church at a cost of £2,500. Mr. C. S. Spooner was the architect.

Mr. J. Thomas, surveyor to the Llanidloes and Newtown Rural District Council has been appointed road-surveyor to the Gwyrfai Rural District Council.

In consequence of the death of Mr. J. Wylie Nisbet, chairman, the joint meeting of the Junior Institution of Engineers and of the Architectural Association announced for Wednesday evening last has been postponed to this (Friday) evening.

The borough council of Hornsey have decided to erect on land at Highgate, purchased for the purpose from the Ecclesiastical Commissioners in 1907, 128 cottages for the working classes at a cost of £35,000. Baths are to be provided in all the dwellings.

A water-colour picture representing Our Lady and Holy Child has recently been purchased by her Majesty Queen Alexandra. This picture is painted by Oswald Fleuss, of 115, Charlotte-street, Fitzroy-square, artist in church paintings, stained glass windows, etc.

The syndicate of the Swansea Chamber of Commerce, who are arranging for the erection of a new coal exchange at Swansea, propose to utilise the existing site and expend from £15,000 to £20,000 on the building, the design of which will be open to competition.

Mr. John Pickard, of Dorrington-street, Carlton Hill, who died suddenly on Tuesday week, was a builder who carried on a long established business in Leeds. He took an active part in the promotion and welfare of the Leeds Master Builders' Association.

Building Intelligence.

EDINBURGH.—A building in George-street, designed by Messrs. Sydney Mitchell and Wilson, architects, as new offices for the United Free Church of Scotland, in place of those vacated at the Mound, will be ready for occupation by the end of March. The style adopted is Florentine in feeling, with the street floor adapted to modern shop requirements. The building to the first floor is of Aberdeen grey granite, above that to the wall head the three other floors are of dressed sandstone rusticated. Along the high pitched roof is a row of attic windows, with a series of smaller lights near the ridge. On the street floor is an arcade of seven bays. The central bay, which projects beyond the others, is the main entrance to the church offices. The three on each side give access to the shop-fronts, which are recessed. A feature of the street elevation is the large amount of flat wall-space to fenestration. The building has a frontage of 74ft., and a depth to the Young-street back-lane of 142ft., and is in two blocks, connected by a corridor, giving an H shaped plan. The corridor leads to the principal hall, which is 82ft. by nearly 40ft., and 26ft. in height. In the end of last year the business of Sydney Mitchell and Wilson, architects, was taken over by Mr. E. Auldjo Jamieson, who has since had charge of the work.

LIVERPOOL.—Alterations have been successfully carried out in three weeks' time, converting the old Adelphi Theatre into a Sports Hall. The recent alterations provide a raised platform (or balcony) on the stage to hold about 240 persons, well supported underneath with uprights braced together. The ring is 18ft. square in front of same, and projects 2ft. beyond the proscenium opening. The roof principals (and walls) have been strengthened with struts, iron strapped and bolted. The pit will hold about 300 persons. There are three exits, two of which have been enlarged to 6ft. in width clear of the recessed doors (in halves) opening outwards. The balcony holds about 300 persons. The rear partitioning has been cleared away, leaving a clear passage, with cross gangways. The interior of the house has been decorated cane-coloured, and maroon-tinted dadoes with chocolate borders. Mr. J. H. McGovern, architect, 26, North John-street, Liverpool, furnished the designs, and supervised the work. Mr. G. L. Desser was the contractor.

PARK PREWETT.—The Hants County Council, at their quarterly meeting, adopted, after some discussion, the report of the asylums committee as to the proposed erection of a new asylum at Park Prewett Farm, Basingstoke, to provide for 1,300 pauper patients, and for 100 private paying patients. In addition, there will be an isolation hospital, with six beds, and a chapel to seat about 700 people. The architects have been instructed to design the accommodation for pauper patients with a view to further extension up to 1,500. The administrative departments are to be planned at once for the ultimate number. When the county council contemplated building the asylum in 1899 they appointed Mr. G. T. Hine, 35, Parliament-street, Westminster, as architect, under whose advice the site was selected, and who at once began the preparation of the plans. In 1902 the council decided to postpone the building, and Mr. Hine was paid £623 2s. 6d. for the work he had done, and it was agreed that £570 15s. of this should be merged in his normal commission if the work were proceeded with in five years under Mr. Hine's charge. Although that period has expired, Mr. Hine is still willing that the payment should be merged in the commission, and an agreement has been entered into for Mr. Hine and his partner, Mr. H. Carter Pegg, to become the architects of the new asylum. They are to receive a commission of five per cent. on the cost of the works executed under their supervision; but in regard to works of water supply, sewage disposal, electric lighting and heating, the architects will appoint, and themselves pay for the services of specialists, the appointments to be approved by the committee. It is proposed to sink a well on the site of the main asylum block, if water can be found there, so as to concentrate the pumping, lighting, and heating arrangements. Tenders will be invited at once for sinking a borehole for ascertaining whether a supply of water can be obtained there.

CHIPS.

A Classical school is about to be built in Tullamore, from plans by Mr. Thomas McNamara, of Dawson-street, Dublin.

The competitive scholarship of £100 awarded by the City and Guilds of London Institute, tenable for two years, and open to the students studying at the Institute's Art School in Kennington Park-road, has been won by Mr. A. L. Howard, of Merton.

The dangerous corner on the Sevenoaks and Tunbridge Wells road at the bottom of Rognes' Hill, Penshurst, is about to be improved at a cost of £760, towards which the Road Board has granted £570. Four cottages will be demolished, and the road will be widened by about 30ft. for 105ft.

An extended use of tarred Kentish rag is to be made in the repair of the Kent main roads in the ensuing year, Mr. H. P. Maybury, the county surveyor, having reported favourably on this material after having put it to a thorough test in various places. In all, 32,345 tons are to be purchased.

The edifice in Deansgate, near Peter-street, Manchester, which has been built as a Congregational church-house, was formally opened on Tuesday. The site was given by the late Mrs. Rylands, and the building has cost £20,000. Messrs. Bradshaw and Gass, of Bolton, were the architects.

Mr. John Begg, F.R.I.B.A., consulting architect to the Government of India—who, it will be remembered, was at the time of his appointment to that important post, in 1896, Vice-President of the London Architectural Association—has arrived at 123, Cromwell-road, Kensington, on furlough.

The death occurred in Dundee on Monday night, at the age of 79, of Mr. Thomas Peddie, for many years a well-known civil engineer in Edinburgh. Mr. Peddie was a native of Logie-almond, Perthshire, and in his youth studied architecture with the late Mr. David Price. Later he devoted his attention to engineering, and was for many years assistant of Sir Thomas Bouch, who built the first Tay Bridge.

The new chapel for the Solesme Congregation of Benedictines at Quarr, near Ryde, I.W., has just been begun, from designs by Dom Paul Bellot, O.S.B., the resident architect, to whom the new abbey buildings are due. The chapel will be of red brick with a tiled roof, and will consist of nave, sanctuary, and crypt, with a tower about 100ft. high. The cost has been estimated at about £15,000, and the work will be completed in about eighteen months.

The Holme Cultram Urban District Council's (Cumberland) consulting engineers, Messrs. Henry Adams and Son, of 60, Queen Victoria-street, London, E.C., have reported that the sea-wall and concrete apron at Silloth, about 1,400 yards long, carried out under the first contract, has now been satisfactorily completed, and application has been made to the Local Government Board to sanction a loan in connection with the proposed extension for about 1,000 yards, which is to be carried out as soon as possible.

The ceremony of reopening and dedicating the ancient parish church of St. Ebba, Ebchester, took place on Tuesday. On August 26 last the foundation-stones of the tower, porch, vestries, and organ-chamber were laid, the extensive scheme having been designed by Mr. Crawford Hick, architect, formerly of Newcastle, and now of London, under the supervision of Mr. T. H. Murray, architect, Consett, while the building contractors were Messrs. J. and W. Lowery, of Newcastle. The scheme, which is estimated to cost £1,750, includes bells for the tower, an illuminated clock, and a new organ.

The premises at 62, London-street, Norwich, lately occupied by Messrs. Shapley as a confectioner's shop, are now being demolished, and in the process of breaking up a fine panelling has been found, which seems for unnumbered years to have been papered over. The most noticeable section of this old woodwork is the carved panel over the fireplace, which experts pronounce to be Jacobean, though the original house is said to date from 1560. The panelled chamber and other upper-rooms were reached by a handsome and broad staircase, now almost gone under the workmen's hammer.

Correspondence.

CITY ARCHITECTURE.

To the Editor of the BUILDING NEWS.

SIR,—I have perused with much interest the report in your last issue of the paper read by Mr. Paul Waterhouse before the R.I.B.A., containing a suggestion that the architectural developments of London should be placed under the control of official architects, one of whom should be appointed by each borough council, and that the appointments should only be made for a short term of years, and given to men who are in practice, provided they do not do so in their own district.

Heavily burdened as the country is at present with rates, it is inconceivable that any measure would pass into law at the present time which would involve the appointment of a number of officials whose salaries would have to be found.

The country is not ready to accept any such suggestion. As architects, we all recognise that something is needed to be done. There is a good deal of talk about the preparation of a Registration Bill by the R.I.B.A., as a sequel to the establishment of the Licentiates. A Bill with a similar object has long been before the profession. The passage of either measure would insure that all architects in future should be in possession of at least competent knowledge and skill.

A great deal of what would be accomplished by Mr. Waterhouse's officials could be done at once if the Registration Bill which is eventually passed were to contain a clause to the effect that no drawings submitted to local authorities for building work should be valid unless they were signed by registered practitioners. This would insure that at least the drawings had been supervised by a trained architect, and would, to a large extent, do away with the present scandalous state of affairs, which we country architects probably recognise more fully than those who are engaged upon bigger works in London.—I am, etc., H. C. W. BLYTH.

Victoria-chambers, Lowestoft, Feb. 18.

The annual dinner of the Royal Institute of the Architects of Ireland will take place to-morrow (Saturday) evening, in the Shelbourne Hotel, Dublin. His Excellency the Lord Lieutenant will be the guest of the Institution.

Several additional pictures are to be presented to the Royal Exchange. Alderman Sir Charles Wakefield will give one, to be painted by Mr. Frank O. Salisbury, R.B.A., and to depict Alfred the Great repairing the walls of the City in the 9th century. Another picture, the gift of Mr. W. W. Astor, will depict William II. building the Tower of London; the artist is Mr. C. Goldsborough Anderson. Yet a third painting is to be given by Mr. Arthur Franklin and his brothers. The artist, Mr. J. H. Amschewitz, will show Henry VI. at the Battle of Barnet, and the Trained Bands marching to the support of Edward IV.

Mr. J. Harvard Thomas's life-size statue "Lycidas," which, after having been rejected in 1905 by the authorities of the Royal Academy, was exhibited at the New Gallery, has now been presented to the nation by Mr. and Mrs. M. E. Sadler through the National Art-Collections Fund, and is on view in the Statuary Hall of the Tate Gallery. A small landscape by Courbet, a study of a sea-beach, has been presented to the National Gallery by a friend of the late Mr. William Lomas, in memory of that gentleman, to whom it belonged. Fourteen drawings, chiefly in charcoal, by the late Mr. J. M. Swan, R.A., have been presented by the Committee of the Swan Memorial Fund.

The Transactions of the highly successful Town Planning Conference held in London in October last are about to be published in volume form as a royal 8vo. 700 pages, with 300 maps, plans, drawings, and photographic illustrations. Every member of the Conference receives a copy of the Transactions free; but, owing to the numerous applications for additional copies, the Council of the Royal Institute of British Architects have decided to issue a special edition, bound in cloth gilt, at the price of 28s. As an inducement to subscribers, orders will be received for this special edition, at 21s. net, until March 13 next; but under no circumstances will copies be supplied under the published price of 28s. net after that date.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. L. F. Smith, "Westhall," Clarendon-road, Redhill.

QUESTIONS.

[13010.]—VENTILATION.—A number of persons, N, each exhaling c cubic feet of CO_2 per hour enter a room of cubic capacity C cubic feet. The outside air and the air of the room at the start hold p parts of CO_2 in 10,000. At time T a fan extracting F cubic feet per hour of the room air is started, F cubic feet of fresh air entering in place. Assuming the air is uniformly vitiated, find (1) q the contamination of the room air in parts of CO_2 per 10,000 at time T_1, and (2) the value of F such that the room contamination shall not exceed r parts of CO_2 per 10,000 at time T_2.—Ventilation.

[13011.]—LEGAL LIABILITY OF ARCHITECT AS VALUER.—A client has commissioned me to survey and value some premises, viz., a converted cottage used as a fried-fish shop (rent inflated) in a populous district, as he is thinking of investing. Will some experienced reader kindly state if this can legitimately be considered part of architect's duties, without breaking the rules of professional practice or etiquette? How far may an architect go in valuing property without requiring a valuer's license (the possession of which, I presume, would constitute him a valuer, and debar him from admission to the R.I.B.A. par exemp.), and yet act in strict accordance with the best professional practice? Where draw the line? Would it be in order to value the house and land, ignoring business, and state the result as an "opinion"? Can cases be stated to clear this point? It is a common practice for architects to survey houses built and building for mortgage loans. Are these valuations legal without a valuer's license? Would the use of the word "opinion" meet the situation as a compromise?—Dubious.

[13012.]—PETROL GAS LIGHTING.—Is the following system of petrol-gas lighting safe and satisfactory? Tank at highest point supplying petrol burners by gravitation, gas generated at burners. Economy of installation and maintenance essential.—S. J. W. W.

[13013.]—ELEMENTARY SCHOOL VENTILATION.—Particulars wanted as to a convenient form of hopper casement for use in elementary school classrooms, and fitted in the lower portion of an ordinary sliding-sash window. The construction should be of wood throughout, and side checks allowed for, in order to counteract draught.—H. L. T.

[13014.]—WET CEMENT FLOORS.—I have trouble with my cement cottage floors becoming wet again, after having been white-dry. Generally it is when the atmosphere is damp, when water will actually stand on them. I put 14cwt. of cement to a floor 13ft. by 14ft., top layer, about ¾in., being fine limestone, or ashes, or gravelly sand (no river sand). Can anyone give me a wrinkle how to prevent this dampness arising?—Perplexed.

[13015.]—OPERATING-THEATRE FLOOR.—What is the most suitable material for a floor of a small operating theatre in an infirmary, having regard to the possibility of stains, the necessity for freedom from chill to, or slipping of the feet of, doctors and nurses, and the need of frequent washing. Can proof be given of the efficiency of any of the new plastic jointless materials for such a floor. Testimony from experience will be valued.—Surgery.

REPLIES.

[13008.]—LOAD ON WAREHOUSE FLOOR.—To find the load which the floor will safely carry, first find the load which each C.I. column will carry by Gordon's formula for long columns:

$$R = \frac{A\,r}{1 + a\,\frac{l^2}{d^2}}$$

where—

R = total safe resistance to compression.

A = effective cross-sectional area = average area in tapered columns, in this case 15.9sq.in.

r = safe resistance to compression = 6 tons with factor of safety of 6.

a = constant ascertained from experiments upon numerous sections = $\frac{1}{400}$ for C.I. solid circular columns with both ends flat or rigidly fixed.

l = length of column in inches = 252in.

d = diameter of column in inches = 4.5in. Then—

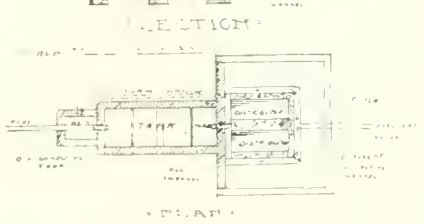
$$R = \frac{15.9 \times 6}{1 + \frac{1}{400} \times \left(\frac{252}{4.5}\right)^2} = 10.7 \text{ tons}$$

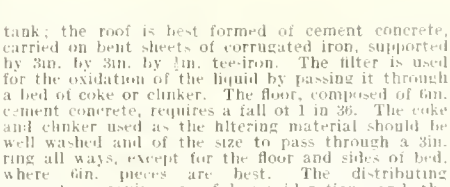
The main girders supported by the columns have fixed ends, and are continuous over the columns; each span may, therefore, be considered as taking one-third of the total load coming on each girder, thus one-third of the total load on each girder will come on each column, and one-sixth on the wall at each end. Now each column will safely carry 10.7 tons, and each girder may, therefore, take up to three times this amount = 32.1 tons. The largest area of flooring carried by one girder = 27.25ft. × 12.5ft. = 340.6 square feet; the safe load of floor per square foot may thus

$$= \frac{32.1 \times 20 \text{ cwt.}}{340.6} = 1.88 \text{cwt.}$$

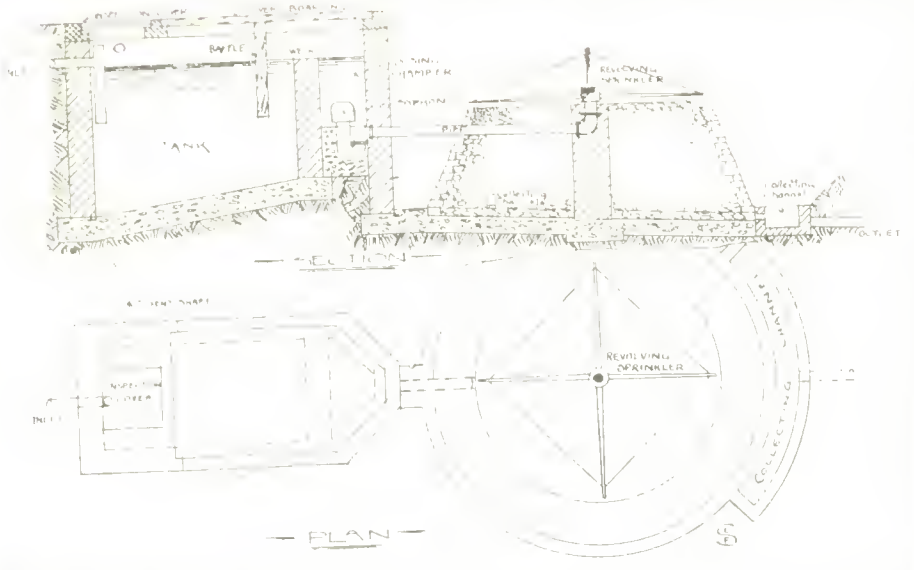
The total area of floor = 953.75 square feet, and the total safe distributed load may = 953.75 × 1.88cwt. = 1,793.05cwt., say 90 tons. Deduct from this the actual weight of the floor itself, which can be easily calculated, and the remainder equals total safe distributed load which can be superimposed on floor. The main girders, if of fir, should be 8in. × 11in.; if R.S.J.'s are used, 8in. × 4in. × 18lb. per foot run, or scantling of equivalent strength. The joists spaced at 12in. centres should be 10½in. × 2in., and efficiently strutted at intervals of about 6ft. "J. H." should compare these with the actual scantlings of the floor; if the actual scantlings are inferior in strength, then the floor cannot be loaded with the amount given above, and the full strength of the columns cannot be developed; the safe load for floor must then be obtained by calculating the safe load for joists and girders, taking each span of the girder as a uniformly-loaded beam, rigidly fixed at each end, and 1½ times the strength of a similar beam supported at each end only. The columns should be rigidly fixed at top and bottom.—S. H. Goodwin, 8, Epsom-road, Croydon.

[13009.] SEWAGE INSTALLATION. — Without more particulars it is only possible to help "Aide-de-Camp" in a general way. In the selection of the position for the tank and filter, due regard should be paid to the fall of the ground, so as to avoid too deep excavations for the drain trenches, whilst it is best to place them where they will not prove too unsightly. The number of gallons to be dealt with per head per day will vary from twenty to thirty, according to circumstances, and will have to be multiplied by two, so as to provide for what is generally known as twice the dry weather flow, or, in other words, the maximum. These particulars will govern the size of the tank, which must be large enough to take one day's supply. The tank is for the removal of the grosser suspended solids, whilst the longer the sewage is held in the tank, the greater the destruction of the organic solids, and the less offensive the sludge. The best proportions for the tank are for the length to be three times the breadth, whilst the depth should not exceed 6ft., for the sake of economy, but, of necessity, all these dimensions will be governed by the special circumstances of the case. A dwarf wall and scum boards should be provided, as shown in the diagrams, to give the liquid an undulating motion whilst passing through the





tank; the roof is best formed of cement concrete, carried on bent sheets of corrugated iron, supported by 3in. by 3in. by ¼in. tee-iron. The filter is used for the oxidation of the liquid by passing it through a bed of coke or clinker. The floor, composed of 6in. cement concrete, requires a fall of 1 in 36. The coke and clinker used as the filtering material should be well washed and of the size to pass through a 3in. ring all ways, except for the floor and sides of bed, where 6in. pieces are best. The distributing apparatus requires careful consideration, and the best from actual experience is Stoddart's system, in which the liquid is conveyed by means of iron channels, fixed dead level, to the galvanised-iron distributors, having drop points, each of which feeds two yards super. of filter bed. The best depth for the filter is about 6ft., whilst each cubic yard of filter bed will efficiently deal with about 200 gallons of liquid per day. If it is desired to deal with the storm water as well, a storm-weir must be provided to take the liquid when it rises to a certain height in the inlet-pipe direct to the filter, instead of passing through the tank. The "lighter" liquid is filtered direct, and the "heavier," being at the bottom, passes through the tank, where the suspended matter is deposited. A detritus chamber with a wrought-iron strainer, is also a useful adjunct, if the storm-water is included, dealing with the grosser suspended matter and saving the filter-bed. The above notes, together with the accompanying sketches, should enable "Aide-de-Camp" to follow the system. It should be observed that there



LEGAL INTELLIGENCE.

PARLIAMENTARY NOTES.

RURAL COUNCILS: NEW POWERS. Answering a question Mr. Burns says he has evidence that substantial use is being made by rural district councils of their powers under the Housing and Town Planning Act. In the four months between the passing of the Act and March 31, 1910 rural district councils made closing orders affecting 162 houses, as compared with 119 in the whole of the year to March 31, 1909. Reports already received from medical officers of health for the year 1910 indicated commendable activity on the part of rural district councils in the direction of getting houses put into a proper state of repair. With regard to the erection of working-class dwellings, applications had been received since January 1, 1910, from eight rural district councils with a view to the raising of loans for this purpose amounting to over £6,800, and in several other cases rural district councils were preparing plans or had proposals for schemes under Part III. of the principal Act under consideration.

IRISH LABOURERS' COTTAGES. In reply to questions, Mr. Birrell said that up to March 31, 1910, 29,486 cottages had been provided under the Labourers Acts, and the average cost, including garden allotment, was about £167. Up to March 31, 1910, the latest date to which the Local Government Board returns are made up, the number of cottages provided with plots not half an statute acre or less was 14,411; the number of cottages provided with plots exceeding half but not exceeding three-quarters of an acre was 1,077; and the number with plots exceeding three-quarters of an acre was 13,698. The average weekly rent of all the cottages and plots provided under the Acts is about 1s.

The salary of Mr. Morgan, architect to the Carmarthenshire Education Committee, has been increased from £325 to £400 per annum.

Mr. James Evers Swindell, Oldswinford Castle, Stourbridge, Worcester, of Messrs. Samuel Evers and Sons, brick manufacturers, of Cradley, who died on November 23, aged 93, son of the late Mr. Samuel Evers (having assumed the name of Swindell in 1851), left estate valued at £38,026 gross, with net personalty £16,757.

Our Office Table.

A National Conference on "Details of Practical Town-Planning Administration" was opened at Liverpool yesterday, and is being continued to-day. The number of representatives appointed to attend the Conference proved much larger than was anticipated, and it was therefore found necessary to secure a larger meeting-place, and to adjourn from the School of Civic Design to the Concert-Room, St. George's Hall. The chair was occupied at yesterday's sittings by Alderman W. Thompson, of Richmond, Surrey, chairman of the National Housing and Town-Planning Council. The delegates were welcomed in the afternoon by the Lord Mayor of Liverpool and by Mr. W. H. Lever. In the evening a conversazione was held, when addresses were given by Professors Reilly and Adshead. To-day (Friday) discussion will take place on the extent to which a local authority should, under a town-planning scheme, relax or alter conditions relating to widths of roads and methods of road construction, and on the standards as to limitation of the number of houses per acre, and the best practical method of applying these standards in the preparation of town planning schemes. At the close of the Conference, the National Advisory Town-Planning Committee will be elected for the coming year. To-morrow (Saturday), the Mayor of Southport has kindly invited the representatives to visit that town, when the visitors will be afforded special facilities for inspecting the boulevards, avenues, public parks, open spaces, and suggested improvements under the Town-Planning Act.

The first inquiry in the South of England under the Town-Planning Act was held at Northwood, Middlesex, on Friday, when Mr. Thomas Adams, an inspector of the Local Government Board, sat to inquire into the application of the urban district council to prepare a town-planning scheme. Mr. E. R. Abbott, clerk to the Ruislip-Northwood Council, said the district, formed in 1904, comprised 6,505 acres, and was almost entirely residential. The population was 1,455 in 1881, 1,836 in 1891, 3,565 in 1901, and 6,237 to-day. The inhabited houses last June numbered 1,230. The wish of the council was to preserve the amenities of the district, its sanitation, and convenience as far as the laying-out of the land was concerned. No objection had been received from large landowners. Included in the area of the scheme, which was 5,859 acres, were 63 acres of the Watford urban district. Alderman William Thompson, chairman of the National Housing and Town-Planning Council, strongly supported the scheme on behalf of the Ruislip Manor, Ltd. Opposition came from representatives of the Hertfordshire County Council and the Watford Rural Council, owing to a portion of the land required in the scheme being in their jurisdiction. The inquiry was closed.

The Institution of Municipal and County Engineers will hold a conference on July 5 and 6, when delegates from various corporations and local authorities of the kingdom, on the subject of the carrying out of the provisions of the Housing and Town-Planning Act. The conference will deal with the subject under two main heads:—(a) The Act in relation to Congested Areas; and (b) the Act in relation to Suburban Areas. Some twelve papers will be contributed by municipal engineers and others, in order that the whole matter may be adequately discussed. The evening of the first day will be devoted to an inspection of an exhibition of plans of town-planning schemes lent by various public authorities.

A new entrance to Buckingham Palace from the Mall is about to be made by the erection of large swing gates on a site to be provided by the demolition of part of the wall and the massive iron railings dividing the courtyard in front of the Palace from the open space in the centre of which stands the Queen Victoria Memorial. The gateway will be situated midway between the existing eastern and western entrances to the courtyard, and directly opposite to the centre archway giving entrance to the quadrangle. The new entrance will be used only on State occasions, and it will remove what has been a source of great difficulty, if not even of considerable danger, hitherto. The teams of eight horses harnessed to the State carriages will, when the new gateway is built, have a straight road to follow across the courtyard instead of, as hitherto, having to make a sinuous movement. Smaller side gateways flanking the main gateway will be provided for pedestrians.

The ninth biennial Building Trades Exhibition will be opened on Saturday, April 22, by Mr. Leonard Stokes, President of the Royal Institute of British Architects. No more successful event is associated with Olympia than the Building Trades Exhibition, organised every two years by Messrs. H. Greville and Hugh C. Montgomery. Main hall, annexe, and galleries will be filled from end to end with exhibits strictly germane to the industry immediately concerned. As before, the galleries will be found to constitute a municipal section for the special benefit of borough surveyors and engineers; whilst the whole of the ground floor is devoted to the multifarious requirements of the architect and builder. The wall which used to separate the main hall from the annexe has recently been removed, the result being that the stands will run continuously from the entrance in Addison-road to the exit in Blythe-road. Arrangements are being completed for official visits of numbers of the many associations and societies connected with the building industry, and there is no doubt that the Exhibition of 1911 will be an even greater success than any of its predecessors.

A second report was issued on Wednesday by the Royal Commission on the Ancient and Historical Monuments of Scotland. The report, which deals with monuments and constructions in the county of Sutherland, states that these were found greatly to exceed in number and importance those previously known to exist, and mainly belong to prehistoric times. Not only have many examples of well-known types been noted for the first time, but a large number of constructions, representing types of early habitations, which have not hitherto been made the subject of special observation on the mainland of Scotland, have been examined and planned. The Commissioners view with much regret the destruction which has overtaken so many remarkable prehistoric monuments and constructions throughout the county, owing to the facilities they have afforded for a supply of stones for road-metal and building purposes; but the efforts of the county council, for the present, have been successful in checking further mischief. The attention of the Commissioners has been directed to frequent instances throughout the county of the excavation of monuments without any record having been kept of the results, or plans made of the structures. This involves the loss of valuable evidence regarding the racial characteristics and culture of the prehistoric inhabitants.

The town council of Salford decided, at the last meeting, to apply to the Local Government Board for permission to borrow £7,944 to defray the cost of erecting a slab-making plant at the Agecroft refuse-destructor depot. Alderman Hulton explained that it was proposed to introduce accelerated-draught furnaces in the destructor that would be able to deal with the increasing quantity of refuse. These furnaces would generate steam, which the committee proposed to use for the purpose of working the slab-making machinery, and also for producing electricity for lighting the depot. It was also proposed to put up clinker screens, so as to make the clinker of greater commercial value. After burning the refuse, there would be about 27,000 tons of residual. The rivers committee would be able to take 8,000 tons, and in the past about 2,000 tons had been used in the manufacture of mortar. In the slab-making plant the committee expected to use about 3,030 tons of the now worthless part of the residual, and from that to make 42,000 square yards of slabs. They hoped to create a demand for this paving material among builders for cellar floors, yards, passages, and so on; and they were certain that the scheme would be successful and profitable. They would save the cost of carting away useless clinker, which was 1s. per ton, while the estimated profit on the slabs was 7¼d. per square yard.

At the quarterly meeting of the Kent County Council, the roads committee reported that they had advertised for tenders for the supply of hard material. Fifty-eight tenders were received from forty-nine contractors. The committee recommended that tenders for 44,930 tons be accepted, and that contracts be ordered to be sealed. For 1910-11 the number of tenders was fifty-eight, from forty-eight contractors. The average cost of the material (delivered loaded free in trucks or on wharf at the port of discharge) was 10s. 3½d. per ton, as against 10s. 4¾d. for 1910-11. The county surveyor, Mr. H. P. Maybury, having reported favourably upon the Kentish rag tarred macadam already laid, the committee invited tenders for a further supply, and twenty-two contractors tendered. The contract with Messrs. D. Godden and Son was at special prices upon the terms that a like order would be given in each of the next two years. Plant had been put down by them at their quarry for the manufacture of the material upon this understanding, and the committee recommended the council to approve it. It was largely due to this special arrangement that the average price was 11s. 6¼d. per ton as against 12s. per ton for 1910-11. The committee recommended that tenders for 32,345 tons be accepted, and that contracts be ordered to be sealed. Sixty-five tenders were received from fifty-four contractors for the supply of other local material (Sevenoaks rock, untreated Kentish rag, and flints), and the committee recommended the acceptance of tenders. The material was to be delivered on the roads, the average price per cubic yard being 4s. 7¾d. as against 4s. 5d. for 1910-11. The total purchases recommended above amounted to 93,375 tons, a quantity which was larger than usual, owing to 24,260 tons being required for ninety-three miles of road in the No. 6 (Dover) Division, where much extraordinary traffic was being conducted for colliery purposes. A claim for the cost of this traffic would in due course be made, and the committee recommended that they be authorised to institute any legal proceedings that may be necessary. The report was adopted.

The second annual dinner of past and present pupils of Mr. G. P. Knowles was held at the Criterion Restaurant on Friday evening last. Mr. Knowles was in the chair. The toast-list included "The Chairman," proposed by Mr. J. S. Killick, A.M.Inst.C.E. The toast of "Past and Present Pupils" was proposed by the chairman, who mentioned that a number of the pupils who were present at the dinner last year were now filling posts of responsibility in all parts of the world, mentioning Japan, India, Canada, Africa, etc. Responses were made by Messrs. G. S. Szlumper, A.M.I.C.E., F. G. Whitley, A.M.I.C.E., and R. K. Jones, P.A.S.I. Mr. G. E. Poole proposed "The Professional Institutions," and Messrs. F. B. Goddard, A.M.I.C.E., F.S.I., etc., and W. H. Rean, Stud.Inst.C.E., G.I.Mech.E., Stud.Inst.E.E., made reply. "The Visitors" were toasted, on the proposal of Mr. J. B. Knowles, and responded for by Messrs. Szlumper, Sen., Sibley, Gayford, and Littlejohn. Interspersed with the toasts was a capital musical programme, contributed by Messrs. S. Carrs, E. Fox, F. B. Goddard, J. H. Hill, G. P. Knowles, J. B. Knowles, A. H. Reynolds, Robinson, F. C. Stally, and F. H. Whitley.

The final returns of the voting among the Amalgamated Carpenters and Joiners show that the scheme of Parliamentary representation recommended by the General Council has been adopted by a large majority, the official figures being:—In favour, 10,036; against, 2,179; majority, 7,857. The scheme provides that three members of the society shall be chosen as candidates for Parliament in suitable constituencies. The selection is to be by a vote of the whole of the members throughout the United Kingdom; candidates must run in connection with the Labour Party, and election expenses will be paid out of a special fund raised by the society by

means of a general levy of 1s per member a year for three years, the levy to be paid at the rate of 3d a member a quarter, but members signifying their objection in writing to the secretary will be exempt from the levy. Candidates elected as members of Parliament will be paid £250 a year.

According to a patent [illegible] Mr. A. Baker, Ramstow, Blandford, Dorset, [illegible] marble is manufactured [illegible] impregnated with [illegible] first made plastic, [illegible] so as not to [illegible] day, and the several pores [illegible] block, again [illegible] evening. Stone [illegible] block, and are [illegible] otherwise. The articles are gradually dried, any cracks that appear [illegible] up, and are finally fired at 800 [illegible] The product is said to be capable of receiving a high polish.

A novel method of washing gravel has been [illegible] at Barger, Ontario, where construction has been under way for some time on a new mechanical filtration plant, which is being built by the New York Continental Jewel Filtration Company, to replace the existing water purification works. The concrete aggregate is delivered in piles near the work, and carried from them to the mixer in wheelbarrows. The gravel contained loam, and it was necessary to wash it before incorporating it in the concrete. To accomplish this, holes were punched in the bottoms and sides of the wheelbarrows, converting them practically into sieves. Between the mixer and the storage piles a water pipe was connected up with a large perforated nozzle at its discharge end. Each wheelbarrow load of gravel on its way to the mixer was rolled under the nozzle, and streams of water discharged upon it, the material being churned about with a spade to expose the lower part of the load to the cleansing action of the water. The water and the loam which it flushed out passed out through the perforations in the wheelbarrow, and the clean gravel was then carried to the mixer and used.

According to the *Electrical Review and Western Electrician*, a picture-gallery at Hartford, Conn., is illuminated by daylight exclusively by overhead skylights. To avoid suspended fixtures, and to imitate the conditions of daylight for artificial illumination, sixty watt tungsten lamps were employed, on account of the resemblance of their spectrum to that of daylight. They were installed two feet above sheets of special sand-blasted glass, and equipped with special deflecting mirrors. The intensity of the light was softened by the frosted glass, and the concentrating mirrors were so arranged as to throw the light mainly on the walls instead of allowing it to waste on the floor. The effect is compared to that of the direct rays of the sun shining through a slight mist, which mitigates the glare without absorbing too much light.

The "American Civil Engineer's Pocket-Book," published in this country by Messrs. Chapman and Hall, Ltd., is a really magnificently conceived and excellently-edited reference book of 1,380 pages, teeming with information, and yet so printed and bound as to be handy and portable. It is the outcome of the idea of the Editor, Mr. Mansfield Merriman, with whom several highly qualified men have acted as assistant editors, each responsible for his special section. The thirteen sections contain seventy-five chapters, 620 articles, 495 tables, and 944 numbered figures, equivalent to about 1,200 ordinary cuts. Sections 2 to 11 inclusive deal with civil engineering proper; Section 1 gives tables for approximate mathematical computations, while the rest cover mathematics, physics, meteorology, and weights and measures.

Mr. Walter P. Harrison, surveyor to the Warminster Rural District Council, has been appointed surveyor by the Yeovil Town Council in succession to Mr. Burnett.

Plans have been sent in to the Gillingham Council by Mr. Ernest J. Hammond for a new church in Nelson-road for the Primitive Methodists. It is hoped that building opera-

MEETINGS FOR THE ENSUING WEEK.

Friday (To-day).—Institution of Civil Engineers. "The Design and Construction of Works for the Bacterial Purification of Sewage," by Reginald John Samuel, B.Sc., Stud.Inst.C.E. 8 p.m.

Saturday.—To-morrow.—Royal Institution. "Byzantine and Romanesque Architecture," No. 3 (Closing Lecture), by T. G. Jackson, R.A. 3 p.m.
Royal Institute of the Architects of Ireland. Annual Dinner at Shelbourne Hotel, Dublin.

Monday.—Victoria and Albert Museum. "Spanish Mediæval Architecture" (Lantern Illustrations), by Banister F. Fletcher, F.R.I.B.A. 5 p.m.
Royal Institute of British Architects. Business Meeting. 8 p.m.

Tuesday.—British Museum. "Early Christian Architecture in Rome" (Lantern Illustrations), by Banister F. Fletcher, F.R.I.B.A. 1.30 p.m.
Royal Society of Arts. "Resources and Problems of the Union of South Africa," by Sir Richard Solomon, K.C.B., K.C.M.G., K.C.V.O. 4.30 p.m.
Royal Photographic Society. "Lordly Lincoln," by E. W. Harvey Piper, Hon. M.S.A. 35, Russell-square, W.C. 8 p.m.
Institution of Civil Engineers. "Modern Railway Signalling: Some Developments upon the Great Western Railway," by Alfred Thomas Blackall, M.Inst.C.E. 8 p.m.

Wednesday.—Royal Society of Arts. "Caisson Sickness and Compressed Air," by Dr. Leonard Hill, F.R.S. 8 p.m.
Edinburgh Architectural Association. "Notes on the Recent Town Planning Conference," by J. A. Williamson, A.R.I.B.A. 8 p.m.
Carpenters' Hall Lectures. "Joinery in Old London," by Arthur Keen, F.R.I.B.A., F.S.A.A. 7.45 p.m.

Thursday.—Carpenters' Hall Lectures. "Fire and Fire Risks," by Prof. Vivian B. Lewes. 8 p.m.
Leicester Society of Architects. "The Growth and Development of Leicester," by Arthur Wakerley, F.R.I.B.A. 8 p.m.

Friday (March 3).—Institution of Civil Engineers. "Lagos Harbour Survey, 1909—1910," by H. Ellis Hill, jun., B.Sc., Stud.Inst.C.E. 8 p.m.
Glasgow Architectural Craftsmen's Society. "A Study of French Masonry," by James S. Boyd. 8 p.m.

Saturday (March 4).—Architectural Association. Visit to New Recruiting Station and Shelter, Old Scotland Yard, Whitehall. 2 p.m.
Clerks of Works Association. 28th Annual Dinner, King's Hall, Holborn Restaurant. 6.30 p.m.

Mr. Bellis, of Bangor, has been appointed architect for the workhouse infirmary, which is to be erected at a cost of £14,000 in that city.

Lord Ampthill, the Pro-Grand Master of England, laid the foundation-stone on Wednesday, with full Masonic honours, of the new buildings at the Royal Berkshire Hospital, Reading, which are to cost £20,000.

The Dewsbury Town Council have, after a sharp debate, decided to apply for a provisional order under which powers may be obtained to so extend and improve the sewage-works that trade effluents can be dealt with.

Mr. Charles Prattman Douglas, of Thornbeck Hill, Carmel-road, Darlington, Durham, formerly for over 33 years chief engineer to the Consett Iron Company, who died on November 5, aged 73, left estate valued at £48,468 gross, with net personalty £43,150 in the United Kingdom.

The borough engineer of Huddersfield has been authorised to obtain tenders for the materials for doubling the line in Northumberland-street from Northgate to Leeds-road, for constructing a new loop in Ashbrow-road, and for the Newsome-road and Birchencliffe extensions.

A contract, exceeding £1,260,000 in value, for the water supply to the city of Baku, in Russia, Trans-Caucasia, has just been awarded to Messrs. Norton Griffiths and Co., Ltd., contractors, of Griffiths House, London-wall. The competition was an open one, and several foreign firms tendered.

The approved alternative design prepared by Mr. J. H. McGovern, architect, 26, North John-street, Liverpool, for the erection of a church, etc., at Parkfield road, Liverpool, in the Classic style, at a cost of £5,000, on the above site, for the Methodist New Connexion has been postponed in consequence of a suggestion by one of the committee "that a cheaper site could be obtained at Garston."

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We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the Building News, Effingham House, 1, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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Bound copies of Vol. XCVIII. are now ready, and should be ordered early (price 12s. each, by post 12s. 9d.), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XLI., XLVI., XLIX., LIII., LXI., LXII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXIX., LXXX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., LXXXVI., LXXXVII., LXXXVIII., LXXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., and XCVII. may still be obtained at the same price; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

Handsome Cloth Cases for binding the Building News, price 2s., post free 2s. 4d., can be obtained from any Newsagent, or from the Publisher, Effingham House, 1, Arundel-street, Strand, W.C.

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Rates for **Trade** Advertisements on front page, and special and other positions, can be obtained on application to the Publisher.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

Received.—E. A. I. C.—W. H. S. and Son.—N. and A. A., Ltd.—G. and Son.—R. A. P. Co., Ltd.—J. H. D.—J. W. and Co.—J. G. K. and Son.—H. E. and Co.—B. C. and Co.—Z. P. M. and Co.—H. G.—F. D. and Co.—I. C. and Co.—T. R. K.—R. A. and Co.—Major S.—C. L. and Son.—M. Bros., Ltd.—W. E. S.—Q. M. C.—S. G., Ltd.—J. H. G. Co.

Fairfax.—No.

M. K. S.—Yes; if brief.

Tox.—A day behind the fair!

Mid-Sussex.—Thanks; but you and the vicar must settle your own differences!

F.R.I.B.A. — We prefer to insert no letters on this matter unless names and addresses are appended.

Ajax.—Much depends on circumstances. The longer the brickwork can be left to dry the better; but your own architect or builder will best advise you.

T. L. F.—Our heart yearns to say, "Be it unto thee according to thy faith!" But the trifling relaxations that fill our days of idleness prevent us from acting as honorary architects, even to benevolent institutions.

Beam.—Sorry, but there is something wrong with that formula! Where is it from? We really cannot make head or tail of it. We advise the careful reading of an excellent series of articles we commence on another page to-day.

March 3, 1911. Volume C.—No. 2930

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House, Strand, W.C.

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OUR ILLUSTRATIONS.

Swedish Church, Harcourt-street, W. Messrs. Niven and Wigglesworth, Architects. Drawn by Mr. Axel H. Haig.

City Hall, New York. Design submitted by Messrs. W. and G. Audsley, Architects.

Figure Frieze: "Music." Painted by Mr. George P. Denham, A.R.C.A., at 10, Craven-hill, W. Mr. Maurice E. Webb, M.A., Architect.

Side Chapel Panelling and Decoration, Coseley Parish Church. Mr. A. T. Butler, F.R.I.B.A., Architect. Paintings by Miss Florence Camm.

Some Notes on Balusters. By Mr. H. Slicer, M.S.A.

Reinforced-Concrete Buildings in London. Photographs and Sections.

Improvements in Reversible Windows.

CAN WE GET CHEAPER SCHOOL BUILDINGS?

The Report of the Departmental Committee on the Cost of School Buildings was issued last week; but it only reached us at the moment of going to press, and we had, therefore, only time to summarise its contents. The Committee consisted of Mr. Selby-Bigge, C.B., Mr. Kershaw, C.B., and Mr. Felix Clay, and the questions referred to them were: (*a*) "Whether the cost of building for public elementary schools can properly, and with due regard to their suitability and durability, be reduced by the use of materials or methods of construction different from those ordinarily employed at present? and, if so, (*b*) What steps should be taken to facilitate the adoption of such materials or methods, and whether any alteration in the law is required for the purpose?"

The Committee held sixteen meetings, and examined thirty witnesses. They visited buildings at Anerley, Ipswich, Bordon Camp, Harrow, Borstal, and Windsor. They communicated with the Royal Institute of British Architects, and with seven other professional bodies, one of whom — the Land Agents' Society — appointed a special committee of its own to collect evidence from members, and prepared a summary of all the replies it received. The education committees of all the county councils (141 in number) were also communicated with, and further evidence was offered by independent architects and engineers, which in many cases was made use of, and of which there is an abstract in the present Report. The questions which were referred to the Departmental Committee amount practically to this: "Will any new materials or new forms of construction give us schools as useful and as durable as we are obtaining now?" And then, instead of an answer, this very pertinent question comes back: "Don't you think some school buildings are a good deal too durable, even as it is?" Even quite modern schools have to be altered, and many are so substantial that to alter them is a difficult and a costly thing. Some of those which are now being built may have to be either remodelled or abandoned before long, because of an advance in educational methods or a change in popular ways of living. Is there really any need to make a schoolhouse as solid as a warehouse, or as eternal as Sir Christopher Wren thought that a church should be? Changes may happen anywhere. Changes are especially sure to happen where there is a shifting population; where the working classes are slowly moving out to the suburbs; and where yet, though these classes are gradually on the move, some new schools are still wanted in the inner districts which they are leaving. For cases like these, *semi*-permanent schools, cheap, warm, and weather-proof, as well as inexpensive to maintain while they *have* to be maintained, seem to be a *desideratum*. The chairman of the Land Agents' Society, with whom many other witnesses substantially agreed, considered it a doubtful policy, in view of the constantly altering requirements of the Board of Education, to erect structures meant for a long life, seeing they grew obsolete so soon; and he, like others, would welcome legislation to exempt school buildings whose plans had been approved by the Board of Education from the necessity of complying with local by-laws or Building Acts; and this, in the end, proved to be the opinion of almost every witness. The Departmental Committee, in their Report, recommend this exemption of school buildings, whose plans have been passed by the Board of Education, from the operation of local building by-laws and local Acts; and this is, perhaps, the most practical recommendation they make. Like many other arts in England, school-building suffers from having too many cooks. No doubt the cooks who are robbed of their fees will complain; no doubt they will be justified in doing so, and no doubt they ought to be fairly compensated.

As to novel modes of construction, the Committee think some of them (they avoid saying which) are "distinctly promising, and offer a fair prospect of farther saving." And they recommend that the local education authorities should be encouraged to welcome, rather than to hinder, experiments in building, from which much may be learned. Whether local architects will be equally ready to introduce novelties from which they will derive no benefit if they succeed, and for which, if they fail, they are sure to get most of the blame, is a different question. We should rather say, with Andrew Fairservice, "We doot it." Among the causes which have made school-building dearer, the architect to the Staffordshire Education Committee puts the increase in heating due to the extra ventilation now required. When the Education Act of 1902 came into force, 10ft. super. of heating-surface to 1,000cu.ft. of air-space was thought sufficient. Soon after this date the Staffordshire authority found it necessary to increase the 10ft. super. to 18ft., and they now, on the average, employ 25ft. of heating-surface to warm 1,000cu.ft. of contents. This increase from 10ft. to 25ft. super. of heating-surface means (in Staffordshire, where coals are cheap) about three shillings annually (?) per child, besides the cost of maintaining the apparatus. Mr. Searles-Wood, chairman of the Council of the Royal Sanitary Institute, thought thin brick or brick-on-concrete walls would prove unsuitable for a school, on account of the differences of temperature, so that in winter the condensation on the walls would be excessive, while in summer such a building would be almost as hot as an iron one. He thought timber schools, on the Swedish system, would be satisfactory, and would last for thirty years, and he gave an interesting description of the way of constructing them.

The difficulty about sufficiently warming schools walled in with concrete slabs comes before us again in the evidence of Mr. Cecil Sharpe about the schools at Anerley, which were designed, it appears, in partnership, by himself and Mr. Lee Clarke. The cost of heating this building, we are told, was increased, in comparison with that of a brick school, by about 20 per cent. of heating-surface, on account of the thin walls; and if we add this 20 per cent. to the 15ft. per 1,000cu.ft. which Mr. J. Hutchings tells us has been found needful in Staffordshire (presumably with brick-walled schools) since 1902, we shall find little that will tempt a prudent architect to experiment in these thin facings, either of brick or concrete. Dr. Meredith Richards, of Croydon, another witness, did not think a building with 3½in. concrete walls could be satisfactorily heated, and such a difficulty has actually arisen at the Manchester Children's Hospital. Mr. W. E. Riley, architect to the London County Council, would be more cautious in authorising construction in reinforced concrete than in steel framing, as there is a lack of complete evidence, so far, as to the behaviour of the former, and because any error about it would be likely to be the more disastrous. Mr. Searles-Wood said steel-frame construction was a proper subject only for specialists, and he thought that building by-laws might be relaxed to permit of the erection of timber schools. Mr. Cecil Sharp stated that he himself had designed a concrete block so as to practically isolate the steel from the concrete. But how long, we wonder, would the steel last if so isolated? Does not its durability essentially depend on the lime or concrete which forms its air-tight enclosure? Mr. Skelmerdine, surveyor to the Liverpool Corporation, suggested several economies: asphalt (value about 2s. per yard in Liverpool) instead of granolithic (value about

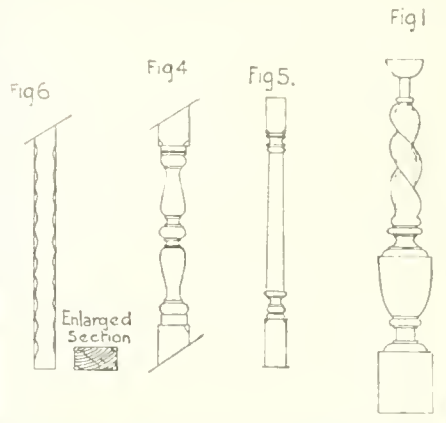
...ds.); walls ... concrete slabs ... roof with roughcast so as to ... Hill, rock finished (which ... necessitate, he says, ... tional heating ... ventilating ...). Tenders ... obtained ... times and the lowest ... all fees works ... at £2 2s. ... £1,050 for the ... Messrs. M. J. Osborn ... hygiene ... schools was ... though not ... the ... be built ... expenditure ... He would ... with ... strictly ... on Hill ... between the schools we might ... all the flues ... that partitions could be easily moved and the ... systems easily altered.

Various ... economies ... general conditions ... as they ... Mr. Jacques, Mr. Hutchings, and Mr. Twelvetrees considered that a saving was often possible by using reinforced concrete. As to floors, Mr. Gillingham Wilson thought that boards laid on concrete would prove as good as wood blocks. But the idea does not seem to have commended itself to the Departmental Committee, who mention cases (which we could add to) in which such a flooring has been attacked by dry-rot. Mr. Langen Barker recommended jointless floorings, such as Cork adamant, as being more durable. For the flooring of upper rooms, reinforced concrete found favour. For a roof-covering, asbestos slating had its advocates, chiefly because its lightness allowed of smaller scantlings in the timbers—though whether smaller scantlings would always mean cheapness some architects see reason to doubt. In some cases flat roofs of reinforced concrete covered with asphalte have been found economical, as well as useful for playgrounds. Dados of second-quality salt-glazed brick have been found quite good enough—much better, as well as cheaper, we suggest, than first-quality enamelled ones, though sure to be condemned by some school managers for their very merits. Dados that could be used as drawing-boards found their friends, though they are the horror of the heads of schools in low districts, like some in South-East London. Boundary-walls seem responsible for much needless outlay, of which the Board of Education has often pointed out the uselessness. The conclusion of the matter, as it strikes the Departmental Committee, seems to be that cheap schools had been built, in most cases, not by special contrivances at any one point, but by small and well studied savings all round. This is quite apart from the question whether the standard of permanence for elementary schools is not, as a uniform thing, fixed too high about which we shall, perhaps, in due course hear a good deal more. The Report should interest every architect who has cheap buildings in plan.

SOME NOTES ON BALUSTERS.

By H. Slocr, M.S.A.

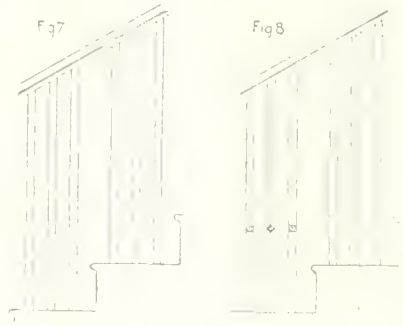
The "back to the land" principle which underlies the movement for garden suburbs has aroused a keen rivalry in the neatness and suitability of small house construction, the type of many of our old homesteads being taken as a model, and the treatment of the interiors being carried out on the same lines. The increased employment of naked carpentry and joinery is everywhere apparent, although the old treatment of all the wall surfaces in oak panelling and wainscoting is not attempted to such an extent, due to the introduction of cheaper modern surface finishings, such as plastering, distemper, washable paints, and wallpaper. Cheap wall papers, however, are really costly in the end, requiring constant renewals. Restfulness is the keynote of tasteful modern



decorations, and in some cases this end is gained by the employment of stained wood panelling, window seats, and exposed and darkened ceiling joists.

The staircase, instead of being enclosed between two walls in a straight flight—a very common practice thirty years ago, when the abomination of our manufacturing towns, endless rows of houses, were built—is now preferably left open to the sitting-room, else enclosed in a hall which can be used as such, leaving at least one side of the woodwork exposed, and guarded by balusters and handrail. The selection of the balusters depends upon the importance of the hall they are to occupy, for of necessity it would not do to employ mean balusters in a hall of stately dimensions. Highly ornate woodwork should, therefore, only be employed where the surroundings are in keeping, and quiet but neat balusters are necessary for the cottage home.

For a house of large size, balusters can be used of the class shown in Figs. 1 to 3, which are taken from old examples. These are what might be termed expensive, and are really only at the best advantage where the staircase is of large size and in a pre-



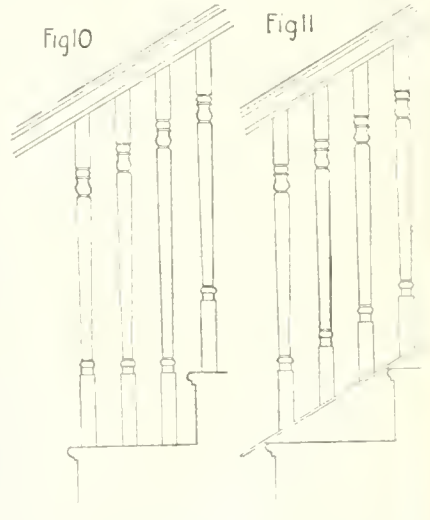
tentious hall. Fig. 1 is from Chalcombe, near Banbury; Fig. 2 from South Littleton, Worcestershire; and Fig. 3 from Rushbrook Hall, Norfolk.

For a smaller house, Figs. 4 and 5 show suitable types, the simple turned work being not expensive to produce, and the effect is quite in keeping with a suburban residence. Neatness is the keynote aimed at, and a smart appearance does not necessarily mean great expense. Fig. 4 is from Clifton, Maybank, Somerset, and Fig. 5 from Gawsey Hall, Lancashire.

Metal balusters with stone steps are not happy except in the case of elaborate staircases, as in hotels and clubs, and are altogether too heavy and out of place in a dwelling, except it be a palace. For the cottage home the staircase should be quite simple, plain square bars, arranged equidistantly or grouped, are very effective. Grouping, as shown in Fig. 7, is, however, the better method of treatment in such a case.

Variety can be introduced into the plain bars by placing the central one with a sectional diagonal in line with the strong, as shown in Fig. 8, there then being three arris-lines appearing in elevation. Endless patterns can be made by the use of 1in. square stuff in the geometrical formation for balustrading, an example of which is shown in Fig. 9. The framing, being quite simple, is not costly: the three uprights A, B, and C are fixed in the ordinary way at top and bottom, the other sloping and vertical pieces are halved at the joints or simply butt-jointed, nailed, and treated with white enamel paint. White enamel paint is much used nowadays, and to advantage. Its appearance is fresh, clean, and bright, and regular washing keeps its appearance smart.

These straight bars do not harbour dust like the more ornate and elaborately-



turned balusters, and being easily washed, there is much to be said in their favour. They do not require such an expenditure of time and labour in dusting and polishing as the other forms, and in a cottage home are more in keeping with the general character of the house.

The notched baluster shown in Fig. 6 is not so good for this reason, and although it shows an attempt at ornamentation in contrast with the square bars, it is but a sorry use of the craft of the joiner. It is

an open question if this wave-moulding is artistically really an acquisition.

Where a cut string to the stairs is employed, as shown in Fig. 10, the balusters have to be made in three lengths to obtain the best appearance, and the lower square portion should be made the same length as the rise of the step. The turned portions then vary in height in every three balusters, and this gives a break and a sort of additional pattern to the balustrading as a whole. This is really preferable to the use of balusters of the same length, which are employed when the string of the stairs runs through, as Fig. 11. There is no reason, however, why this should be so. The same idea could be carried out as embodied in Fig. 10 by making every set of balusters start their turned portions from the same horizontal level, and this would be a reflection of the steps behind, which, although not seen at the string end, are, nevertheless, exposed to the gaze of the onlooker at their wall ends.

Fig. 12 shows a type of flat baluster, being 1½in. to 2in. wide and ½in. thick. These can be pierced in a variety of ways, and give a neat appearance.

REINFORCED CONCRETE DESIGN. II.

By Richard Coulson, Licentiate R.I.B.A., and Richd. Coulson, Jun., Assoc. R.C.Sc.I.

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THEORY AND SYMBOLIC FORMULÆ FOR SHEARING STRESSES AND REINFORCEMENTS.

Considering the maximum shearing stress in a beam or slab—

$$s_c = \frac{2{,}240\,V}{bl}$$

s static moment of A_s about the neutral axis.

But— $$\frac{M}{I} = \frac{f_c}{rd(1-x)}$$

and— $$R = M = A_s f_s d\,(1 - x\ 3)$$

Therefore—

$$s_c = \frac{2{,}240\,V\,r\,A_s d\,(1-x)\,f_c}{A_s f_s d\,(1 - x\ 3)\,r\,d\,(1-x)\,b}$$

Substituting for r—

$$s_c = \frac{6{,}720\,V\,(r f_c + f_c)}{b d\,(2\,r f_c + 3 f_s)} \quad \ldots\ldots\ldots(12)$$

Thus if s_c is the safe shearing stress on the concrete, shearing reinforcements must be provided:—

In rectangular beams with single or double reinforcement, when V is greater than—

$$\frac{s_c\,b d\,(2\,r f_c + 3 f_c)}{6{,}720\,(r f_c + f_c)} \quad \ldots\ldots\ldots(13)$$

In T-beams with single or double reinforcement, when V is greater than—

$$\frac{s_c\,b' d\,(2\,r f_c - 3 f_c)}{6{,}720\,(r f_c - f_c)} \quad \ldots\ldots\ldots(14)$$

In slabs with single or double reinforcement, when V is greater than

$$\frac{s_c\,t\,(2\,r f_c - 3 f_c)}{560\,(r f_c - f_c)} \quad \ldots\ldots\ldots(15)$$

FOR A SINGLE REINFORCED RECTANGULAR BEAM WITH UNIFORMLY DISTRIBUTED LOAD.

$$V = L\ 2\,(W + W'),$$

and—

$$3\ 2\,(W + W')\,L^2 = \frac{b d^2 r f_c^2\,(2\,r f_c + 3 f_c)}{6\,(r f_c + f_s)^2}$$

therefore shearing reinforcements will be required when—

$$d \text{ is greater than } \frac{3\,L\,s_c\,(r f_c + f_c)}{1{,}120\,r f_c^2}$$

FOR A DOUBLE REINFORCED RECTANGULAR BEAM WITH UNIFORMLY DISTRIBUTED LOAD.

$$V = L\ 2\,(W + W')$$

and— $$3\ 2\,(W + W')\,L^2 = A_s f_s d\,(1 - x\ 3)$$

therefore shearing reinforcements will be required when—

$$A_s \text{ is greater than } \frac{3\,s_c\,b\,L}{2{,}240 f_s}$$

Similarly for slabs, shearing reinforcements will be required:—

With single reinforcement, when—

$$t \text{ is greater than } \frac{3\,L\,s_c\,(r f_c + f_c)}{1{,}120\,r f_c^2}$$

With double reinforcement, when—

$$A_s \text{ is greater than } \frac{9\,s_c\,L}{560 f_s}$$

THEORY AND SYMBOLIC FORMULÆ FOR STIRRUPS.

Where shearing reinforcements are required, vertical stirrups may be used, and are calculated for on the assumption that the concrete does not resist any shearing stress.

In a beam, as Fig. 4, with ends freely

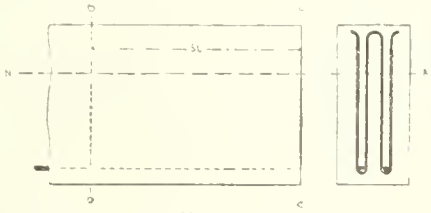


Fig. 4.

supported and carrying a uniformly distributed load, the bending moment at middle of beam C C is

$$3\ 2\,(W - W')\,L^2 \text{ tons-inches,}$$

and the bending moment at a section, D D, distant S L from C C, is—

$$3\ 2\,(W - W')\,(1 - 4S^2)\,L^2 \text{ tons-inches,}$$

their difference being—

$$3\ 2\,(W + W')\,L^2\,.\,4S^2 \text{ tons-inches;}$$

but since moment of resistance must equal bending moment—

$$3\ 2\,(W + W')\,L^2\,.\,4S^2 = \frac{4S^2 b d^2 r f_c^2\,(2\,r f_c + 3 f_c)}{6\,(r f_c + f_c)^2}$$

On dividing this by the arm of the resistance-couple, we get on the right-hand side of the equation

$$\frac{2S^2 b d r f^2}{(r f_c + f_c)}$$

which is the difference in the total force, above or below the neutral axis, at the sections C C and D D, and the shearing resistance of the stirrups at D D must equal this. Therefore,

$$2\,n\,\frac{\pi}{4}\,u^2 s_s = \frac{2S^2 b d r f^2}{r f - f_c}$$

The spacing of the stirrups must be such that there are equal increments of bending moment between successive positions; therefore, for a beam with uniformly distributed load, if the distance from centre of beam to the first position is S L, the distance to the second position will be $\sqrt{2}\,.\,S\,L$, and the Nth position will be $\sqrt{N}\,.\,S\,L$;

but— $$\sqrt{N}\,.\,S\,L = L\ 2$$

therefore— $$N = 1\ 4S^2$$

The total cross-sectional area of stirrups in the beam will be—

$$2\,N\,\frac{\pi\,u^2}{2}$$

but— $$\frac{\pi\,u^2}{2} = \frac{2S^2 b d r f^2}{s_s\,(r f + f_c)}$$

and— $$2\,N = \frac{1}{2\,S^2}$$

therefore the total cross-sectional area of stirrups will be—

$$\frac{2\,A_s f_c}{s_s} \quad \ldots\ldots\ldots(16)$$

This is true for rectangular beams, slabs, and T beams, with single or double reinforcement.

The shearing resistance of the stirrups at one position is

$$\tfrac{1}{2}\,\pi\,u^2 s_s.$$

Assuming that this is produced by a bearing stress, f, acting on the portions of the stirrups above the neutral axis, then for maximum economy—

$$2\,n\,(\tau\ 4)\,u^2 s_s = 2\,n\,u\,d\,x\,f$$

and— $$u = \frac{4\,d\,x\,f}{s_s}$$

or— $$u = \frac{1.27\,d\,x\,f_c}{s_s\,(x f_c - f_c)} \quad \ldots\ldots\ldots(17)$$

The total cross-sectional area of stirrups being—

$$2\,N\,.\,2\,n\,(\pi\ 4)\,u^2,$$

which must be equal to—

$$\frac{2\,A_s f}{s_s};$$

then— $$N = \frac{2\,A_s f}{n\,r\,s_s}$$

and substituting for u—

$$N = \frac{.3927\,A_s f_c s_s\,(r f_c + f_c)^2}{n\,d^2\,r^2 f^2} \quad \ldots\ldots(18)$$

Where rectangular-section stirrups are used, u may be arbitrarily fixed.

The shearing resistance of the stirrups at one position is then—

$$2\,n\,u\,r\,s_s.$$

Assuming, as before, that this is produced by a bearing stress, f, acting on the portions of the stirrups above the neutral axis, then for maximum economy—

$$2\,n\,u\,r\,s_s = 2\,n\,u\,d\,x\,f$$

and— $$r = \frac{d\,x\,f}{s_s}$$

or— $$r = \frac{d\,x\,f^2}{s_s\,(x f_c - f_c)} \quad \ldots\ldots\ldots(19)$$

The total cross-sectional area of stirrups will be—

$$2\,N\,.\,2\,n\,r\,,$$

which must be equal to

$$\frac{2\,A_s f_c}{s_s},$$

therefore— $$N = \frac{A_s f}{2\,n\,r\,f_c}$$

and substituting for r—

$$N = \frac{A_s f_c\,(x f_c + f_c)}{2\,n\,d\,x\,f^2} \quad \ldots\ldots\ldots(20)$$

REDUCED WORKING FORMULÆ FOR STIRRUPS.

$f_c = \frac{1}{4}$ ton per square inch,
$s_s = 5$ tons per square inch,
$x = 15$.

Circular-section stirrups—

$$u = \frac{.395\,d}{4 f_c - 15}$$

$$N = \frac{.14\,A_s f_c\,(4 f_c - 15)^2}{n\,d^2}$$

These become the following for different values of f_c—

$f_c = 7\frac{1}{2}$ tons per square inch—

$$u = .0213\,d$$

$$N = \frac{2{,}120\,A_s}{n\,d^2}$$

$f_c = 5$ tons per square inch—

$$u = .0275\,d$$

$$N = \frac{854\,A_s}{n\,d^2}$$

$f_c = 3\frac{1}{2}$ tons per square inch—

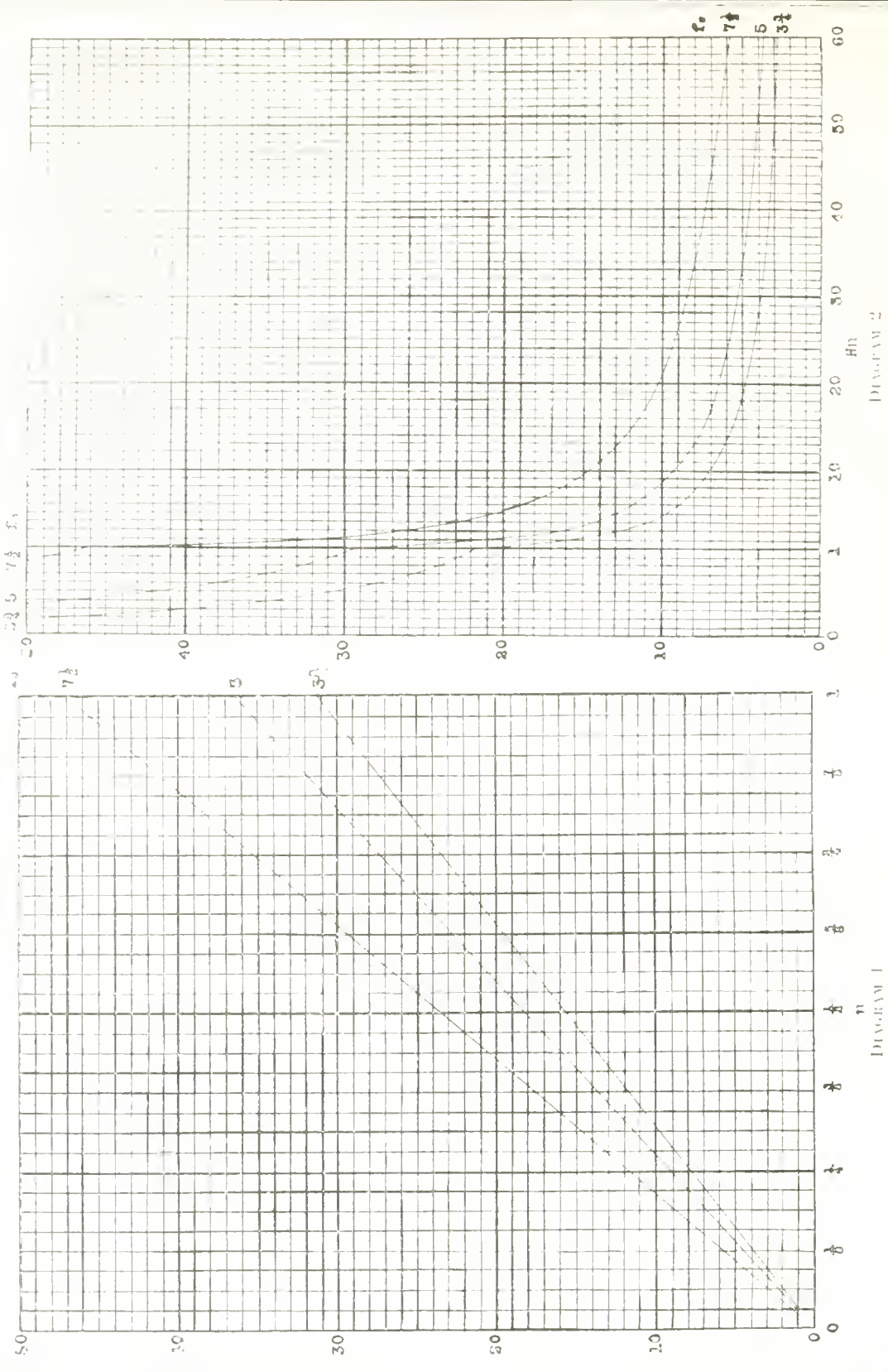
$$u = .032\,d$$

$$N = \frac{471\,A_s}{n\,d^2}$$

u and $N\,n$ can be obtained from accompanying diagrams (1 and 2); or, for rectangular-section stirrups, u may be fixed by the designer, when—

$$r = \frac{1.5\,d}{8 f_c + 50}$$

and— $$N = \frac{2\,A_s f_c\,(4 f_c - 15)}{15\,n\,u\,d}$$



The ... each following set of different values of ...

f = 7½ to ... per square inch—

... .0166 d

N = ... 45 A / nd

f = 5 tons per square inch—

... .0211 d

N = ... 23 A / d

f = ... tons per square inch—

... .025 a

N = ... 15 A / nd

The formulæ given above apply to rectangular and I beams with single or double reinforcement and to slabs if b be substituted for d.

DIAGRAM 1.—DIAMETER OF CIRCULAR-SECTION STIRRUPS.

f = ¾ ton per square inch,
5 tons per square inch,
= 15.

Using depth of beam d, or thickness of slab b, with curve for tensile reinforcement f, read diameter a on base line.

DIAGRAM 2.—NUMBER OF STIRRUPS REQUIRED.

f = ¾ ton per square inch,
5 tons per square inch,
= 15.

Using depth of beam d, or thickness of slab b, with curve for tensile reinforcement f, read $N = A$ on base line, and multiply by A, for number of stirrups in each half of beam or slab.

SPACING OF STIRRUPS FOR DIFFERENT SYSTEMS OF LOADING.

For a beam carrying a single concentrated load there will be N positions of stirrups at equal distances apart on each side of the load.

For a beam carrying two equal and symmetrically placed concentrated loads there will be N positions of stirrups at equal distances apart between each load and the adjacent end of the beam.

For a beam carrying a uniformly distributed load the positions of the stirrups will be symmetrical about the centre of the

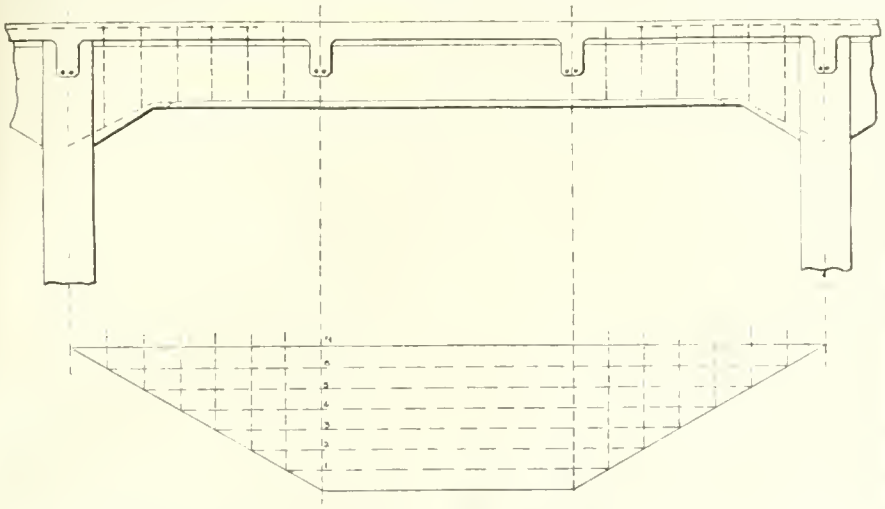


Fig. 5.—Geometrical Method of Spacing Stirrups in Beam with Two Concentrated Loads.

beam, and the distance (from the centre of the beam) to the first position will be—

$$L\ 2\sqrt{1}\ N$$

to the second position—

$$L\ 2\sqrt{2}\ N$$

to the third position—

$$L\ 2\sqrt{3}\ N$$

and so on until the N positions are found.

Note.—The above formulæ for stirrups do not apply for values of f_s less than $3\frac{3}{4}$ tons—that is to say, when the neutral axis passes the half-depth.

Cost of stirrups for any beam—

$$.007\ M\ \frac{4f_s + 15}{2f_s - 5}\ \text{shillings.}$$

To find the spacing of stirrups geometrically, draw the bending moment diagram of the beam or slab as with ends supported only, divide the maximum ordinate into N

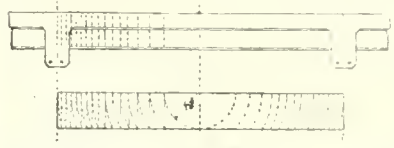


Fig. 6.—Geometrical Method of Spacing Stirrups in Beam or Slab with Uniformly Distributed Load.

equal parts, and through these points draw lines parallel to the base-line across the diagram. The positions for the stirrups will be vertically over the points where these lines intersect the curve.

Fig. 5 illustrates this for a main beam with two concentrated loads due to secondary beams. For beams with uniformly distributed loading, Fig. 6 shows a simple and equally correct method.

(To be continued.)

REINFORCED CONCRETE BUILDINGS IN LONDON.—II.

By Wm. G. Shipwright, M.C.I.

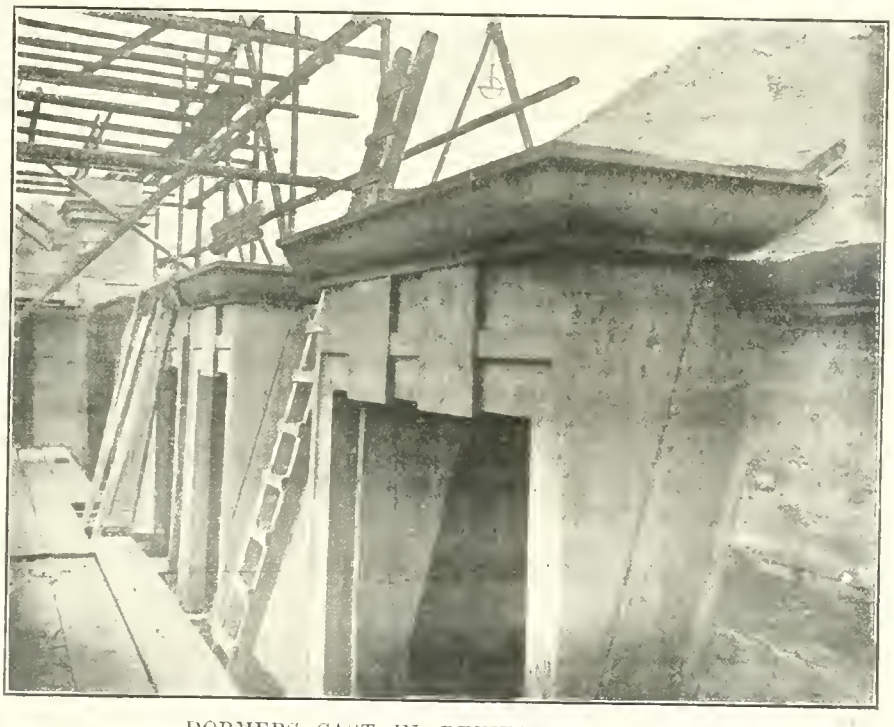
NEW Y.M.C.A. BUILDING. ROWLAND PLUMBE, ARCHITECT. (CONTINUED.)

The principal entrance hall, which, as already indicated, is situated in the Great Russell-street front, is circular on plan, a dual staircase circumambiating six ferro-concrete columns, with shafts tapering from 1ft. 9in. to 1ft. 5½in. in a height of 17ft., and supporting a groined ferro-concrete domed ceiling.

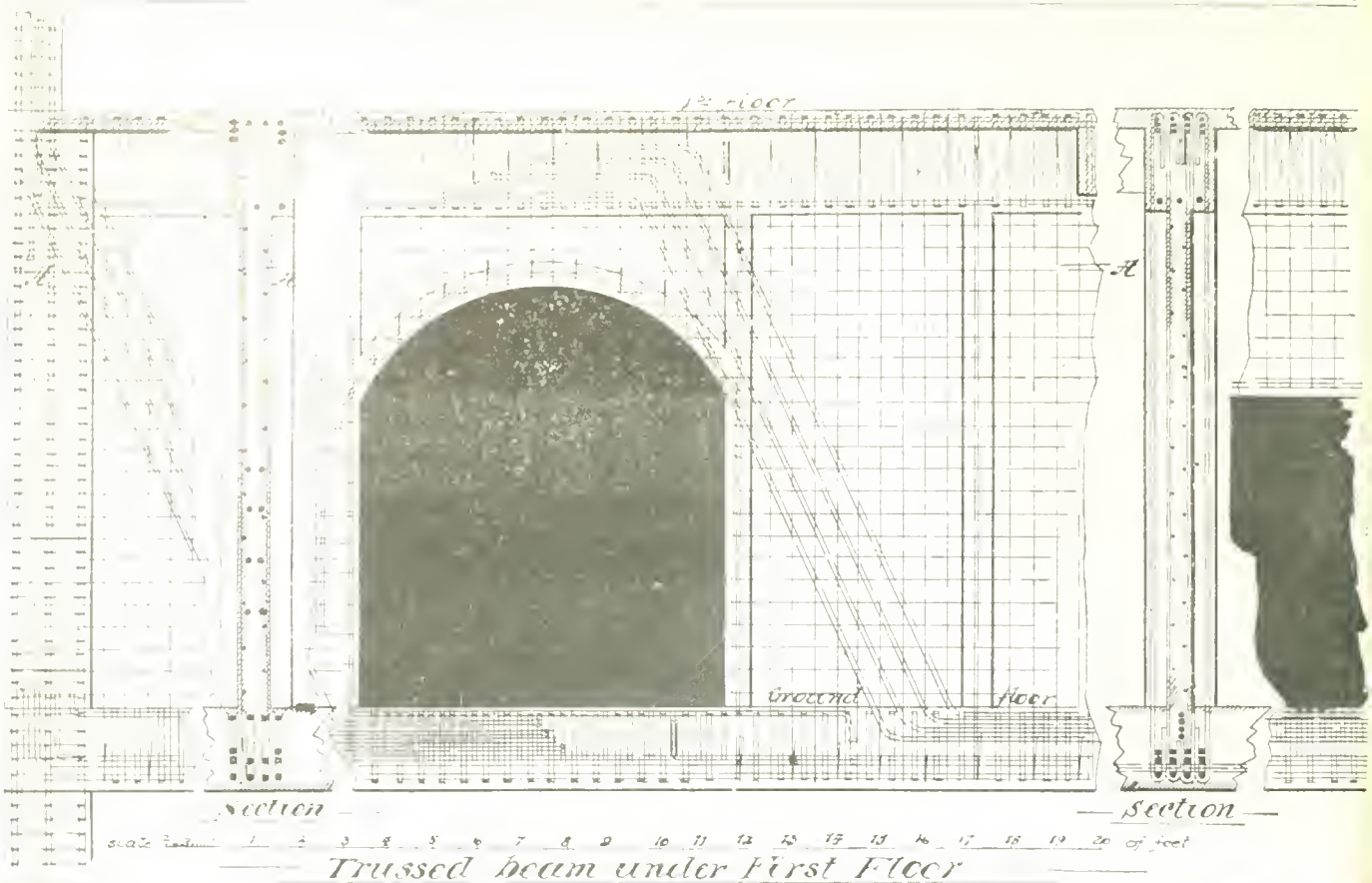
The whole of the staircase is constructed in reinforced concrete, framed upon concrete strings 10in. wide and 11in. deep, with a dual reinforcement consisting of two rods, with stirrup lacing between each set. Similarly constructed cross bearers between the strings and longitudinal steel rods inserted in the thickness of the steps, by way of carriage, provide for further reinforcement and homogenity throughout both flights and landings.

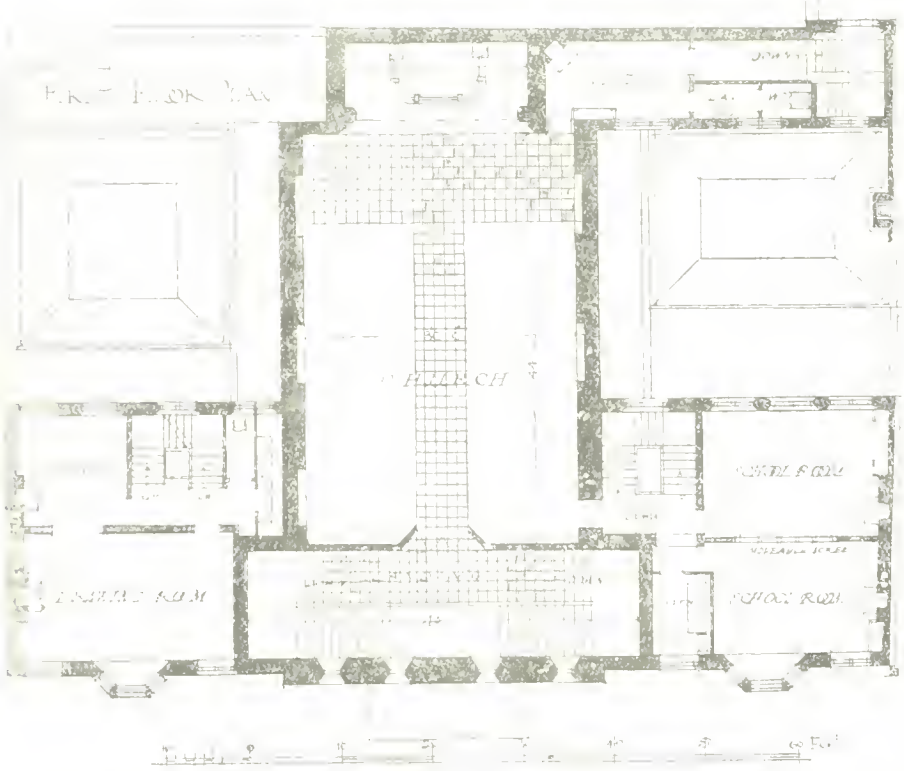
The swimming bath constructed in the gymnasium described in the last article) is 66ft. long by 21ft. in width, and falls from a minimum of 4ft. 6in. in depth at the upper end to a maximum of 7ft. at the lower. The concrete walls and floor, which are 5in. in thickness, with a lattice reinforcement of thin rods, probably comprise the lightest form of construction yet applied to revetment walls of this description, offering a comparison with the ponderous brick or masonry retaining walls necessary to secure stability in similar situations, and indicating that this class of construction provides one of the occasions where the adoption of reinforced concrete is peculiarly advantageous.

The counterforts placed at intervals, 6ft. 6in. apart, are also of light design, reinforced on both sides with round bars, connected with stirrups. The construction has been made monolithic, with the beams of the floor surrounding the well, which latter, being carried right back to the walls of the building, secure additional support to the upper end of counterforts, the whole

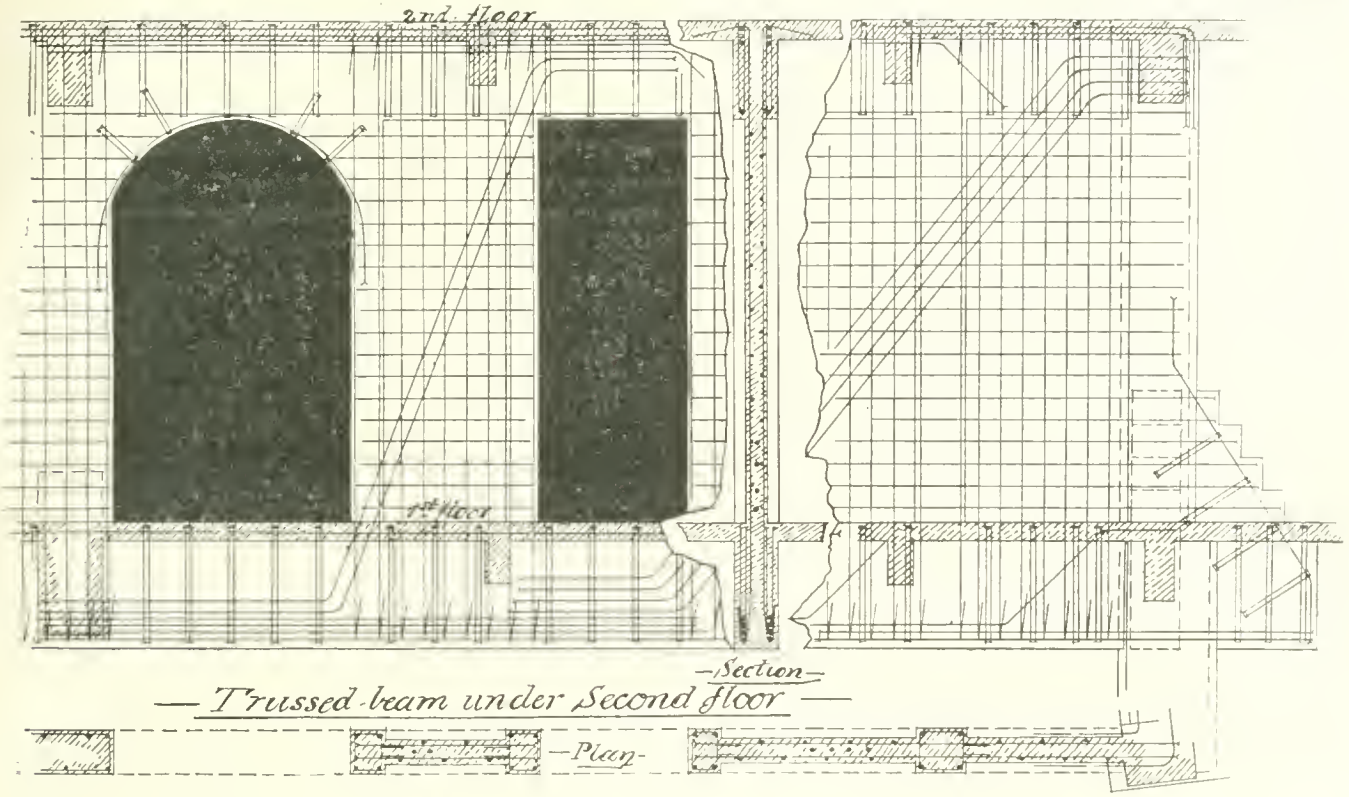


DORMERS CAST IN REINFORCED CONCRETE.


1st floor
A
Ground floor
Section
Section
Trussed beam under First Floor
Plan on line A


PARLOUR
KITCHEN
SCHOOL ROOM

Detail of Domed ceiling in tower



other half of the beam and again firmly bedded into the compression flange.

It will be noticed that the outer diagonals are carried for some distance into the reinforced stanchions at the upper end, and securely bedded into the tension flange at the lower, whilst both tension and compression rods are bent at right angles into the reinforced stanchions. A lattice reinforcement is employed throughout the panels, and a large supply of flat stirrup lacing in the stressed members. This beam, which exhibits a markedly ingenious arrangement of rods to meet the varying stressing, is perhaps the most notable example of monolithic beam construction in the building.

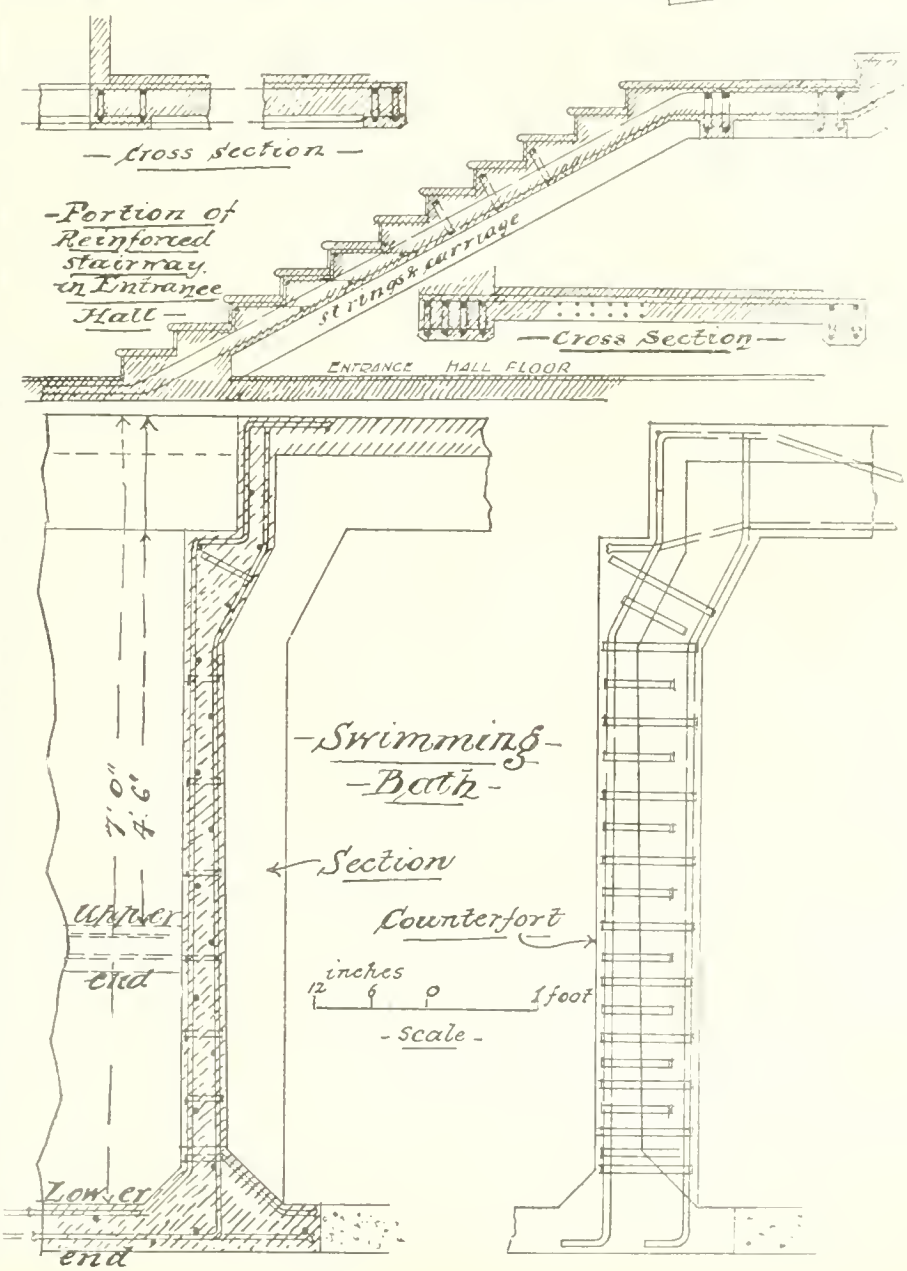
The second illustration, taken from a beam across the first floor, forms a contrast with the previous example, being designed to support a much lighter load across a somewhat longer span. The effective distance between the supports is in this case about 55ft., and the depth 14ft. 6in. The tension-rods are increased in number from four at the supports to eight in the centre, the compression-rods being three in number. The diagonal reinforcement has been treated in a manner similar to that already indicated. The beam is a good example of light monolithic construction.

The roof has been constructed throughout in ferro-concrete, the slopes being reinforced with thin rods at about 6in. intervals, whilst the main beams and girders are reinforced with larger rods, bent up towards the end to take the shearing stresses, a plentiful supply of stirrup connections also being used. The dormers, which have been finished completely in reinforced concrete, are a unique feature in the roof-construction. The two reproductions from photographs, taken immediately after the moulds had been removed, illustrate the remarkable degree of finish obtained by this process.

The domed ceiling of the south western tower provides some construction more especially interesting from its simplicity of design. The main reinforcement consists of a double lattice of radial and circumferential bars bedded in 5in. of concrete and anchored to stout reinforcement curb bars.

This building, which is certainly one of the most comprehensive exhibitions of reinforced-concrete work, affords at once an instructive example in the solution of difficult structural problems, and interesting studies in design, as applied to this method of construction.

The reinforced work has been the subject of a special contract to Messrs. Holloway



Br[illegible] material, [illegible] to [illegible] Mr W [illegible] of [illegible] Some [illegible] of the [illegible] may [illegible] [illegible] that the block [illegible] of nearly thirty thousand [illegible] and averaging over 900ft in [illegible] from the bottom of the foundation; [illegible] over two and a half million [illegible] The building, one of the earliest [illegible] of this class of construction in our [illegible] city, is its own eloquent testimony to [illegible] enterprise of its progenitors

REINFORCED CONCRETE FOR LONG SPANS FOR LIGHT LOADS

Among the important papers presented at the recent meeting of cement users in Chicago was one by Emile G Perrot, architect, relating to the above subject, from which we take the following:—

While there has been no doubt of the economy and practicability of reinforced concrete for massive construction and where heavy loads are carried, the advisability of its use for light floor loads, especially if the spans are long, has been questioned even by those who favour its use in other instances The dead weight of the material itself has often operated against its use, especially where the carrying capacity of the soil required the unit pressure to be kept to the minimum, or from other like causes

We all agree that clear spans of forty or fifty feet in building are not usual, and are generally avoided on account of their increased cost; hence a description of such a span with its cost as compared with steel girder construction for the same span, is of interest

While the author does not wish to take any credit for originality in the design of this floor, as the same general scheme has been used many times before for shorter spans, it is because of the unusual length of the span that its details become an important factor in the design

THE FLOOR SPANS

The spans in question form the floors over the swimming pool and gymnasium of the Lafayette Club House Philadelphia and are 53ft 12in clear span There are two floors with these spans, of an area of about 4,700sq ft each, having five girders on the first floor and six on the second floor, spaced 13ft 9in centres Those of the first floor are only 36in deep below the joist, on account of head room The top portion or T head is 5ft 6in wide and 11in thick These girders are reinforced with twenty one 1¼in square twisted bars, and the stirrups are 1in by 2in flat iron Great care was taken to place the reinforcing bars in the bottom of the moulds or cast cement clamps while the spacing of the bars and stirrup was maintained by iron rods and the wiring of one bar to the other

The floor panel between the girders consists of 5in by 12in concrete joists, with a 2in reinforced concrete slab over same, and 12in by 12in plaster block centres between each joist, thus making a flat ceiling between girders The joists are reinforced with one ¾in square twisted bars and eight ¼in stirrups In the top of every third joist were placed two ¾in square twisted bars over the girders to act as ties These rods were only 6ft long; but two were used in each case, looped in the centre so as to project beyond the T head 6in to the joists The slab is reinforced with ¼in rods run in both [illegible] 12in or centres or thereabouts

GIRDERS FOR AUDITORIUM FLOOR

The girders supporting the auditorium floor [illegible] of the [illegible] ceiling are 42in deep, with T head, 11in 9in wide The reinforcement in the bottom consists of [illegible] 1¼in square twisted bars bent the same as for first floor

Each floor is designed for a live load of 120lb per square foot, as the top floor is an assembly room and the floor below a gymnasium

There seemed to be some doubt amongst the members of the building committee as to the advisability of constructing such long spans of reinforced concrete; but in order to obtain the actual difference in cost between steel and concrete, we designed the girders in Bethlehem steel girder sections, reinforced with top and bottom coverplates and properly fireproofed The size of the steel girders was 30in deep, 200lb per foot, with two coverplates on each flange, one 9in by 1¼in and one 9in by 1in We obtained bids from the building contractor for the difference in cost of these girders, we having likewise made an estimate in difference in cost The contractor's price for them was 6,500dol, additional to his contract price, although our estimate of the difference was somewhat less, being 4,664dol, based on prices obtained from outside sources Taking our figures as a basis, as there are 5,400sq ft in the two floors, the difference in cost for structural steel, fireproofed, is 50 cents a square foot more than the reinforced concrete, with no increased advantage

The weight of the structural steel for a girder, as compared to the weight of reinforcing steel, is as follows

Total weight of steel girders, with strap iron reinforcement for fireproofing and bearing plate, about 17,000lb

Total weight of reinforcing steel in one reinforced concrete girder, 36in deep, 5,500lb

This shows that it takes about one third the amount of steel for reinforced concrete as compared with structural steel for girders and beams The amount of saving in concrete would be the overhanging portions of the T head, which amounts to 2¼yd per beam, when the extra thickness of the concrete on the girders is taken into account, due to the wide flanges on the steel girders; likewise there would be additional plaster blocks necessary to take the place of the T head omitted, the cost of which would have to be deducted from the saving effected by omitting the T head

The subcontractor for the reinforced concrete work gave the cost of the plaster blocks, delivered at the job, as 11c per square foot, and setting of same, including the nailing on of a fine wire screen at each end to prevent the concrete running into the hollow part of the block, as 3c a square foot additional

THE PLASTER BLOCKS

The plaster block weighs 25lb per square foot, as compared with 40lb per square foot for terracotta tile, which cost the same price as the plaster block, but which are not as easily handled, being only 12in long, whereas the plaster blocks are 3ft long, and can be sawn to fit any position

The walls of plaster blocks are about 1¼in thick, and there are two cells in each block, separated by a vertical wall in the middle, which strengthens the block, so that traffic can take place over them before and during the time of pouring the concrete

Immediately before pouring the concrete it is necessary to thoroughly soak with water the plaster blocks, as they absorb a considerable quantity of water from the concrete if not thoroughly wetted; in fact, the parts of the floor where the blocks occur and where they do not are clearly marked during the earlier stages of the setting of the concrete by the difference in its colour, the concrete which does not come in contact with the plaster requiring more time to set

For moderate spans the use of concrete joists with either the plaster block or tile filler is desirable, where a flat ceiling is sought and the load light

Mr John Hattle, late superintendent of civil engineers at H M Docks of at Keyham died on Tuesday last, at his residence, Sandhurst, Plymouth

TOWN PLANNING CONFERENCE IN LIVERPOOL.

A largely attended conference was held in the small concert room, St. George's Hall, Liverpool, on Thursday and Friday of last week, to consider "The actual details of the various steps which should be taken prior to the presentation of a formal application to the Local Government Board for permission to prepare a town planning scheme."

Alderman William Thompson, of Richmond, Surrey, chairman of the National Housing and Town Planning Council, occupied the chair, and pointed out that two local authorities, Birmingham and Ruislip Northwood, were asking the Local Government Board for permission to prepare town-planning schemes. They all agreed that the Act was a bad one; but that did not mean that it was not a great deal better than no Act at all. It was sufficiently good to justify all the trouble taken to get it upon the Statute Book. About forty authorities were considering the preliminaries in connection with preparing a town-planning scheme.

Mr F. M Elgood, of Ruislip-Northwood said that his experience showed the regulations were not so black as they were painted The question of cost should be divided under two heads—firstly, the technical cost involved in preparing the scheme, and secondly, the cost of constructive works, and possibly of compensation. One of the most difficult points which confronted the advocates of a town-planning scheme in rural districts was the prejudice of residents and ratepayers. It should be understood that the advocates of town planning had no desire to convert a country district into a town. The terms "garden city" and "town-planning" always raised a prejudice in the mind of residents.

Mr E R Abbott, clerk to the Ruislip-Northwood Council, said the housing measure was a "nice little Act," and promised to work beneficently

A discussion followed, in which Mr H C. Challoner Dowdall, of Liverpool, Mr. Isaac Edwards of Merthyr Tydfil, the Town Clerk of Lincoln, and others took part.

In the evening there was a conversazione in the School of Civic Design, Liberty buildings, School-lane. On the walls were displayed a number of drawings and plans of suggested town-planning schemes. Professor Adshead was present, and explained some of the proposals to the delegates

RULES AS TO WIDTHS OF ROADS.

On Friday morning attention was given to consideration of the extent to which a local authority should, under a town planning scheme, relax or alter conditions relating to widths of roads and methods of road construction

Mr W Harpur city engineer, Cardiff) described an interview between representatives of the National Advisory Committee on Town Planning and Mr J. A. E. Dickinson, Comptroller of the Town Planning Department of the Local Government Board, upon town planning procedure regulations. The great point was the necessity, if possible, of simplifying the regulations of procedure and condensing them to the utmost extent. The Local Government Board were desirous of meeting their requirements; but, unfortunately, until an amending Act could be obtained the regulations must remain practically as they were The Board, however, would help every authority to the utmost extent of their power and relax the regulations where they possibly could. Authorities could get gratuitous advice upon all knotty points from the Local Government Board

The chairman explained that for the purpose of a town planning scheme, but not otherwise, power was given to local authorities under the new Act to relax or alter conditions relating to widths of roads and methods of road construction

Mr Raymond Unwin, F R I B A., gave his experience with reference to a town-planning scheme at Hampstead, and answered questions put by the assistant town clerk of Hull, Mr Redfern, of Gillingham, Kent, Mr. Shawcross, of Rochdale, and Mr Wyatt, borough engineer of Gateshead.

In the afternoon a discussion took place on "Fire standards as to limitation of the

number of houses per acre, and the best practical method of applying these standards in the preparation of town-planning schemes."

Mr. H. R. Aldridge, secretary, explained that the power to limit the number of houses per acre under a town plan was defined in the fifth schedule of the Housing Act. Section 59 of the Act expressly excluded the limitation of the number of houses per acre from the sphere of claims for compensation.

As to the number of houses allowed per acre, Mr. W. H. Lever stated that at Port Sunlight there were seven, Mr. John H. Barlow showed that on the Bournville Village Trust twelve was the maximum; Mr. W. H. Grant wrote that at Letchworth twelve was also the maximum; and Mr. Raymond Unwin said the Hampstead Garden Suburb number was ten and a quarter, and at Earswick, Yorkshire, nine and a half.

Delegates from Lancashire and Glamorganshire stated that in those counties land was much more costly than the figures given by Mr. Unwin.

Subsequently the National Advisory Town-Planning Committee was elected for the year, and the conference terminated.

A reception was held at Liberty-buildings, the headquarters of the University School of Architecture, on Friday evening, in connection with the National Conference, Colonel J. P. Reynolds, C.C., presided. Mr. Henry Vivian read Mr. Raymond Unwin's report on the eight plans for the Liverpool Garden Suburb Estate sent in by students of the Liverpool School of Architecture (Department of Civic Design). Mr. Unwin awarded the first prize of £25 to Mr. George Norman Dixon, the second prize of £10 to Mr. J. W. Mawson, and the third prize to Mr. R. H. Maddocks.

A PROBLEM IN TOWN-PLANNING SCHEMES.

Mr. H. Challoner Dowdall, M.A., barrister and a past Lord Mayor of Liverpool, who will be remembered as the reader of a valuable paper on the legal aspect of town planning at the R.I.B.A. Conference last October, writes propounding the following important question:—If a council as part of a scheme relax street by-laws and allow certain light roads, what security is there that the tenant or the public, rather than the landlord, will get the benefit of the concession?

"One assumes, of course," he continues, "that the landlord builds houses, and that the tenant takes them as a matter of business, bargaining so that any provision which either saves the landlord expense or gives him compensation will decrease the rent of the house, and any provision which decreases compensation will save the public pocket. Compensation under the Act is the difference between the value of the land unrestricted by a scheme, and the value of the land with the obligations of a scheme imposed upon it, provided that no compensation is paid for limiting the number or character of houses in so far as the Local Government Board consider such limitation necessary. Two cases, therefore, arise.

"(1) If the Local Government Board do not consider the limitation necessary, or if for any other reason the landowner is entitled to compensation, then there will be deducted from such compensation the benefit which the landlord gets from the concession as to light roads. In this case the public gets the benefit of the concession.

"(2) If the Local Government Board do consider the limitation necessary, and if the landlord has no other claim for compensation, then the relaxation as to light roads merely operates to make the cost of development less, and in theory at least the tenant should get the benefit, though all economic theory is based on certain assumptions, which often take some time to come fully into operation."

At the last meeting of the Worksop Urban District Council it was announced that the award in connection with the purchase of the waterworks undertaking had been apportioned at £64,612. The council will not take over the waterworks until June 23.

LICENSED ARCHITECTS IN ILLINOIS.

The seventh biennial report of the Illinois State Board of Examiners of Architects has been filed with the Auditor of Public Accounts, as required by the Act under which it was constituted. It is worth reproducing in some detail. It covers the proceedings of the years 1909 and 1910. The License Law has now stood the test of thirteen years' experience, and thus far has not been affected by any decision in the courts of law. Several other States have enacted laws following the main features of that of Illinois, since it was enacted; but all fall short of its effectiveness. These states are California, New Jersey, Colorado, and Louisiana. The most faithful copy of the Illinois law has been enacted in the Province of Manitoba, Canada. The Illinois law has twice been amended to great advantage.

The Board recently caused its legal committee to investigate and report if any further amendments are desirable. It has reported to the Board, which has accepted its recommendation, that amendments to only two sections are desirable, and those are the repeal of a part of certain sentences in section 2 and one in section 4. The first, referring to the salary of the secretary and treasurer, which is fixed by the Board in section 2, repeals the words: "And which shall not exceed the sum of fifteen hundred dollars (1,500dol.) per annum." It changes the word "annual" to "biennial" (referring to the present report) and repeals the final sentence referring to the transfer of certain moneys belonging to the Board from the State Treasurer to the treasurer of the Board, which transaction was completed in 1899, and the sentence is now of no effect. The second amendment repeals the provision in section 4 by which examination fees are returned to applicants who fail to pass.

EVIDENCES OF PROFESSIONAL PROGRESS.

In the last biennial report it was shown that nearly one-third of the licenses had lapsed in ten years, though the total number in force had remained nearly stationary. It was shown that where there had been a loss in the number who had been licensed in 1897-8, without examination, as the law provided, their places had been taken by persons who had passed examination, as the law provided, their places had been taken by persons who had passed examination, and received certificates showing that they were qualified to practise their profession.

The experience of two more years has shown a still greater proportion of certified architects to the whole body of the profession. Out of the whole body of seven hundred and fifty-four (754) architects now practising under the law, three hundred and nine (309) hold examination certificates.

This shows that very nearly two-fifths of the architects have examination certificates, while two years ago the proportion was one third. But it is not to be inferred that the two-fifths comprise only those who are competent to practise. It comprises mostly the younger element, the cream of the young men who are graduating in large numbers from the State University and others which give instruction in architecture, as well as the apprentices who have served in the offices of the older and more experienced architects. It comprises also a considerable number of architects residing in other states, who are not barred by law from practising in Illinois, but are required to demonstrate their ability before the Board by their executed works and exhibits showing their proficiency in planning and construction.

There remain also in practice four hundred and forty-five (445) of the original seven hundred and six (706) who were granted licenses without examination thirteen years ago. Among them may still be found the most eminent men in the profession. The lesser lights are also comprised in the four hundred and forty-five, some of whom have already experienced the chastening discipline of the Board, while many others have profited by its admonitions. For while the severe penalty of the law for such offences as dishonest practices, incompetence, and recklessness is revocation of the license and practically puts the offender out of business, there are many practices which do not involve this penalty. When they come to the knowledge of the Board from any reliable source, the offender is asked to come before it and is given an opportunity to explain his conduct. An honest admission generally leads to a mild admonition, rather than a severe reproof, and the offender is almost invariably benefited by the discipline which the Board inflicts. In some cases there are developed facts which convince the Board that a legal offence may have been committed, and then the parties are put on trial, and have the full benefit of counsel and witnesses. There has never yet been an instance in which an architect has been asked to appear before the Board at any of its meetings that the invitation has been refused.

TRIALS, REVOCATIONS FOR CAUSE, AND RESTORATIONS.

Four licensed architects have been tried before the Board for offences under section 10. In two cases the license has been revoked, in one case the prosecution failed for want of sufficient evidence and the charge was withdrawn after a trial continued through five sessions of the Board, and in another, the architect was acquitted with a reprimand after a trial continued through three meetings.

The licenses revoked "for cause" are as follows:—

May 15, 1909, Frank Kaeseberg, for dishonest practices in placing his seal upon plans made by an unlicensed person for the purpose of obtaining a building permit from the Commissioner of Buildings of Chicago.

February 19, 1910, Edward A. Hogenson, for incompetence and recklessness in the construction of a building which collapsed September 17, 1909, while being erected from his plans and under his supervision. On November 12, 1909, a report was received from the legal committee of the Board of the collapse of a building in course of erection at the corner of Milwaukee avenue and North Sawyer avenue, in the city of Chicago, of which Mr. Hogenson was the architect, and at the same meeting a citation was issued for Mr. Hogenson to appear for trial at the next meeting of the Board. This trial occupied the attention of the Board at the meetings of December 6, 1909, and January 14, February 11, February 18, and February 19, 1910, at which date his license was revoked "for cause."

Two licenses revoked "for cause" in previous years have been restored, those of John W. Kennedy, of East St. Louis, on January 8, 1909, and Gustav Voight, of Chicago, on May 14, 1909.

OTHER PROSECUTIONS FOR VIOLATION OF THE LAW.

Three persons have been prosecuted and fined for practising architecture without a license, as follows:—

April, 1909, Eugene H. Sturges, of Indianapolis, Ind., arrested at Kansas, Ill., and fined 10dol. and costs.

April, 1909, Eugene E. Rother, arrested at Chicago, and fined 25dol. and costs.

November, 1909, Ray Newbold, arrested at Robinson, Crawford county, Ill., and fined 10dol. and costs.

As has been the case ever since the law has been in force, the legal committee and the secretary have discovered many incipient attempts to violate the law, many of which have been due to ignorance. Where the parties involved had not proceeded too far a warning by letter has proved a sufficient deterrent.

The secretary has been repeatedly called upon by architects and others for information as to the bearing of the law upon certain questions that have come up in architectural practice, and has frequently arbitrated matters of differences between architects and owners, and architects and contractors in a quite informal way, and with the result of preventing legal disputes between them.

Numerous complaints are made by architects at the office of the Board which, upon investigation, are shown to have no legal foundation. These are generally the result of ignorance of the law. Copies of the biennial reports are always mailed to all the architects, and as they contain copies of the

Fig. 1.

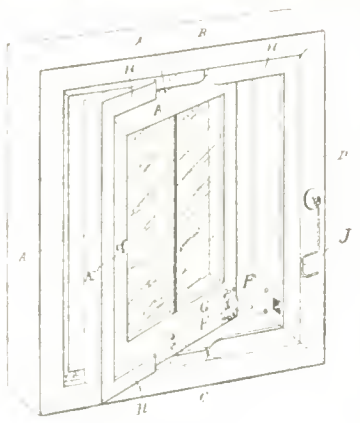


Fig. 2.

Fig. 3.

FAILURES IN CASEMENT WINDOWS

PERMEABILITY TESTS OF MORTAR CONCRETE

Permeability tests of mortar and concrete are reported upon in a recent Bulletin of the engineering experiment station of the Iowa State College. In these tests comparisons were made to ascertain the effectiveness of various methods for the addition of necessary [illegible] to the specimens [illegible] Portland cement [illegible] failures [illegible] the attainment of impermeability. [illegible] Civil Engineering, Cornell University, [illegible] cement [illegible] pozzolan [illegible] prepared by [illegible] Department of the Interior, gave rates [illegible] North Western States Portland Cement Co. [illegible] The results [illegible] cement [illegible] Portland [illegible] Portland cement [illegible] Portland cement [illegible] Portland cement

CURRENTE CALAMO.

The *Daily Mail* yesterday admirably epitomised the recent history of the short-sighted precipitancy with which the Corporation of London is determined to make the proposed new St. Paul's Bridge an eyesore instead of a beauty, "beginning nowhere and ending nowhere." There is no need to repeat the considerations so aptly urged by our daily contemporary. We have set them out ourselves in precisely the same order since December last, and are grateful, as all must be to whom the dignity and beauty of London are matters of concern, to find them so vigorously and forcibly seconded.

The Bridge House Estates Committee is simply the guardian of public funds, and it is not to be endured that these shall be flung away without full value for the money being obtained. That, in its essence, has been the plea urged by the R.I.B.A. from the beginning. There may be, as the *Daily Mail* says, "a dozen plans better than the one in the Corporation Bill." Some might cost less; none could conceivably meet the needs of traffic less adequately than the Corporation scheme does. Let all London citizens, then, see to it that the counsel of the leading London journals of all parties is taken, and help to kill the City Bill if the present pragmatical determination of the Bridge House Estates Committee to ignore all competent advice is mischievously persevered in.

It seems evident that the Act passed in 1897 compelling the licensing of architects in Illinois, and insisting on examination by a State-approved Board of Examiners, continues to work well as a whole. There is one point readers will notice in the seventh biennial report which we give on another page—viz., that the difficulty is felt which some predict we shall experience here, under any scheme of Registration, of stopping the association of unqualified persons—engineers, for instance—with licensed architects. The Board intends, as will be seen, to take up this matter "more seriously hereafter." We shall watch its action and the result with considerable interest, because we are certain there will be similar attempts here to dodge Registration.

The squabble at Liverpool is revealing itself as mostly a mere political quarrel. The advocates of the Memorial Committee's scheme seem to be Conservatives, while its opponents are Liberals, who, rightly or wrongly, are credited with the idea of removing Lord Beaconsfield's statue by a side wind. Last Friday the Lord Mayor, on behalf of the Memorial Committee, attended the Finance Committee meeting to advocate the fixing of a plaster model of an equestrian statue on the east corner of St. George's Hall southern base, "to see how it looks." This suggestion the Finance Committee declined to carry out, and as nothing further was submitted, the whole scheme has again gone back to the Memorial Committee for further consideration.

At the City Council meeting on Wednesday the Lord Mayor announced that he had received a memorial "from eighteen citizens," protesting against any alteration in the main line of St. George's Hall by the introduction of steps or otherwise. His lordship suggested that the matter should be referred to the Finance Committee. An irregular sort of discussion ensued, but the Town Clerk explained that when a committee passed a resolution in which it said that it was prepared, if certain things were done, to recommend the council to do certain things, it did not at all bind the council. It was simply a matter of negotiation at present between the Commemoration Committee and the Finance Committee. Members of the council would not approve of a matter coming before the council, with a scheme such as this might be, without a proper notice being put on the council summons. The negotiations were not yet complete; but when the matter came before the council it would come with a scheme. Plans and models and everything would be mentioned on the summons, and the council would have full opportunity of discussing the whole question. It would be out of order to discuss the matter when there was no scheme before the council. The Mayor having assured other members that "we are not committed in any shape or form by what the Finance Committe has done in the matter," the subject dropped.

Dr. Johnson's propensity for touching posts as he passed out of the Temple was, doubtless, some inherited instinct of precaution against the danger our fat forebears were in of being squeezed damagingly between those obstructions which their contemporary street guardians delighted to encumber the pavements with. Similarly to-day it is interesting to watch men automatically walking slantendicularly down the Strand in half-conscious apprehension of the hidden dangers in the meter boxes, electric chambers, and the rest, whose name is legion. One of our own staff, and no lightweight either, narrowly escaped an involuntary ascension in the Strand on Monday afternoon, when by an explosion in an electric chamber under the pavement an iron and stone cover was thrown over 20ft. into the air and then shattered in the roadway. Fortunately none of the passers-by were injured. In how many of these receptacles an involutary "lift" awaits the unwary it is becoming increasingly difficult to say—almost as much so as to set foot on a square yard of really solid paving.

The Government of the time allowed us to be shackled by a monopoly with charges for the telephone which still make it a business luxury. The nation has now to pay out that monopoly. The Government of to-day, if we may judge from Mr. Samuels's replies to the deputations that waited on him on Monday, has no adequate conception of the unfairness to professional men and to traders in a comparatively small way of the still absurdly high telephonic rates; nor, apparently, has it much desire to reduce them. Architects and builders in ordinary trade and practice especially feel the high flat-rate charge. To the big firm, of course, it is a comparatively small consideration. On the rest it is a heavy tax—absurdly heavy, when contrasted with the charges in other countries. If Mr. Samuels has no clearer grasp of this fact than his replies on Monday indicated, telephone reform will be a much more burning question this time next year than the Lords' veto. Nothing has more handicapped business in London during the last five-and-twenty years than telephone monopoly, and our own business in particular.

However people may agree or differ with the judgment given in the Chesterfield armour case, all, we think, will agree that the evidence, and that given in other recent actions of a similar sort, will hardly encourage prudent buyers. Wide margins of value no doubt furnish opportunities for sellers, and if a millionaire chooses to give ten or twenty or fifty times its last price for a suit of armour or an "old master," it is, in a way, chiefly his own concern. When, however, it becomes a matter of the expenditure of public money, or appeals are made to the public-spirited to buy such objects "for the nation," we confess we view with something more than curiosity the rapidity with which prices rise to such giddy figures!

Now the L.C.C. is trying to get its Royal arms, let us hope we shall have something historic—and no blunders of the St. Pancras motto sort! Soon, doubtless, every nice young man that comes round to measure up our frontages, define our building line, or sternly order the removal of an obstruction will wear the new decoration in his buttonhole, and the tram-drivers and conductors will sport it instead of the usual badge. "Peace, boding voice, be still!" a rubber stamp will *not* do, even if the impression is made where it will not frequently wash off!

The latest disinfectant discovered is whisky! The people of Blyth have lately suffered much from the colon bacillus in their water-supply. Remedies have been discovered; but, according to Mr. Wm. Thompson, the president of the Blyth Ratepayers' Association, all one has to do is to add whisky to the water. The colon bacilli do not like whisky, and are rendered hors de combat by it. Mr. Thompson's information is that the colon bacillus is unknown in Scotland. Surely, now, Mr. Lloyd George will take off that extra three and ninepence, or some municipality will tap the dew off Ben Nevis and give it us judiciously mixed without any addition to the water rate?

Amid the many kind things said to us about us lately, the recognition last Friday by the *Westminster Gazette* of our efforts to serve all who work for art is especially grateful. Says our contemporary:—"To read only a few numbers of the BUILDING NEWS is to realise how wide is its appeal, technical journal though it be. All workers at building and its allied arts and crafts are, in one way or another, catered for, so that as a bound volume it becomes at once a valuable reference book. The issue for 1911 contains as usual a mass of instruction and information, as well as a good deal of general reading. The illustrations, apart from their educational value, form a record of English architectural progress."

The Lancashire Asylums Board, at their meeting at Preston on Friday, resolved to apply to the Local Government Board for sanction to the borrowing of £140,000 for the cost of building the proposed annexe at Whittingham Asylum for 700 patients, and £15,000 for the proposed infirmary at Prestwich. Plans were ordered for a new block at Whalley, to cost £35,000.

The Grove Estate, Birtley, has been purchased by a syndicate who propose to lay out the estate on the garden-city principle. The residence, The Grove, with one and a half acres of land attached, will not be interfered with, but the remainder of the estate will be divided into sites for about a hundred houses suitable for residents of the district. Each house will have its own plot of ground. Mr. E. Gratney, of Wallsend and Newcastle, is the architect to the promoters.

COLOUR WASHES FOR CONCRETE SURFACES

The U.S. Government Department of Commerce and Labour has furnished *Concrete* with the following [illegible] for white and colour washes [illegible]:

Whitewash: Slake a bushel of unslaked lime with boiling water, keeping it covered during the process. Strain it and add a peck of salt dissolved in warm water; three pounds of ground rice put in boiling water, and boiled to a thin paste; half a pound of powdered Spanish whiting and a pound of clear glue dissolved in warm water; mix these well together and let the mixture stand for several days. Keep the wash thus prepared in a kettle or portable furnace, and, when used, put it on as hot as possible with painters' or whitewash brushes.

Cement Wash for the Outside of Light House Towers.—Take of fresh Rosendale cement three parts, clear sand one part, and mix them thoroughly with fresh water. This will give a grey or granite colour, dark or light, according to the colour of the cement. If a brick colour is desired, add enough Venetian red to the mixture to produce that colour. The cement, sand, and colouring matter should be mixed together. If white is desired, the walls, when new, should receive two coats of cement wash and then whitewash. After the work has received the first coat a single coat every three or four years will be sufficient. It is best to thoroughly dampen the wall with clean, fresh water, and follow immediately after with the cement wash. This course will prevent the bricks from absorbing the water from the wash too quickly, and will give time for the cement to set. Care must be taken to keep all the ingredients of the cement wash well stirred during the application of it. The mixture must be made as thick as it will admit of to be consistently put on with a whitewash brush.

The Department adds that the whitewash made from this formula has been found by experience to give nearly as good results on wood, brick, and stone as oil paint, and to be much cheaper. These washes have given most satisfactory results in the lighthouse service.

The Doncaster Corporation propose to erect a motor garage at the back of the race stands, at a cost of £4,000, to accommodate at least 300 cars.

Alterations and additions are being made to the cathedral at Ennis from designs by Mr. Joseph O'Malley, B.E., of Glentworth street, Limerick. The contractor is Mr. Maguire, of Cork.

The partnership hitherto subsisting between Thomas Miller Rickman, A.R.I.B.A., and E. J. Burr, architects, Queen square, Bloomsbury, W.C., under the style of Rickman and Burr has been dissolved.

The parish church of St. Cuthbert at York, a stone-built slated structure, chiefly Perpendicular in character but with older portions, was closed on Sunday, having been condemned as unsafe. Some £1,200 is needed for its restoration.

Prizes amounting to £3,000 are offered by the Australian Government for the best designs for laying out the new Federal capital which is according to the Minister for Home Affairs, to be "a smokeless, chimneyless, smellless, medieval garden city."

The choir of Beverley Minster is being further enriched with carving. Figures are being carved as additions to the seats by Mr. Robert P. Baker, of that town, who has also executed the figures placed in the vacant niches in the west front of the minster.

It was reported to the Metropolitan Water Board on Saturday that the new water tower on Shooters Hill, Woolwich, has been completed at a total cost of £3,675. The contractor for the tower itself were Messrs. Spencer, Sutcliffe and Co., Ltd., and for the steel tank and pipe Messrs. C. and W. Walker, Ltd.

The old London and Provincial Bank premises in the Haymarket at Norwich have recently been undergoing conversion at the hands of the East Anglian Cinematograph Theatres Company, Ltd., into a picture palace. The alterations and decorations have been carried out by Messrs. Wallace King, Ltd., of Prince of Wales's road, Norwich.

OBITUARY

We regret to announce the death of Mr. Frederic James Shields, A.R.W.S., the well-known decorative artist and one of the last surviving and younger members of the Pre-Raphaelite brotherhood, which occurred on Monday at his residence, Morayfield, Merton, Surrey, at the age of seventy-six. Mr. Shields was born in Hartlepool, the son of a bookbinder's finisher from Perth, and educated at the Charity School of St. Clement Danes. He began as a designer for decorative mercantile lithography in Manchester, and afterwards became an illustrator of books. His friendship with Dante Gabriel Rossetti began about 1865, and did much to cheer his friend's later years. He was present in the house at Birchington-on-Sea when Rossetti died, says Mr. W. M. Rossetti, and he adapted Rossetti's own early design of "The Passover" for a memorial window in the local church. Mr. Shields, with Mr. Hall Caine, was responsible for the negotiations that ended in the acquisition of Rossetti's masterpiece, "Dante's Dream," by the Liverpool Corporation. Shields' first important commission after he had settled in St. John's Wood late in the seventies was to design a set of stained-glass windows for the private chapel of Sir William Houldsworth's house at Coodham, Kilmarnock. The original cartoons, illustrating "The Triumph of Faith," now belong to the Manchester Corporation. The windows executed from them were set up in St. Elisabeth's at Reddish—a church built by Sir W. Houldsworth. Shields had received this commission through the good offices of the late Mr. Alfred Waterhouse, R.A., and by him, too, was introduced to the late Duke of Westminster, who commissioned him to design the stained glass and mosaics in the chapel at Eaton Hall, which Mr. Waterhouse was then building. The subject of this remarkable decorative scheme was the "Te Deum"; it occupied Shields for about ten years, from 1880 to 1890. But the greatest work of his life was the decoration of the walls of the little basilican Chapel of the Ascension in the Bayswater road, built for Mrs. Russell Gurney (from the designs of Mr. Herbert P. Horne). The mural paintings were executed between 1890 and 1906 on canvas and in oil, and having been executed in the artist's studio were affixed by white lead compost to slate blocks let into the wall, on the plan adopted by Puvis de Chavannes. The general idea of the artist has been to illustrate the Gospel history on the left-hand wall, the Acts of the Apostles on the right-hand wall, and on the end wall facing the door the Passion, Resurrection, and Ascension of Christ.

Mr. Elias Platts Squarey, past president and one of the founders and original members of the Surveyors' Institution, died on Saturday at The Moat, Downton, near Salisbury, aged eighty-seven years. He was the senior member of the firm of Rawlence and Squarey, surveyors, valuers, and estate agents, of Salisbury and Great George-street, Westminster. When the Government bought some sixty square miles of land on Salisbury Plain for military purposes for £500,000 Mr. Squarey acted for the War Office, and the majority of the owners accepted his figures without recourse to arbitration. He was an original director of the Land and Loan Enfranchisement Company, now absorbed in the Land Improvement Company, and was for a long period a director of the Wilts and Dorset Bank. He frequently contributed papers to the publications of the Surveyors' Institution and the Royal and Bath and West Agricultural Societies. The funeral took place at Downton on Tuesday afternoon.

At a special meeting of the Dublin Corporation held on Tuesday it was decided that application should be made to the Local Government Board for a loan of £128,030 for the further extension of the electricity undertaking of the city.

The Carlisle Education Committee recommend to the town council a scheme for the building of a technical school in Carlisle for the city and district. It is proposed that Carlisle should provide a site on which the county authority will build a school at a cost of £10,000.

Building Intelligence.

LIVERPOOL.—Plans and designs for the conversion of the Paddington Palace Theatre into a cinematograph theatre were prepared by Mr. J. H. McGovern, architect, 26, North John street, Liverpool, for Mr. F. Holt (receiver appointed by the Court for the debenture holders), and were approved respectively by the health committee and the Licensing Bench on September 15 and 27 of last year. The alterations have been carried out by Messrs. Rothwell and Laban, and the premises were opened early this year by the proprietors, under the name of the Coliseum de Luxe. The alterations consist of extra exits to the pit and gallery, and extending the latter to the proscenium opening, and removing the stage-boxes, whereby the accommodation is increased to 310 persons, whilst the pit will hold 364 people.

NAGPUR.—The new Secretariat Building has been opened at Nagpur, the capital of the Central Provinces of India. The building was designed by Mr. James Ransome, F.R.I.B.A., during the tenure of his appointment as consulting architect to the Government of India, and has occupied five years in construction. The building has been carried out by the Public Works Department, and the officers in charge throughout were Major L. Oldham, R.E., executive engineer, with Mr. J. Desmond, assistant engineer. The style of architecture is Renaissance, adapted to the climatic conditions of the country. The exterior façades are entirely of stone masonry, the main features being banded in blocks of black basalt and yellow sandstone laid alternately. The plain surfaces of the façades are of basalt, and all cornices, pillars, mouldings, and entablatures are of sandstone.

WINCHESTER CATHEDRAL.—The Dean and Chapter of Winchester Cathedral are giving anxious consideration to the problem of dealing with the south aisle of the nave of the Cathedral. The whole nave stands on treacherous soil, but running in a northerly direction from the south, beneath William of Wykeham's chantry, the famous black marble Tournai font, and Jane Austin's grave, there is a broad tract of peculiarly bad conditions, with 5ft. of peat and 3ft. to 5ft. of soft silt. Wykeham's chantry is cracked and crushed, and there are indications that the piers on both the north and the south side of the nave are gradually sinking. The result is that the south nave aisle wall is being pushed outwards. Underpinning for the south wall is the first necessity, and this has just been begun. The removal by Bishop Horne of the ancient Norman cloisters is responsible for much of the weakness of the wall. Mr. T. G. Jackson, R.A., has recommended two methods of strengthening it—one by means of ordinary Perpendicular buttresses in harmony with Wykeham's work against the ancient flat Norman buttresses, and the other by means of a cloister buttress with a flying buttress above. During the last few days models of these two designs, in wood and canvas, have been placed in situ against the south wall, and have been inspected by the Dean and Chapter. Mr. Jackson has been asked to prepare a third scheme. The work on the south transept is approaching completion, and the hoarding is being cleared away under the slype, where enormous buttresses have been built.

Lady Deane, widow of the late Sir Thomas Newenham Deane, F.R.I.A., the eminent Dublin architect, died on Monday last at Killiney, in her eighty-fourth year. Her husband, who was the son of Sir Thomas Deane, also a Dublin architect, died in November, 1899.

Mr. John Burns has stated in the House of Commons that a return is being prepared relating to the water supply of every district in England and Wales. This will include information as to the quantities of water now being supplied in each district, and as to what further quantities could be supplied from sources at present in use, together with information as to the character and situation of these sources. He has obtained the authority of the Treasury to the appointment of a geologist on the staff of his Department.

PROFESSIONAL AND TRADE SOCIETIES.

THE FOUNDATIONS OF TASTE.—To the members of the Edinburgh and East of Scotland Association of Goldsmiths, Silversmiths, and Watchmakers a lecture, entitled "The Foundations of Taste," was delivered on Friday night by Mr. F. Morley Fletcher, Director of the Edinburgh College of Art. The lecturer, dealing with the defenceless condition of artistic trades owing to the disintegration of their craft-teaching agencies, said the introduction of steam power led to the factory system and to the gradual dispersion of the teaching agencies of the trade, so that as the demand for cheaper work increased the trade had been more and more powerless to stand out against the demand. Special agencies would no doubt arise for the teaching of particular trade work; but a great amount was becoming more and more the recognised work of the large art schools. The craft schools must aim at awakening, training, and developing the perception of ideals of workmanship by encouraging students to make very simple things beautiful by fine workmanship before they were allowed to proceed to elaborate designs. The co-operation of the trades was necessary to insure the effectiveness of the schools. The art teaching given in elementary schools and in art schools was building anew the foundations of public taste and judgment. The Edinburgh College of Art would need and looked forward to the assistance, advice, and co-operation of many trade associations in order that it might serve as a centre of artistic culture, and by its influence might establish the standards of public taste on sure foundations.

THE GLOUCESTER AND STROUD TECHNICAL SCHOOLS.—On Saturday last a party of over twenty students from the building construction classes at these schools visited Bristol, to pay a visit of inspection to the new hippodrome, now in course of erection in Bedminster by Messrs. J. D. Pitcher and Sons, Ltd., of Goswell-road, London. The party were conducted over the works by Mr. Strong, the manager, who clearly explained the various details. The joiners' plant was kept going for the benefit of the students, who were initiated into the mysteries of the spindle, band-saw, etc. Mr. Leach, B.Sc., the headmaster of the Gloucester school, in thanking the contractors, remarked upon the advantages of these visits. Mr. K. H. Read, the lecturer to the classes, also spoke of the benefits, and endorsed the vote of thanks to the contractors.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—A general meeting of the society was held on Thursday, February 23, Mr. Sydney D. Kitson presiding. Mr. Harold Henderson, of York, read a paper on "Some Minor Domestic Architecture in Yorkshire." Confining his remarks to an analysis of the composition and detail of the buildings of the Dalesmen, Mr. Henderson said that these Yorkshire homesteads bore probably to a greater extent than in any other district in England the impress of the individual, the strenuous and unbending character of a race who lived in a generation of fierce and strict Puritanism. The houses were sturdy and strong, standing four-square to the weather, perhaps in some cases grim and stern, testifying to the reserve of their owners in high, unbroken walls, yet displaying, nevertheless, in occasional grotesque or quaint finial, a dry wit as a tonic and saving grace. The great majority of the houses were of the 17th century, owing to the great number of gentry who lived on the produce of the land at that time. The characteristic features peculiar to these Yorkshire buildings were dealt with in detail in the description of a typical house with single-span roof, an occasional gable ornamented by finials, a projecting porch with quaint doorway, and fully illustrated by a series of studies and sketches, by Mr. Henderson. At the close a hearty vote of thanks was proposed by Mr. C. B. Howdill, A.R.I.B.A., and seconded by Mr. R. W. Thorp, A.R.I.B.A. Briefly responding, Mr. Henderson urged the closer study of the type of building of which he had spoken, to the end of reviving the Yorkshire domestic tradition—an influence now unfortunately almost extinct. The next meeting will be held on Thursday, March 9, when Mr. W. H. Ward, A.R.I.B.A., will read a paper on "French Renaissance Church Architecture during the 16th Century."

MANCHESTER SOCIETY OF ARCHITECTS.—At a meeting of the above society, on the 23rd ult., Mr. Ronald P. Jones gave a lecture on Sicily. The two great architectural epochs of Sicily, that of the Dorian civilisation of the 5th century B.C and the Norman of the 12th century A.D., were illustrated by excellent slides. In the course of his remarks the lecturer said that architects are too apt to regard Greek architecture as a matter of modules and profiles, to study it in the adequate line diagrams of the textbook. Construction, materials, and building methods are frequently ignored, and the buildings are generally studied in parts rather than as a whole. Consequently, the variety of the actual work is seldom realised. We are too apt to gauge Greek architecture only by the Athenian masterpieces. The Sicilian colonists represented the more adventurous and vigorous members of the mother community, and founded cities far more populous and magnificent than those of their birth. The Temple of Segesta forms a good introduction to the study of Sicilian architecture. Its splendid isolation among the limestone hills, its restrained and reposeful style, provide an extraordinary instance of a weight of effect obtained by simple means. Here we find imposing scale and sombre magnificence, where all the refinements of detail are absent. It has come down to us as it left the hands of the builders, perfectly preserved, but still unfinished, for the building operations were rudely interrupted by the invasion of 309 B.C. This being so, it forms one of the most lucid illustrations of Greek methods of building. The peristyle was built before the cella, and the flutes were added after the erection of the drums. The rough local limestone of which the Sicilian temples were built, was faced with a film of marble stucco, in which the mouldings and refinements were worked. This fine surface was polished and coloured. The Greeks had not the modern appreciation for the beauty of the material in itself, just as they had not our love of natural landscape. To them Pentelic marble was the best building material available, insuring the highest possible finish. In Greece and Sicily the blaze of pure white marble is too dazzling, and the subtleties of form and light and shade cannot be appreciated unless the material is toned down with colour. The Greeks aimed at the highest possible finish, and looked upon joints as evils to be concealed by every possible means. Accordingly, in Sicily, by veneering the rough porous material, the difficulty of jointing was eliminated, and a monolithic appearance obtained. In order to understand these Sicilian temples, we must visualise their gay and decorative effect, their veritable blaze of colour, set among luxuriant groves. The remains at Girgente are placed in surroundings less tragic and isolated than those of Segesta. One of the largest and most luxurious of the city-states of the ancient world, Girgente, with its population of 400,000 inhabitants, exceeded even Athens itself in scale and magnificence. The traveller approaching from the sea beheld a group of buildings of almost unparalleled splendour. Seven great temples crown a long, narrow ridge of rock one and a half miles in length and three hundred feet above the plain. The Greeks took advantage of the natural site, and did not level the rock, as the Romans would have done. The great building period was from 480 to 410 B.C. In the Temple of Concord we have one of the best preserved of Greek buildings; in that of Zeus, the most colossal and one of the few failures, the scale being beyond the possibility of the style. Slides were shown of Syracuse and Taormina, with its unrivalled view, and the lecturer then passed on to Palermo, and contrasted the internal magnificence of the mixed style of the 12th century, as seen in the Capella Palatina and Monreale, with the external architecture of the earlier Greek civilisation. The beauty of these mosaics, with their wealth of colour and logical treatment, is unsurpassed. Those who have not been to Sicily cannot realise its charm. To one who has been there, the name of Sicily has an attraction before which even Italy must take second place. Messrs. Dunkerley, Healey, Corbett, Professor Capper, and the president, Mr. Percy Worthington, took part in the discussion which followed.

ROAD CONGRESS IN DUBLIN.—The second Irish Road Congress will be held in Dublin from April 19 to 21 next. The programme is as follows:—Wednesday, April 19, 1 p.m., inaugural luncheon; 2 p.m., opening ceremony, president's address, discussion on papers. Thursday, April 20, 10 a.m. to 1 p.m., discussion on papers; in the afternoon members will visit the exhibition of road machinery and plant at the Royal Dublin Society's Spring Show, Ballsbridge; 8 p.m., congress dinner. Friday, April 21, 10 a.m. to 12 noon, discussion on papers; 12 noon to 2 p.m., resolutions to be moved setting forth the views of the congress; 2.30 p.m., excursion. Sessions.—No. 1, the Laws and Procedure Relating to Road Construction and Maintenance, Statistics, etc. No. 2, Road Construction and Maintenance. No. 3, Modes of Locomotion.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—A meeting of this society was held in the General Lecture Room at the University on Thursday, Feb. 23, when Mr. J. B. Mitchell-Withers, vice-president, gave an interesting lecture, entitled "A Visit to Warwickshire." Mr. W. J. Hale, president, occupied the chair. The lecturer attended the congress held last year by the British Archæological Association in Warwickshire, and the buildings described were almost entirely those visited during the congress. He referred to the military importance of Warwickshire in ancient times, owing in a large measure to its central position in the country and to the fact that several old Roman roads, including Watling Street and the Fosse Way, passed through or near its borders. He made a passing reference to a few remains of archæological interest, such as the Rollright Stones, and then proceeded to speak of Kenilworth, one of the strongholds held in the Norman period by the De Clinton family. The connection with John of Gaunt with this historic building was mentioned, and the large hall and other portions erected by him were described, as were also the additions made by the Earl of Leicester, the favourite of Queen Elizabeth. Other domestic buildings of the county were then described. These included the moated grange of Baddesley Clinton, the charming brick-and-stone mansion of Compton Wyngates, and Wroxham Abbey, the seat of Lord North, which contains portions of the pre-Reformation structure. The lecturer then described the ancient towns of Warwick and Coventry, with their interesting churches and other ancient buildings. He dealt particularly with the church of St. Mary, Warwick, which suffered from fire, and was largely rebuilt at a time when Gothic architecture was more or less a lost art. The chancel and Beauchamp chapel largely escaped damage at the time of the fire, and these, with the beautiful tombs and stained glass contained in them, were ably described. The churches of Coventry, chief amongst which is St. Michael's, with its magnificent tower and spire, were then dealt with, the lecturer calling particular attention to the connection of St. Michael's Church with the ancient guilds of the city. Leaving the ecclesiastical buildings, the lecturer described Ford's Hospital, Coventry, and the Leicester Almshouses in Warwick. Part of the latter, he said, dated from 1383, although the present charity was not founded until 1571. The old chapel of St. James, adjoining the latter building and situated over the west gate of the city, led to a description of the east gate and the large and interesting castle of Warwick, with its remains of feudal splendour. The lecture, which was illustrated by an excellent series of lantern

COMPETITIONS.

DONS[illegible]

[illegible]

SWANSEA.—The Corporation of Swansea have decided to invite a competition for the erection of a new street, 380ft. long, and Messrs. S. S. Rose, of the firm of Slack and Rose, of Bath, has been appointed assessor. For an old corporation it is somewhat a short one; indeed, as far as we remember there is little or no case on which a provincial corporation has taken such a course. The conditions are fair, and the competition will be upon the right lines; but, so far, no architects of repute or capable students have applied for the particulars, and the corporation are therefore extending the time, advertising again to that effect. Designs now have to be in by May 5 instead of March 24, and the additional time will doubtless enable readers to enter.

Mr. H. Cutler Pegg, F.R.I.B.A., of Parliament-street, S.W., has been appointed architect for a new council school to be built in The Green, in the Croydon Education Committee.

The Marquess of Bute opened the new Cardiff railway on Tuesday by driving the first train from the new terminus from the suburb of Cardiff to the sea. Passengers at a distance of about one mile. New Pontypridd joins the Taff Vale line and near Cardiff runs on the Rhymney line.

Mr. A. Southcham Chapman and Mr. Arthur Hardwick Cross, architects, of Westminster, have been appointed by the Crown Agents for the Colonies draughtsman in the chief engineer's office of the Uganda Railway at a salary of 270 rupees a month, with free quarters.

Mr. George Thrale Jell, A.R.I.B.A., of Carlton House Waterhouse-place, S.W., son of Mr. Thomas Jell, of Godstone, was married on Monday last at Holy Trinity Church, Paddington, to Miss Nancie Gunnetta Riech, only daughter of the late Mr. M. N. Riech, of Georgetown, Demerara.

The Lancashire and Yorkshire Railway Company commence on Wednesday a daily service of electric trams between Liverpool and Town Green. Hitherto the electric line has ended at Maghull, and the present extension forms part of a proposed continuance to Ormskirk, and eventually to Burscough Junction and on to Southport, a long electric service being thus formed.

The Guildford Rural District Council have approved plans for the diversion of the main road from Lyon to Guildford at East Clandon. The whole cost of the diversion, amounting to several thousands of pounds, is being borne by Lord Rendel, who is giving a piece of road nearly a mile long and sufficient land to widen the road up to Clandon cross-road for a further distance of a mile.

The Great Northern Railway Company have awarded to Mr. H. M. Nowell, of Stockton-on-Tees, the contract for the widening of the Great Northern main line just south of Grantham between Colby and Essendine, covering a distance of over eight miles. This contract includes considerable excavation work and the construction of 11 bridges under the railway, and the reconstruction of the Little Bytham viaduct which has a length of about 700ft. In addition to this work, which is now in progress, two bridges under which the Great Northern will be required to pass

At the parish church of Holy Cross, Ramsbottom, West-side, a new vestry was dedicated on Monday by the Bishop of Manchester (Dr. Knox), assisted by the Bishop of Ramsbury (Dr. Ryle). There were ten Bishops of this See, the oldest of which was in 1075 removed to Old Sarum. Three of these Bishops became Archbishops of Canterbury. The screen which has been erected by Mr. J. Arthur Reeve, of Orchard Annexe, Gate Weighton, is surmounted by a cross with angel on either side to signify the dedication of the church, and contains figures representing the first Bishop of Ramsbury and present Bishop of Salisbury. The screen is at the west end of the church, and a rugged floor has also been [illegible]

LEGAL INTELLIGENCE.

WATER CHARGES FOR BUSINESS PREMISES.—METROPOLITAN WATER BOARD v. CELLY'S PATENTS, LIMITED.—In the Court of Appeal on Friday, before Lords Justices Vaughan Williams, Farwell, and Kennedy, judgment was given in an appeal by the Metropolitan Water Board raising the important point as to the basis of computation of charges for water for factories and shops, used by the occupiers' employees for their personal requirements and for sanitary cleansing, where no one resided on the premises. The question was brought up by a claim by the Metropolitan Water Board in the Westminster County Court, where the learned Judge held that the defendants, who used water not for the purposes of their trade, as in a laundry, for instance, but among other purposes for drinking, sanitary conveniences for their employees, and for cleansing the premises, were thus supplied for trade purposes and not for domestic purposes, and accordingly that they were entitled to a supply by meter, and were not, as the Water Board contended, liable to pay a water rate based on the rateable value of their premises. The Water Board appealed to the Divisional Court, and the case came on before Justices Phillimore and Coleridge. Mr. Justice Phillimore held that the water was supplied for trade purposes, and not for domestic purposes within the meaning of Section 25 of the Metropolitan Water Board (Charges) Act 1907, and therefore that the defendants were entitled to pay by meter. Mr. Justice Coleridge took the opposite view, and, therefore, as the Court differed in opinion, the appeal stood dismissed. Leave to appeal was granted. In giving judgement their Lordships, by a majority, Lord Justice Vaughan Williams dissenting, allowed the appeal. Lords Justices Farwell and Kennedy held that the Water Board had a statutory authority for levying a charge for domestic purposes in the case of business premises not paying inhabited house duty where there was a supply for domestic purposes. In their opinion the water supplied for mere conveniences was domestic supply, and the occupiers of premises were liable to pay for the water so used on a basis not exceeding five per cent. of the rateable value. Lord Justice Vaughan Williams dissented, holding that the water supplied to business premises for sanitation ought not to be treated as domestic supply. Leave to appeal was given.

The Italian *Gazzetta ufficiale* of February 17 contains a decree granting, in favour of the Ministry of Posts and Telegraphs, a sum of 2,400,000 lire (£96,000) for the erection of a building intended for the Central Post Office Savings Bank in Rome.

The rural district council of Sleaford adopted on Monday plans and a scheme prepared by Mr. W. B. Marsden, C.E., for a new water supply for the villages of Scopwick and Kirkby Green, to be obtained from a borehole just completed at Scopwick, and estimated to cost £1,600.

The clerk to the Leathersellers' Company contradicts the statement recently made in the daily papers that it is proposed to pull down and entirely reconstruct St. Helen's place, Bishopsgate, which in its present state dates from 1799, when it was rebuilt as a group of residences for City merchants. What is proposed is to take down and rebuild the four houses nearest the porter's-box, Nos. 17 to 29.

Owing to the intended early removal of the Canadian Pacific Railway Company from their offices, 24, James-street (adjoining the Mersey Railway station), to the new Liver building in course of completion, Mr. J. H. McGowen, architect, 26, North Johnstreet, Liverpool, has prepared plans of the building on behalf of Messrs. Harwood, Banner, and Son, with a view to guide intending tenants in their selection of floor and for making the necessary alterations if the whole of the building is not taken in one occupancy.

The Croydon Borough Council was informed on Monday night, by the Local Government Board that, in reply to its application for compulsory powers to further widen North End, bringing the new frontage line to within a short distance of the Whitgift Hospital, the Board had declined to give its sanction until it received a complete scheme from the council. At the public inquiry Dr. Martin, F.S.A., for the Whitgift Hospital Preservation Committee, strongly opposed the application of the council on the ground that its ultimate intentions regarding the old almshouses were not disclosed. On the other hand, the town clerk declared that the scheme left the future of the hospital quite an open matter.

Our Illustrations.

SWEDISH CHURCH, HARCOURT STREET, W.

This building, which was opened last Saturday, comprises church, hall, church parlour, reading-room, committee and school rooms, and pastor's house. The work was carried out by Messrs. Holland and Hannen, general contractors, from the design of Messrs. Niven and Wigglesworth, architects. The front is of Portland stone, and the buildings are roofed with green Westmoreland slates. The fleche is of teak, covered with copper. The hall accommodates about 500 people, and the church about 250 people. At the consecration ceremony on Saturday, Count Wrangel, the Swedish Ambassador, on behalf of the King of Sweden, presented Mr. H. H. Wigglesworth with the insignia of a Knight, First Class, of the Order of Wasa, which has just been conferred upon him as architect of the church.

DESIGN SUBMITTED FOR THE CITY HALL OF NEW YORK, U.S.A.

This illustration is from the large perspective drawing of the design submitted by Messrs. W. and G. Audsley in the competition held some time ago for the proposed new City Hall of New York, U.S.A. Owing to a special Act of the Legislature of the State of New York, which prevented the destruction of the present poor structure, the competition collapsed and no decision was arrived at. The design now under consideration was the only one submitted that aimed at any originality of style and treatment, all the other designs being in either the ordinary modern Italian or modern French styles, presenting no special departures in their treatments. The style, which has been named Hellenic Renaissance by the architects, and which they have so successfully used in the large Bowling Green Offices, New York, and the Layton Art Gallery, Milwaukee, is a development of the treatment of Greek architecture introduced by the late Alexander Thomson, of Glasgow, in several of his characteristic buildings. The perspective is so carefully drawn and detailed that description is almost unnecessary; but special attention may be directed to the unique treatment of the portico and the imposing tower. There are two turrets at both flanks of the façade, but owing to a quadrant being necessary, on account of the site on the east side (the building facing the south), only one turret could be shown in the perspective, the second one falling practically behind the single one shown. The entire building was to be constructed externally of white marble, and elaborately finished internally, at the probable cost of ten million dollars.

SIDE CHAPEL PANELLING AND DECORATION, COSELEY PARISH CHURCH.

In commemoration of twenty-five years' work at Coseley Parish Church, as vicar of the parish, the Rev. William Spencer, M.A., R.D., is, at his own expense, having the side chapel of the church renovated. The architect is Mr. A. T. Butler, F.R.I.B.A., of Cradley Heath. The following is a description of the panelling and decoration: At the east end, moulded panelling is carried up to a height of 11ft., and finished with cove and carved brattishing. A traceried canopy is then carried up to a height of 19ft. This is divided into eight bays by buttresses with crocketed finials, carried on carved corbels. The two end bays are segmental in shape, forming niches—that on the left being filled with a figure of Mary, and that on the right of St. John. The whole is finished with a bold cornice with a richly-carved bottom member, and with carved paterae in the upper. The tracery, it will be noticed, varies in each bay. The painting in the centre depicts the Ascension of Our Lord from the midst of His Disciples (grouped upon the Mount of Olivet), by His own innate Divine power, surrounded by an aureole of light, effulgent and golden above; a host of cherubs suggest angelic ministration; beneath, an indication is given of Jerusalem, with Mount of Calvary. In the immediate foreground are St. Mary, the Mother of Jesus, and St. John, the beloved Disciple. Next to Mary is the Apostle Peter, who is depicted earnestly gazing and tempering the direct radiance with upraised hands; beside him are the Apostles SS. Matthew, Bartholomew, Simon the Zealot, and James the Less; opposite, next to John, Andrew gazes in reverent adoration, and St. Thomas between them, no longer doubting. SS. James, Philip, and Jude complete the group. The screen dividing the side chapel from the chancel will be remodelled, and will have panelling and tracery to match the east end. The present glazing will be removed, and leaded lights substituted. A small organ-gallery, with vestibule under, is arranged at the west end. The screen and panel-work here and on the south side are in uniformity with that shown on the drawing. The whole of the woodwork will be in Riga oak, waxed, and is being carried out by Mr. Arthur Summers, of Bearwood, Smethwick. The painting is in the hands of Miss Florence Camm, of Smethwick, a frequent exhibitor at the Royal Academy.

The Council of the Royal Scottish Academy have received as a bequest to their galleries in Edinburgh, from the late W. B. Hardie, the portrait of the late John Pettie, R.A., by George Paul Chalmers.

Steps are to be taken to obtain a faculty for the erection of a reredos and oak panelling in the sanctuary of St. John's Church, Tunbridge Wells. The cost will be defrayed by an anonymous donor, and the architect is Mr. E. Cronk, of Tunbridge Wells.

His Majesty's Stationery Office is to be removed from Prince's-street, Westminster, and rebuilt on a site in Basing-street, Lambeth, on the Duchy of Cornwall Estate, the revenues of which are vested in the young Prince of Wales. The present Stationery Office building stands on the site of the old Westminster Mews.

The Liverpool Finance Committee rejected on Friday the King Edward Memorial Committee's suggestion to erect a plaster model of an equestrian statue on the southern base of St. George's Hall, "to see how it looks." No further proposition was submitted, and the memorial committee will, therefore, be obliged to further consider the scheme, and will take into account the recent official intimation that King George prefers non-equestrian statues of his late father.

The Senate of the Queen's University adopted revised plans for new buildings, including a Vice-Chancellor's house, as finally settled by the architect, Mr. W. H. Lynn, on the understanding that the central block shall not be at present proceeded with, and that the expenditure on the Vice-Chancellor's house shall not exceed £4,000. The estimated cost of the scheme is £76,000. Messrs. W. H. Stephens and Sons, Belfast, were appointed quantity surveyors for the new buildings, on the recommendation of Mr. Lynn.

A street-improvement proposal which is supported by the leading drapery firms in Queen's-road and Westbourne-grove, Bayswater, is to be submitted to the Paddington Borough Council and the London County Council. It provides for the construction of a large circus, to be known as Westbourne-circus, at the junction of Queen's-road and Westbourne-grove, and the conversion of the thoroughfare now known as Pickering-place into a continuation of Queen's-road, leading from the proposed circus. The promoters propose that the London County Council shall be asked to contribute to the heavy cost of the improvement, on the ground of its importance and value to the whole of London.

An interesting discovery has been made in St. Mary's Church, Atherstone, Warwickshire. Portions of the building date from the 14th century, and it is recorded that on the morning of the Battle of Bosworth Field, Henry Tudor (afterwards King Henry VII.) received the Holy Communion in the present chancel of the church. Unsightly plaster has been removed from one of the piers which support the tower, and an arch was disclosed, with a large cavity, which, when discovered, was filled with debris. When this had been taken out, a tomb 6ft. 3in. long was exposed to view, which is conjectured to be that of the founder and first prior of the ancient Friary Church, of which the present chancel formed part. A granite slab covers the entrance to the tomb.

STATUES, MEMORIALS, &c.

COMPTON, GUILDFORD.—Mrs. G. F. Watts unveiled on Thursday afternoon in last week, in the cemetery at Compton, Surrey, a memorial to her husband, the late Mr. G. F. Watts, R.A., O.M. At the top of the cemetery, in which stands the mortuary chapel, there has been erected a cloister, 51ft. long by 7ft. wide, as a memorial to the artist. The front of the cloister consists of archways, and it is entered by wrought-iron gates. Two tablets in Mr. Watts's memory were placed in position last week. The tablets are in ivory-tinted terracotta, and were executed from the designs of Mr. Watts. One, "The Destiny," represents the beginning of life, and the other, "The Messenger" the end of life. In the centre there is a recumbent figure of Mr. Watts, the work of Mr. Thomas Wren, of The Hostel, Compton.

The Government of Argentina has issued a decree approving of a plan for constructing dams in the province of Jujuy at a cost of £1,450,000 sterling.

During excavations at the rear of a grocer's shop in Bridge-street, Chester, workmen in the employ of Messrs. W. Vernon and Sons, builders, of that city, found interesting walls, 3ft. to 4ft. high, of Roman workmanship, and hundreds of Roman coins.

It is proposed to erect opposite the cathedral at Armagh a church-house and synod-hall as a memorial to Bishop Alexander. The joint architects are Mr. Sampson Jervois, of Armagh, and Mr. R. Caulfield Orpen, of Dublin. Of the estimated cost (£4,500) about one-half is in hand.

In connection with the sinking of the Yorkshire Main Colliery at Edlington, which is nearing completion, the Staveley Coal and Iron Company, Ltd., intend to erect a model village near by. Nearly a thousand houses will be erected, at an estimated cost of about £100,000.

The salary of C. L. E. Stewart, borough electrical and tramway engineer to the Rawtenstall Town Council, is to be increased by £50 per annum, rising to £350 per annum by increments in the four following years of £25 per annum, on condition that he enters into an agreement for five years.

The art-gallery committee, on the recommendation of the town council of Rochdale, have adopted plans prepared by Mr. Hathaway for the enlargement of the art-gallery on the Esplanade by the acquisition of a residence known as Witlow Bank. The estimated cost of a two-storied wing is £6,250.

The work of improving the Port of Beira, Mozambique, authorised by the Provisional Government of Portugal, has been begun. The improvements will include the building of a stone quay-wall, the cost of which is estimated at £70,000, and the purchase of four luminous buoys, costing £2,000, to illuminate the port.

A workmen's club and institute at the rear of, and in connection with, the United Methodist chapel in Blackfriars-road, S.E., was opened by Sir Albert Spicer the other evening. It was formerly a factory, which has been reconstructed and adapted to its present uses from plans by Messrs. F. R. Bettenson and Lionel M. Parr.

On the recommendation of the Hospitals Committee amended plans, prepared by Mr. Hatch, the engineer-in-chief, for the adaptation, at an estimated cost of £1,822, of the shore buildings at Long Reach to smallpox purposes, were approved by the Metropolitan Asylums Board on Saturday, and it was directed that they be transmitted to the Local Government Board for their sanction, in substitution for plans previously forwarded.

The proposal of the West Hartlepool Town Council to borrow £31,100 for the extension of their electricity undertaking, by erecting a new generating plant at Seaton Carew Ironworks and utilising the waste heat from the furnaces there, evoked strong opposition at the Local Government Board inquiry held before Mr. H. R. Hooper, inspector, on Saturday. The scheme provides that the ironworks should have a supply of current free up to a fixed quantity.

At a meeting held at Newington, S.E., it was unanimously resolved that a memorial should be erected to the late Archbishop of York in St. Gabriel's Church, which he founded. The following alternatives were provisionally accepted and referred to a committee for investigation as to probable cost: (1) The completion of the filling of the east window with stained glass; (2) the erection of a dwarf screen in the chancel; (3) the erection of a reredos; (4) the placing of a mural tablet and the providing of a new lectern.

COSELEY PARISH CHURCH DECORATION AND PANELLING. Mr. A. T. Butler, F.R.I.B.A., Architect.

CHIPS.

Plans have been prepared, and tenders are about to be obtained, for the reconstruction and enlargement of the High-street Station, Swansea, of the G.W.R. Company. The length of the new station is to exceed 700ft.

The death is announced from Redruth of Mr. Morley B. Collins, architect, of that town.

Mr. G. P. Pearson, assistant surveyor to the Hinckley Urban District Council, has been appointed surveyor and inspector of nuisances by the Leek Rural District Council.

Herr Fritz von Uhde, the eminent painter of religious and genre subjects, died at Munich on Sunday, aged 62 years.

The Bishop of London consecrated on Saturday the Church of St. Martin, Lower Edmonton, which will accommodate 750 persons.

"PHOTO-TINT" by Jame Akerman Queen Square

SWEDISH CHURCH. HARCOURT ST. W.C. NIVEN & WIGGLESWORTH ARCHITECTS DRAWN BY AXEL H. HAIG

HARMONY DRIVING AWAY DISCORD & MELANCHOLY

"THE VISION OF SAINT CECILIA"

"THE SPIRIT OF MUSIC: POETRY · INSPIRATION · RELIGION · TRUTH"

FIGURE FRIEZE, "MUSIC." Painted by GEORGE P. DENHAM, A.R.C.A., at 10, Craven Hill, W. MAURICE E. WEBB, M.A., Architect.

[illegible] for the City Hall, New York
[illegible] Architect

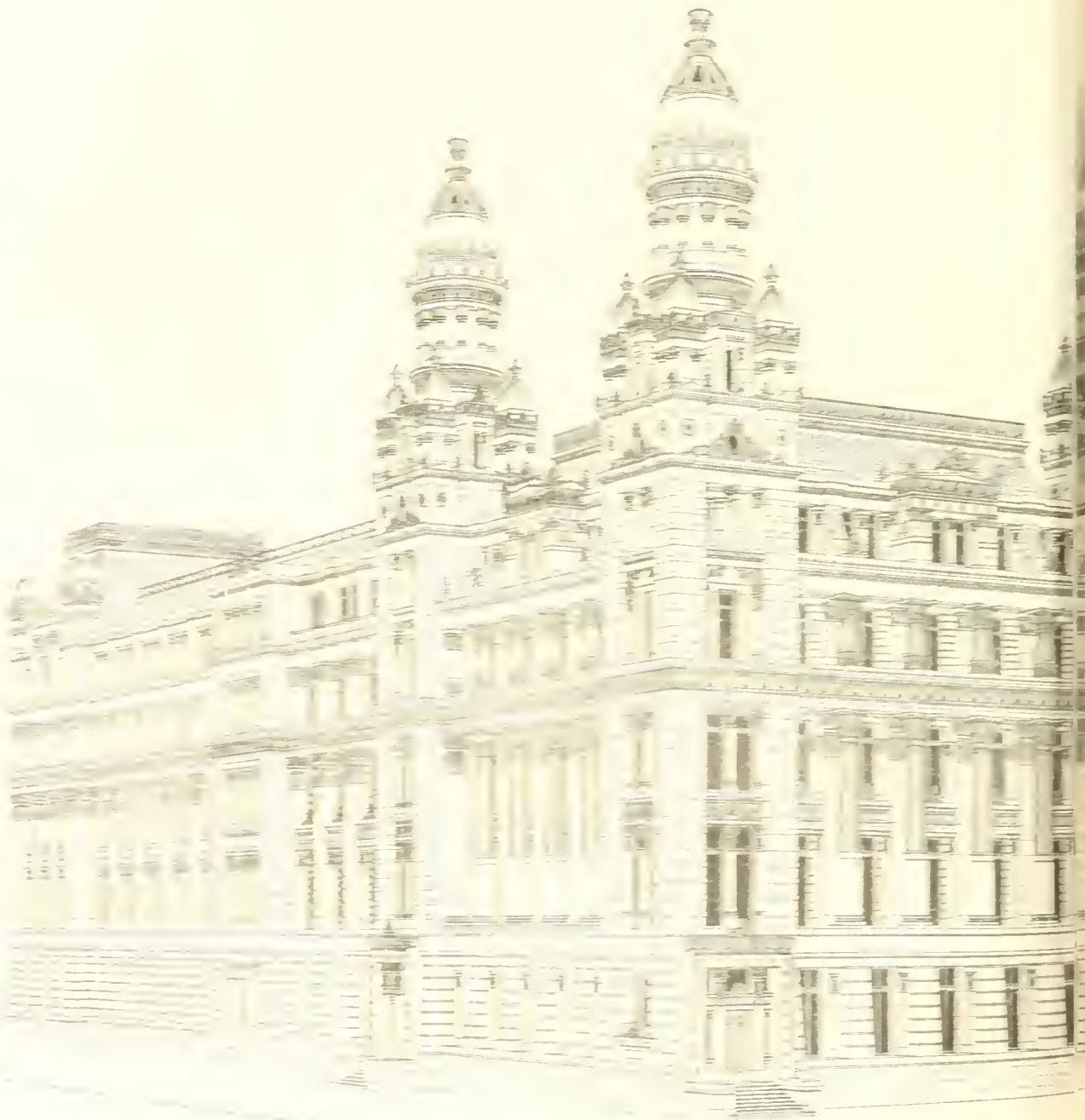


Photo-lithographed by ... City Square, Aberdeen.

DRAWING-ROOM, CRAVEN HILL, LANCASTER GATE, W. Mr. Maurice E. Webb, M.A., Architect.

FIGURE FRIEZE: "MUSIC."

(Painted by George P. Denham, A.R.C.A., at 10, Craven-hill, W.; Maurice E. Webb, M.A., Architect.)

The room contains two genuine Adam's fireplaces, and is panelled throughout in very pale ivory flatted paint. The Frieze is in an extremely pale and delicate scheme of colour, and the sky is pale gold, as are also the patterns and borders on the dresses. It is painted in oil-colour, with wax medium, which dries flat, and the work is on canvas planted on thin wood panels screwed on to the wall, and thus becomes removable. The medium in which the designs are painted allows the decoration to be washed, and the colour is absolutely permanent, being therefore specially suitable for decoration of houses and public buildings. The room is lit by electric bulbs concealed in dishes hung from the ceiling, and the light is thus thrown on to the ceiling and frieze, and reflected in a soft, diffused light into the apartment. The view given herewith shows how the frieze panels occur, and the scale of the scheme generally.

The Canadian Government will erect, at its own expense, a monument to the memory of the late King Edward. It will be presented to the Battlefields Commission, and will probably be placed on the Plains of Abraham. As soon as the required legislative grant has been secured, designs will be called for from prominent sculptors.

Correspondence.

A CORRECTION

To the Editor of the BUILDING NEWS.

SIR,—In your recent [illegible] drawings of Edington Church [illegible], you refer to me as holder of the [illegible] Studentship for 1911. These drawings [illegible] awarded the R.I.B.A. Silver Medal and [illegible] entered for the Pugin.

I should be glad if you would correct this in your next issue.—I am, etc.

T. P. W. GRANT, A.R.I.B.A.

12, Great James-street,
Bedford-row, W.C., Feb. 27.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. Leo. R. Sowerby, Lotus Granite Quarries, Killywheen, By Dantries, N.B.

QUESTIONS.

[13016.] GELATINE CORNER-PIECES.—I shall be obliged if one of our readers could give me any information as to what solution is used in increasing the size of gelatine corner-pieces, and also for decreasing them. I have seen plasterers use it in making fancy corner-pieces larger and smaller than others, and I have also seen die-sinkers use the same liquid, but I never could find out what it really is.—Apprentice.

[13017.] COLD STORAGE FOR FURS.—Will you or one of your contributors kindly inform me how a cold storage for valuable furs is constructed.—Hy. Ward.

[13018.] DAMP WALLS.—Will any reader give personal experience of, and recommend, a really efficient paint or varnish for application to window-sills, window-frames, etc., to keep rain from driving in.—N.

REPLIES.

13010. VENTILATION.—Cubic feet of CO_2 in room at start $= pC$ = 10,000; p, the normal quantity of CO_2 in outside air, 3.6 to 4 parts in 10,000, and C being conveniently about 1,000 cubic feet per person. Under these conditions, with light work going on, and no change of air, the "*standard permissible impurity*" of 2 parts in 10,000 (6 parts altogether) would be reached in T_2 minutes, at which time T_1 the cubic feet of CO_2 in room would be—

$$\frac{pC}{10,000} + r \times N T_1$$

equal to r parts in 10,000. The values of r are .6 cubic feet per hour for each person at rest, .95 cubic feet per hour for each doing light work, 1.2 to 1.6 cubic feet per hour for each doing heavy work. The air is now started, and runs total time T_2, extracting E cubic feet of air, replaced by the same volume of fresh air, X times C, the cubic capacity of room, the standard r being maintained, although respiration continues. Then—

(1) $pC = 10,000 + r \times N T_1$, vitiation at T_1 plus ...

(2) $+ r \times N T_2$, further vitiation to time T_2, plus ... $= \frac{(p+r)C}{10,000}$

(3) $\times (p C - 10,000) \left(\frac{E}{C}\right)$ vols. of fresh air ... ...

Changes of air $\left(\frac{10,000 \times N (T_1 + T_2)}{C \times (p - p_1)}\right) - 1$

But the problem, as set, fails by (1) ignoring variations of temperature, and (2) assuming uniform vitiation of air. Well-designed ventilation systems are arranged to draw off the most impure air and introduce fresh air where it is wanted, so that a little more than one-half the value of X, a round from above formula, would be sufficient. Assuming the normal conditions to light work a given above, and r as one hour—

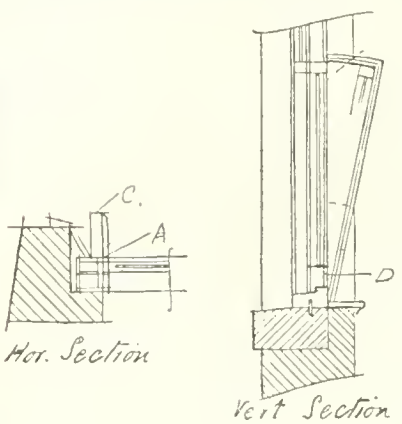
$$\frac{E}{C} = r \times \left(\frac{10,000 \times N}{C \times p}\right) = 2.37,$$

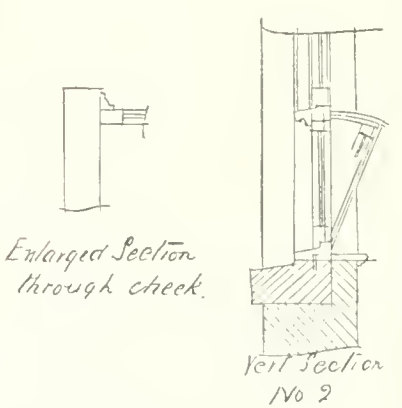
or, say, 2½ changes per hour. If $C \times N = 1,000$, then—

$$= \frac{5}{r - p}$$

The clear area of inlet or outlet would then require to be 33½ square inches per 1,000 cubic feet, allowing velocity of 3ft. per second at grating, which, with temperature at 60° F., would not cause perceptible draught. See, further, Reid's "Sanitation" and Notter and Firth's "Hygiene."—W. J. M. Thomasson, A.R.I.B.A., Bournemouth.

[13013.] ELEMENTARY SCHOOL VENTILATION.—Existing sliding sash-windows may be made into suitable hopper lights in the following manner: Cut away inner bead A to lower part of sash, removing also cords and weights to this portion. Take off draught-board D and secure sash to sill with a pair of 3in. butts, let into sill and sash. Fix 1½in. wood hopper cheek, to box of sash, as shown, C, dotted





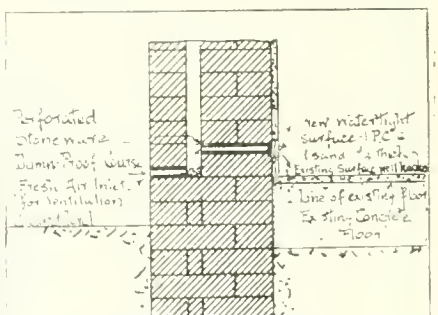
lines indicating where fixing screws can be placed. The size of cheek will, of course, depend upon size of window and aperture required when open. The cheek has a small mould fixed to it, as shown in enlarged section, which mitres with the inner bead of the sash at the top, and checks the window when open. The best method of fastening these hoppers is by means of a small bolt at each side, with the necessary cups in the cheeks. The hopper can then be secured when either open or shut. For new windows a smaller hopper, 14in. clear glass, may be made in similar manner by inserting a 3in. transome below the sashes, as shown in second sketch. The usual width of the hopper cheek in this case is from 7in. to 9in. It is always advisable to fix a small splayed slip along the bottom of hopper lights to prevent any draught caused by faulty fitting of the hinges.—W. Ingham, 202, Norwood, Beverley, Yorks.

[13011.] LEGAL LIABILITY OF ARCHITECT AS VALUER.—The Stamp Act exempts "appraisements or valuations made for and for the information of one party only, and not in any manner obligatory as between parties either by agreement or operation of law." Consequently, if "Dubious" is merely valuing the premises to give his client some idea of its value, he doesn't need a license, but if that valuation is likely to be used between the parties or in a court of law, the architect will require a license. This costs £2 annually, payable in July, and safeguards everyone's interest. Valuing does not debar candidature's admission to the R.I.B.A., as it is a part and parcel of an architect's business, it is did there would certainly be no provincial members of the Institute.—Frank Wilson, 225, Nottingham-street, Shelfield.

[13011.] LEGAL LIABILITY OF ARCHITECT AS VALUER.—An Inland Revenue license of two guineas annually, entitling the holder to act as a valuer, is only necessary when a person makes a valuation as between two parties, or, further, acts in some degree at least as an arbitrator (Arbitration Act, 1889) between them, either by the person referred to or in connection with another appraiser or valuer. This enable a valuer to legally charge for his expert opinion. The clause dealing with this particular question in the Stamp Act of 1891 states: "An appraisement or valuation made for and for the information of one party only, and not being in any manner obligatory as between parties, either by agreement or operation of law," is exempt from stamp duty. A valuer, however, is obliged to take out this license, which is renewable on the sixth day of July in each year, where, under the Inland Revenue Regulation Act, there is a penalty clause of £50 for appraising or valuing without such a license, and a further penalty for failing to write out in words and figures on duly stamped paper, within fourteen days after making such valuation. But, however, in this particular instance, where a person makes a valuation and report of either real or personal property, such being made merely for the information of one person, the person acting as a valuer needs no license, because such a valuation is made gratuitously, without being obligatory between parties. Further, in the case of a mortgage, the valuation is made only for the information of the proposed mortgagee, and, therefore, no license is needed.—Chas. A. Longley, 52, Ivanhoe-road, Denmark Park, London.

[13011.]—LEGAL LIABILITY OF ARCHITECT AS VALUER.—Architects are entitled (without breach of etiquette) to value in their professional capacity builders' work and house property with building land or as part thereof. The difference in principle between an architect's and an auctioneer's valuation is that an auctioneer values everything by the experience which he derives from constant and immediate connection with the actual operations of selling and letting; the architect bases his calculation upon his particular knowledge of the operations and incidents of building. It is the practice of architects to value houses built and building for mortgage loans and the fees chargeable are specifically quoted in the R.I.B.A. schedule of professional charges. But no one (i.e., a person whose calling or occupation it is to value property for reward) except a licensed auctioneer, can exercise his calling, or act as such without taking out a £2 license every year. (46 G. III., c. 43, s. 5, 8, and 9; Vict., c. 76, s. 1). The above terms include "every person who shall value or appraise any estate or property, real or personal, for, or in expectation of, any hire, gain, fee, or reward, or valuable consideration" (46 G. III., c. 43, s. 4). I think it is better for "Dubious" to draw his own conclusions from the facts stated, rather than advise him in the matter, as (on a point of professional etiquette) to tender advice upon a point which is almost a legal one is a trespass upon the domain of our friends the solicitors.—George Norman, 85, The Grove, Hackney, N.E.

[13014.] WET CEMENT FLOORS.—The only remedy that can be adopted is to remove the cause of the dampness, otherwise the trouble will be continually repeating itself. The cause of the floors becoming wet is due to two points: First, the composition of the concrete, and, secondly, insufficient ventilation. (1) A concrete of which the aggregate is composed of limestone and ashes is subject to the formation of a considerable quantity of sulphates, which


Perforated Stone-ware Damp-Proof Course
Fresh Air Inlet for Ventilation
New Watertight Surface of Portland Cement 1/2 inch thick
Existing Surface well Racked
Line of existing Floor
Existing Concrete Floor
Concrete in Foundations

readily attract moisture; (2) and owing to condensation, due to insufficient ventilation, caused by the warm, moist air of the apartment coming in contact with the cold concrete surface, which is of a temperature considerably below that of the warmed atmosphere contained therein (also much accelerated by the atmospheric changes externally), the temperature of which falls suddenly (often rising again very sharply, as we have experienced of late years), a number of degrees, with the result that the atmosphere is unable to hold all the moisture with which it is charged, therefore deposits same in the form of water on the surface of the cement floor, and at the same time being drawn by the absorptive affinity of the sulphates in the concrete. The accompanying diagram (a section through the floor) illustrates the most effective treatment to prevent the recurrence of this dampness by a watertight covering and sufficient ventilation.—Chas. A. Longley, Denmark Park, London.

[13014.] WET CEMENT FLOORS.—Take one part of 120 Twaddell of silicate of soda and two parts of warm water, stir until the silicate is dissolved, and then with a whitewash brush give the floor three or four coats, letting one coat dry before adding the second. This will close up the interstices and make the floor waterproof.—William Sykes, Market Buildings, Immingham, Grimsby.

13014. WET CEMENT FLOORS.—The aggregate, consisting of fine limestone, ashes, or gravelly sand, as used by your correspondent, can hardly be described as "standard," and herein undoubtedly is the real source of his trouble. Mr. Max Clarke, F.R.I.B.A., says, "In a great majority of cases engineers and archi-

tects have made rather a mistake in attributing failures to the Portland cement used. I think it more than probable that a large proportion of them are attributable to the aggregate." To obtain a perfectly impervious or anhydrous floor, it is a *sine qui non* that the best—i.e., in this instance, hardest—crushed granite (¾in. with dust) is in itself practically non-absorbent, and combining all the qualities of both a rounded and a sharp cubical surface, giving the best key possible for the cementing material to catch on to, should be employed. There is strong chemical action going on in the cement for two or three years after being laid, and where this is combined with that of the limestone or calcium carbonate as in this case, it is evident that heat or frost, cold or damp, will quickly affect these floors. I can well imagine that the bottom of his top ¾in. layer will in wet weather be saturated like a sponge with the uprising damp ground air and wet atmosphere. Your correspondent might try a top dressing on the existing floors of 2 of ¾in. crushed granite to 1 of cement as an antidote to the absorption and exudation of moisture, keeping in mind the fact that anything of the nature of clayey or earthy matter in the aggregate lessens the resistance of the concrete to the stresses of atmospheric changes, and of the gases thrown off by the cement, years after it has set.—Leo R. Sowerby, Lotus Granite Quarries, Killywheen, By Dumfries, N.B.

[13015.] — OPERATING - THEATRE FLOOR.—Terrazzo paving laid on a 6in. bed of cement concrete is the one that is generally used at the present time: but it has certain disadvantages; unless it is properly laid fine hair-cracks appear in course of time, whilst it is cold and very slippery when wet. All the new patent floors for which the claim of warmth is made should be carefully avoided if they contain sawdust, because the sawdust, when continually wet, is liable to swell, and thus crack, and, if the surface of the paving is subject to heavy traffic, wears badly. The ideal paving, to my mind, and one that would meet with all the requirements, is cork asphalte, laid in a similar manner to the terrazzo, and can be obtained in a variety of colours (red, green, blue, yellow, etc.), so that it could be made to harmonise with the colour scheme. The advantages of the material are: (1) The non-absorbent nature, quite sanitary, easily washed, etc.; (2) the surface will not become slippery, because of the cork, (3) the combination of cork and bitumen prevents the wear and formation of any dust, even when used as a paving under heavy traffic; (4) whilst the cork in the paving makes it considerably warmer than most pavings.—K. H. Read, Lecturer on Building Construction, Gloucester Technical Schools.

[13015.]—OPERATING-THEATRE FLOOR.—I consider the most suitable material for the floor of a small operating theatre (having regard to the possibility of stains, the necessity for freedom from chill to or slipping of the feet, and the need of frequent washing) to be cork asphalte. It is dustless, practically noiseless, impervious, and combines the well-known properties of linoleum with the durability of asphalte. I do not consider the new plastic jointless materials suitable for such a floor, as I believe they consist principally of sawdust and magnesite, with chloride of magnesium as a flux, and if they are to be rendered impervious to moisture the quantity of sawdust is so reduced that the floor becomes so much like a cement floor that it has all the disadvantages of same without any practical advantage. These jointless floors are, however, suitable for ward floors in hospitals, and are suitable to replace ordinary batten floors.—George Norman, 85, The Grove, Hackney, N.E.

The annual meeting of the Institution of Mechanical Engineers will be held on Thursday, March 16, when Mr. Edward B. Ellington will deliver his presidential address at 8 p.m.

A new West Riding County Council elementary school was opened at Heckmondwike on Friday. The school, for which the contracts amounted to £5,650, is built of stone, is on the south side of High-street, and affords accommodation for 480 children in eight classrooms surrounding a central hall.

Mr. William A. Jackson, assistant surveyor, has been appointed surveyor and inspector of nuisances and buildings to the Malton Urban District Council in succession to Mr. Robert Richardson, who is resigning at the end of March. Mr. Richardson has been appointed consulting surveyor to the same authority.

The Admiralty have accepted the tender of Messrs. Robert Bruce and Son, contractors, Edinburgh, for the erection of explosives magazines at Crombie, in the vicinity of the Rosyth naval base. In all there are thirty buildings, exclusive of dwelling-houses for the staff. It is expected that the work, which will cost about £100,000, will take at least two and a half years to complete. A pier stretching fully half a mile into the Forth is to be let as a separate contract.

Mr. Henry C. Adams, Assoc.M.Inst.C.E., 60, Queen Victoria-street, London, E.C.; Mr. A. Ernest Prescott, borough surveyor, Eastbourne; and Mr. H. C. H. Shenton, 28, Victoria-street, London, S.W., have been nominated by the Council of the Institution of Municipal Engineers to represent that body at the joint conference being called by the Concrete Institute to arrive at a working standard for the loads to be provided for in designing highway bridges.

Our Office Table.

The new rooms at the National Gallery will be opened to the public on Saturday, March 11. There are seven additional rooms—five on the first floor and two on the ground floor. They occupy a portion of the old barracks yard behind the west wing of the Gallery. In the largest of the new upper rooms will be hung examples of Hogarth, Reynolds, Gainsborough, and the great British landscape painters. Of the four smaller rooms, one will be devoted to Turner's pictures, two others to the French school, and the modern French School, and the fourth to the schools of Ferrara, Bologna, and Parma. The two large rooms on the ground floor will be filled, temporarily, with British pictures formerly hung in the west wing. This wing, together with several rooms in the east wing, is now closed, for the purpose of being made fireproof. When the alterations in the west wing have been completed, the two new rooms on the ground floor will be devoted to engravings and photographs.

An exhibition of crafts, under the auspices of the Brighton Guild of Applied Art, was opened at the Brighton Public Art Galleries by the deputy mayor on Saturday. The exhibits include drawings for reproduction, illuminations, colour prints, lithographs, etchings, and stone lettering; embroideries, weaving, lace, designs for architecture and furniture, jewelry, and bookbinding. In an address on "The Work of a Craftsman," Mr. Gerald C. Horsley, F.R.I.B.A., congratulated Brighton upon having a guild of applied art, and said it would be well if others were founded in more of our great towns so that the architect and the artist-craftsman might be brought into closer relation with each other. The efforts of the guild encouraged sound craftsmanship and helped towards the ideal method of production practised in past centuries, and in this work the general public could also help by no longer tolerating ugliness in house design and decoration.

It was reported to the London County Council on Tuesday that various street widenings and improvements have been duly completed. They comprise York-road, Wandsworth, widened for a length of 2,349ft., the minimum width being increased from 28ft. 6in. to 41ft. 6in.; High-street, Tooting, 450ft. in length, widened from 40ft. to 60ft.; Brook green-road and Sullops-lane, Hammersmith, 3,609ft. in length, widened from 25ft. to 45ft.; Lewisham High-road and Lee High-road, 3,330ft. in length, widened from 36ft. to 50ft.; Falcon-road, Battersea, 183ft. in length, widening from 40ft. to 50ft.; Necker Bridge, Deptford, 177ft. in length, widened from only 12ft. 6in. to 40ft.; Lea-bridge-road, Hackney, 600ft. in length, widened from 31ft. to 54ft.; and Woolwich-road, between Tunnel-avenue and Rainton-road, 891ft. in length, from 40ft. to 49ft. Under the general statutory authority to execute improvements, the following minor works of widening have been completed:—Thornhill Bridge, Islington, 99ft. in length, widened from 44ft. to 51ft.; Mansell-street, Stepney, 735ft. in length, widened from 20ft. to 50ft.; Streatham High-road, opposite the High School, 105ft. in length, from 50ft. to 57ft.; and Essex-road, Islington, 540ft. in length, from 40ft. to 50ft. The Theatres and Music Halls Committee recommended that the regulations for the construction of theatres, which do not prescribe any maximum angle for the slope of the gallery tiers, should be amended so as to limit the slope to thirty-five degrees. They also suggested that, save in exceptional circumstances, there shall not be more than two tiers, including the gallery, above the level of the pit. The Council agreed to enter into an agreement with the Westminster City Council "to provide" the City Council will contribute one-third, not exceeding £30,000, of the net cost of the extension of the Mall to Charing-cross, and will exercise its powers for the compulsory acquisition of property needed for the improvement."

The Improvements Committee recommended that the widening of East India Dock-road be undertaken at an estimated cost of £98,000, towards which the Poplar Borough Council has agreed to contribute £3,000. The widening will be over a piece of road 2,010ft. long between the tramway terminus near the approach to Blackwall Tunnel and the county boundary at Barking road Bridge. The width is to be increased from about 45ft. to 70ft. The Road Board has not yet replied to an application for an advance towards the cost. The committee also recommended the Council to contribute a sum not exceeding £36,328 towards the cost, estimated at £54,492, of the widening of King-street, Hammersmith, to be undertaken by the Hammersmith Borough Council; and an expenditure of £30,000 on road widenings necessary for the electric tramway extension from Effra-road to Herne Hill is also proposed. A return was presented by the statistical officer, showing the probable displacement of population in London through the proposed acquisition of houses in connection with the various Bills deposited in the present Session of Parliament. This return showed that out of a total of 4,344 persons to be displaced, 3,512 are of the working class, and that of 1,190 tenements proposed to be acquired, 979 tenements are occupied by persons of the working class. The comparative figures of the number of persons of the working class displaced under the provisions of Bills in the previous seven sessions are as follows: 1904, 2,121 persons displaced; 1905, 2,858; 1906, 4,884; 1907, 4,239; 1908, 2,023; 1909, 421; and 1910, 1,433.

At the meeting of the Birmingham City Council on Tuesday next the gas committee will report that in 1901 they purchased, under the powers of the Birmingham Corporation Act, 1883, about 120 acres of land at Birches Green with a view to erecting gasworks thereon; but, owing to the opposition offered to the scheme, the sanction of Parliament was withheld, and at the time of the Greater Birmingham inquiry a promise was made that if the opposition of Erdington was withdrawn, gasworks should not be erected upon the land. A proposal has recently been made to the committee that the whole of the land should be leased to Mr. F. W. Martin and others, with a view to the development of the land on garden city lines, the number of houses per acre being limited to twelve. Heads of agreement have been provisionally adopted, subjected to the council's approval, providing that the land shall be let on building lease to the proposed lessees for a term of ninety-nine years from July 1, 1911, at a ground rent of £1,000 per annum, subject to, but with the benefit of, all existing tenancies. It is proposed to construct a sewer through the Birches Green estate, being part of a scheme of drainage proposed to be carried out in the district, and the arrangement provides that the proposed lessees shall (if required) grant a free easement for the sewer in question to the corporation or the Erdington Council, whichever may be the local authority at the time of construction. The committee recommend that they be authorised to let the land on lease for a term of ninety-nine years upon the terms mentioned.

The ninety-second volume of "The English Mechanic and World of Science," now ready (Effingham House, Arundel-street, Strand, W.C., 7s., post free 7s. 6d.) is, as usual, unique as regards the wide scope and interest of its contents, and the kindly eagerness which prompts its numerous contributors and correspondents all the world over, and of every rank and class, to give of their best to the reader seeking information. To these, as its conductors cheerfully admit, far more than to any efforts of their own, is the success of the *English Mechanic* due. There is, it may safely be said, no subject in which any intelligent man or woman takes an interest with regard to which an appeal for information in its columns will not be promptly and generously met by those most competent to solve difficulties and place their stores of practical, first-hand knowledge at the service of the querist. And it is doubtless due to this fraternal co-operation that its students of science and industry have enriched the world during the past half-

MEETINGS FOR THE ENSUING WEEK.

[illegible] Institution of Civil Engineers. "Lagos Harbour Survey, 1909—1910," by H. Ellis Hall, jun., B.Sc., Stud.Inst.C.E. 8 p.m.

Glasgow Architectural Craftsmen's Society. "A Study of French Masonry," by James S. Boyd. 8 p.m.

[illegible]—Architectural Association. Visit to New Recreation Station and Shelter, Old Scotland Yard, Whitehall. 2 p.m.

[illegible]ria and Albert Museum. "German Romanesque Architecture" (Lantern Illustrations), by Banister F. Fletcher, F.R.I.B.A. 5 p.m.

Architectural Association. "The Functional Application of the Orders to Modern Buildings," by A. R. Jemmett. 7.30 p.m.

Royal Society of Arts. "Applications of Electric Heating." Cantor Lecture No. 1), by Prof. J. A. Fleming, D.Sc., F.R.S. 8 p.m.

Liverpool Architectural Society. "Domestic Architecture," by Ernest Newton, A.R.A., F.R.I.B.A. 6 p.m.

[illegible]—British Museum. "Early Christian Basilican Churches and Baptisteries" (Lantern Illustrations), by Banister F. Fletcher, F.R.I.B.A. 4.30 p.m.

Guild of Architects' Assistants. "The Town Planning Agitation," by E. J. Dixon, A.R.I.B.A., 17, Fleet street, E.C. 7.30 p.m.

Institution of Civil Engineers. Discussion on "Modern Railway Signalling, and Developments upon the Great Western Railway." 8 p.m.

[illegible]—Royal Society of Arts. "Plague and its Dissemination," by James Cantlie, M.A. 8 p.m.

Northern Architectural Association. Awarded Students' and Competitions. 7.30 p.m.

Edinburgh Architectural Association. "The Renaissance in Spain, Egypt, and Turkey," by J. B. Fatton, A.R.I.B.A. 8 p.m.

Manchester Society of Architects. "The Architect's Use of a Library," by J. H. Sellers. 6.30 p.m.

Carpenters' Hall Lectures. "The Use of Glass in Building," by Noel Heaton, B.Sc. 7.45 p.m.

Institution of Civil Engineers. Students' Visit to the District Railway Widening Works, Turnham Green.

Society of Architects. "The Relation of Sculpture and Carved Ornament to Architecture," by W. S. Frith. 8 p.m.

Carpenters' Hall Lectures. "St. Paul's and the Bridges," by Prof. Beresford Pite, F.R.I.B.A. 8 p.m.

Sheffield Society of Architects and Surveyors. "Town Planning as a Local Application," by L. M. Gibbs, F.R.I.B.A.

[illegible] Birmingham Architectural Association. Paper by Professor Selwyn Image.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 1, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Proprietors do not undertake to pay for, or be liable for, any gratuitous contributions.

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Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

RECEIVED.—C. L. and Sons.—A. B. R., Ltd.—C. C. and Son, Ltd.—J. R. C. Bros., Ltd.—W. D. W. A. D. B. and Sons, Ltd.—P. and Co., Ltd.—H. P.—W. P. T. and Co.—L. E. S. R.—J. R. L.—B.M.S.Assn.—G. Ltd.—A. C. C. C. Co. Ltd.—P. G. Co.—T. B. H.—G. S. and Co., Ltd.—S. Bros.—H. H. and Co., Ltd.—F. W. B.—C. W. J. D.—W. L.—H. H.—

KEW.—Yes.

H. T.—Thanks, no.

EDAM.—Not quite to spare.

MODEL.—See our "Directory" pages under "Model Makers."

E. H. L.—We [illegible] to Correspondents' Column.

C. W. B.—For addresses of the Secretary of the Guild of Architects' Assistants see E. J. Dixon, A.R.I.B.A., 17, Church street, Edgware-road, W.

DUBIOUS.—There are certainly [illegible] we will never see in this paper, if only for the reason that we have a dislike to [illegible] and debts.

LANCELOT.—We know nothing of the people named. See our "Directory" pages under "Dust Sheets and Tarpaulins," and "Cloth, Brass &c."

G.—Flint walls are generally strengthened by having courses of bricks, three or four courses deep. The object is, not only to get a continuous bond, but to bring the work to a level bed, at short distances again.

"BUILDING NEWS" DESIGNING CLUB.

SIXTH LIST OF SUBJECTS.

F.—A Stone Bridge of Two Archways, with substantial abutments, in memory of King Edward VII., to be built over a connecting stream between the northern shores of two ornamental lakes in a public park. Two boathouses are to be attached to the abutments of the bridge, one on each side at its northern end, and these are to be formed under a raised platform built all in stone, with brick arches inside the longitudinal walls, being set at right angles to the bridge. This raised platform, elevated about 10ft. high from the ground line, is to be used as an open-air terrace for band performances, and to have a flight of steps the whole width of its depth at either end. Both flanking walls to have balustraded parapets 3ft. 6in. high on its N. and S. frontages, and raking down with the approach steps. Each of the two boathouses to have arched open fronts in the embankment façade towards the water, and the interiors are to be 20ft. deep by 15ft. wide, with windows inserted at the far end towards the north, these lights to make a feature in the wall of the band terrace towards the park. Space for seats to be provided below these windows for public use, and buttresses and piers may be introduced to give architectural character to both façades. The water level is 8ft. below ground line at either end of the bridge, and a through-way arch 9ft. wide under the terrace will make a feature at the northern end of the bridge, the width of which is to be 12ft. between the parapet walls. The water way is 30ft. wide from shore to shore. In front of the boathouses a 6ft. wide timber-formed landing-stage to be shown the length of the extremity of the boathouse wings, which on the plan, together with the bridge, will assume a T-shape in general outline. Two plans, two elevations, and a cross section looking north, so as to include river front of boathouses. The contour of the bridge and its footway may rise towards the centre of the stream, and footway as well as band terrace floor to be asphalted. The architectural style is left to the competitors, but Edwardian would be appropriate. A view from south shore looking N.W. is required. Drawings due on April 1, 1911.

DRAWINGS RECEIVED.—"Me," "Bournemouth Queen."

CHIPS.

The fine tower of the parish church of Newport, Shropshire which has been repaired and restored, was rededicated on Sunday by the Archdeacon of Salop.

The Stoke-on-Trent Corporation have agreed to pay Mr. J. W. Wardle, C.E. an honorarium of 250 guineas for his services in designing and carrying out the Longton sewage disposal work.

New public washhouses in Netherfield road, North Liverpool built from plans by Mr. W. R. Court, at a cost of £5,000, were opened yesterday (Thursday). They provide forty stalls and hot-air drying chambers.

The urban district council of Sevenoaks have decided to invite local architects to submit designs for an "artistic" brick pavilion for the recreation-ground, the cost not to exceed £400, and an alternative design, the cost not to exceed £250.

At the town hall, Leek, on February 23, Mr. S. W. Brightmore, Inst.C.E. conducted an inquiry, on behalf of the Local Government Board, relative to the application of the urban district council to borrow £4,000 for the extension of their electricity generating station.

The Wallasey Town Council at their first annual meeting last (Thursday) evening received a report from the special committee appointed to deal with the subject stating that they have considered thirteen sites for a town-hall, and that it has been decided that the borough surveyor report upon seven of them.

At a meeting of Hawick Archæological Society on Friday night Mr. Alex. Inglis, architect, gave a lecture on the Pre-Reformation Church of Southdean, the excavation and preservation of the ruins of which have just been completed, and arrangements made for unveiling the memorial tablet on May 6 by the Earl of Minto.

At Boreham Wood, Herts, on Thursday afternoon, the foundation-stone was laid of a new Baptist church which is to be a memorial to the late Mrs. Godfrey, who founded the work of the church. The architects are Messrs. Spalding, Spalding, and Myers, of Watford, and the builders are Messrs. Waterman, of the same town. The estimated cost is £1,700.

The works committee of the town council of Gravesend recommend that the salary of the borough surveyor should be increased from £325 to £370, and that that sum be the maximum salary to be paid to him; also that it include all work to be done by him in connection with the public elementary schools in the borough.

At the last meeting of the Leeds and Yorkshire Architectural Society in the Leeds Institute, Mr. Harold Henderson, of York, lecturing on "The Minor Domestic Architecture of Yorkshire," drew a charming picture of the typical home of the 17th century Dalesman, though in some cases grim and stern, reflecting the spirit of the race who lived in a generation of fierce and strict Puritanism.

LATEST PRICES.

IRON.

	Per ton.				Per ton.		
Rolled-Iron Joists, Belgian	£5	7	6	to	£5	12	6
Rolled-Steel Joists, English	7	5	0	,,	7	15	0
Wrought-Iron Girder Plates	7	0	0	,,	7	5	0
Bar Iron, good Staffs	6	5	0	,,	8	10	0
De., Lowmoor, Flat, Round, or Square	20	0	0	,,	20	0	0
De., Welsh	5	15	0	,,	5	17	0
Boiler Plates, Iron—							
South Staffs	8	0	0	,,	8	15	0
Best Snedshill	9	0	0	,,	9	10	0

Angles 10s., Tees 20s. per ton extra.

Builders' Hoop Iron, for bonding, &c., £8 15s. to £9.

Builders' Hoop Iron, galvanised, £14 to £15 10s. per ton

Galvanised Corrugated Sheet Iron—

	No. 18 to 20. Per ton.				No. 22 to 24. Per ton.		
6ft. to 8ft. long, inclusive gauge	£13	0	0	...	£13	10	0
Best ditto	13	0	0	...	14	0	0

Wire Nails (Points de Paris)—

3 to 7	8	9	10	11	12	13	14	15	B.W.G.
6 3	6 9	9/3	9 9	10/3	11/-	11/9	12 6	13 6	per cwt.

	Per ton.				Per ton.		
Cast-Iron Columns	£6	10	0	to	£8	10	0
Cast-Iron Stanchions	6	10	0	,,	8	10	0
Rolled-Iron Fencing Wire	8	5	0	,,	8	10	0
Rolled-Steel Fencing Wire	6	5	0	,,	6	10	0
,, ,, ,, Galvanised	7	15	0	,,	8	5	0
Cast-Iron Sash Weights	4	17	0	,,	4	17	0
Cut Floor Brads	10	5	0	,,		—	
Corrugated Iron, 24 gauge	10	0	0	,,		—	
Galvanised Wire Strand, 7 ply, 14 B.W.G.	14	5	0	,,		—	

B.B. Drawn Telegraph Wire, Galvanised—

0 to 8	9	10	11	12	B.W.G.
£10 5 0	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.

Cast-Iron Socket Pipes—

3in. diameter	£6	2	6	to	£6	7	0
4in. to 6in.	6	0	0	,,	6	5	0
7in. to 24in. (all sizes)	5	7	6	,,	6	0	0

[Coated with composition, 5s. 0d. per ton extra; turned and bored joints, 5s. 0d. per ton extra.]

Pig Iron—	Per ton.		
Cold Blast, Lilleshall	110s. 0d.	to	117s. 6d.
Hot Blast, ditto	70s. 0d.	,,	75s. 0d.

Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.):—

Gas-Tubes	75 p.c.
Water-Tubes	72½ ,,
Steam-Tubes	67½ ,,
Galvanised Gas-Tubes	65 ,,
Galvanised Water-Tubes	62½ ,,
Galvanised Steam-Tubes	57½ ,,

OTHER METALS.

	Per ton.				Per ton.		
Spelter, Silesian	£22	12	6	to	£22	17	6
Lead Water Pipe, Town	17	2	6	,,		—	
,, ,, ,, Country	17	17	6	,,		—	
Lead Barrel Pipe, Town	18	2	6	,,		—	
,, ,, ,, Country	18	17	6	,,		—	
Lead Pipe, Tinned inside, Town	19	2	6	,,		—	
,, ,, ,, ,, Country	19	17	6	,,		—	
Lead Pipe, Tinned inside and outside Town	21	12	6	,,		—	
,, ,, ,, ,, Country	22	7	6	,,		—	
Composition Gas-Pipe, Town	20	2	6	,,		—	
,, ,, Country.	20	17	6	,,		—	
Lead Soil-pipe (up to 4½in.) Town	20	2	6	,,		—	
,, ,, ,, Country	20	17	6	,,		—	
[Over 4½in. £1 per ton extra.]							
Lead Shot, in 28lb. bags	24	15	0	,,		—	
Copper Sheets, sheathing & rods	70	0	0	,,	70	10	0
Copper, British Cake and Ingot	58	10	0	,,	59	0	0
Tin, Straits	193	0	0	,,	193	10	0
Do., English Ingots	194	0	0	,,	194	10	0
Do., Australian	193	0	0	,,	193	10	0
Do., Bars	195	0	0	,,	196	0	0
Pig Lead, in 1cwt. pigs	14	10	0	,,		—	
Sheet Lead, Town	16	12	6	,,		—	
,, ,, Country	17	7	6	,,		—	
Genuine White Lead	21	0	0	,,		—	
Refined Red Lead	19	0	0	,,		—	
Sheet Zinc	32	5	0	,,		—	
Old Lead, against account	12	7	6	,,		—	
Tin per cwt.	11	0	0	,,		—	
Cut Nails (per cwt. basis, ordinary brand)	0	10	6	,,		—	

TIMBER.

CONSTRUCTIONAL.

Per St. Petersburg Standard (100—12ft. by 11in. by 11in.)

Yellow Pine Deals, Quebec, 1st quality	£31	0	0	to	£42	0	0
,, ,, ,, 2nd ,,	21	0	0	,,	26	0	0
,, ,, ,, 3rd ,,	15	0	0	,,	18	0	0
Spruce Deals: St. Johns	8	0	0	,,	11	0	0
,, ,, Miramichi	7	5	0	,,	8	10	0
,, Boards: Swag	7	0	0	,,	8	0	0
Red Deals: Archangel 1st quality	20	10	0	,,	21	10	0
,, ,, ,, 2nd ,,	15	0	0	,,	17	0	0
,, ,, ,, 3rd ,,	11	0	0	,,	12	0	0
,, ,, St. Petersburg—							
,, 1st quality	16	0	0	,,	17	0	0
,, 2nd ,,	13	0	0	,,	14	10	0
,, ,, Wyburg & Ulealborg	10	0	0	,,	12	0	0
,, ,, Gefle, Gothenburg, and Stockholm	10	0	0	,,	17	0	0
White Deals: Crown	10	0	0	,,	12	0	0
,, ,, Seconds	9	10	0	,,	10	0	0
Flooring: White and Planed—							
1st and 2nd quality mixed	9	0	0	,,	9	5	0
1st, 2nd, and 3rd quality mixed	8	5	0	,,	8	10	0
Red Planed, 1st quality	11	5	0	,,	11	10	0
Pitch Pine: Prime Deals and Boards	17	0	0	,,	20	0	0
Lignum Vitæ	5	10	0	,,	12	0	0

Per foot super, as 1in.

Yellow Pine Logs (waney board)	0	2	9	,,	0	4	3
Pitch Pine Logs	0	1	6	,,	0	1	10
Canary Whitewood: Prime	0	3	6	,,	0	3	9
Birch: Quebec Logs	0	2	0	,,	0	2	6
Oak: Austrian Wainscot	0	7	0	,,	0	8	0
Mahogany: Gaboon	0	0	1¾	,,	0	6	2¼

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (50c.ft.)	£20	0	0	to	£21	10	0
,, Java ,,	15	0	0	,,	18	0	0
Canary Whitewood: Prime bds.	Per cubic foot.						
14in. average	0	3	0	,,	0	3	3
Canary Whitewood: Medium bds. 11in. average	0	2	2	,,	0	2	6
Oak Planks: U.S.A., imported	0	1	9	,,	0	2	6
,, Boards ,, ,, Prm.	0	2	4	,,	0	2	9
,, ,, ,, Mdm.	0	1	10	,,	0	2	2
Sequoia (Californian Redwood)	0	3	0	,,	0	3	6
Birch: Quebec logs	0	1	8	,,	0	2	2
,, ,, sawn planks	0	1	0	,,	0	1	2
Oak: Austrian Wainscot	0	6	0	,,	0	7	0
Walnut: Prime boards & planks Mdm. ,, ,,	0	5	0	,,	0	6	0
	0	3	4	,,	0	3	6
Greenheart: Hewn logs	0	3	6	,,	0	4	6
Cedar: Cigar box	0	3	6	,,	0	4	8
Satin Walnut: Imp. sawn boards, prime	0	2	3	,,	0	2	6
Orham: Imp. sawn boards, prime	0	1	10	,,	0	2	2
Mahogany: St. Domingo, Cuba, and Honduras	Per foot of 1in. 0	0	5½	to	0	0	6
,, African, Assinee, &c.	0	0	4½	,,	0	0	9
,, Lagos and Benin	0	0	3½	,,	0	0	4½
,, Sekondi and Cape Lopez	0	0	2½	,,	0	0	3½
,, Gaboon	0	0	1½	,,	0	0	0
Satinwood: West Indian	0	0	10	,,	0	2	2
Rosewood Per ton	7	0	0	,,	12	0	0
Lignum Vitæ ,,	4	0	0	,,	11	10	6

STONE.*

Red Mansfield, in blocks per foot cube	£0	2	4	
Darley Dale, ditto	,,	...	0	2	3
Red Corsehill, ditto	,,	...	0	2	2
Closeburn Red Freestone, ditto	,,	...	0	2	0
Ancaster, ditto	,,	...	0	1	10
Greenshill, ditto	,,	...	0	1	10
Chilmark, ditto (in truck at Nine Elms)	,,	...	0	1	9
Beer, ditto	,,	...	0	1	6
Hard York, ditto	,,	...	0	2	10
Ditto ditto 6in. sawn both sides, landings, random sizes per foot sup.	0	2	6		
Ditto ditto 3in. slab sawn two sides, random sizes ,,	,,	...	0	1	3

* All F.O.R. London.

Bath Stone, delivered on rail at quarry stations per foot cube	0	1	0	
Delivered on road waggons, Paddington Depot	,,	...	0	1	6½
Ditto ditto, Nine Elms Depot	,,	...	0	1	8½
Beer Stone, delivered on rail at Seaton Station	,,	...	0	1	0
Ditto, delivered at Nine Elms Station	,,	...	0	1	6

Portland Stone, in random blocks of 20ft. average:—

	Brown Whit Bed.				White Base Bed.		
Delivered to railway depot at the quarry per foot cube	£0	1	5¾	...	£0	1	7½
Delivered on road waggons at Paddington Depot ...	,, ...	0	2	1	...	0	2	2½
Ditto, Nine Elms Depot ...							
Ditto, Pimlico Wharf ...							

BRICKS.

(All prices net.)

Hard Stocks	£1	6	6	per 1,000 alongside, in river			
Rough Stocks and Grizzles	1	6	0	,,	,,	,,	
Picked Stocks for Facings	2	10	0	,,	delivered at railway station.		
Flettons	1	6	0	,,	,,	,,	
Pressed Wire Cuts	1	18	0	,,	,,	,,	
Red Wire Cuts	1	14	0	,,	,,	,,	
Best Fareham Red	3	12	0	,,	,,	,,	
Best Red Pressed Ruabon Facing	5	0	0	,,	,,	,,	
Best Blue Pressed Staffordshire	3	15	0	,,	,,	,,	
Ditto Bullnose	4	0	0	,,	,,	,,	
Best Stourbridge Fire Bricks	3	14	0	,,	,,	,,	
2½in. Best Red Accrington Plastic Facing Bricks	4	13	0	,,	Net, delivered in full truck loads in London.		

GLAZED BRICKS.*

HARD GLAZES. (PER 1,000.)

	White, Ivory, and Salt Glazed. Best.	Best. Buff and Cream.	Other Coloure.	Second Colours.
Stretchers—	£10 17 6	£9 7 6	£12 7 6	£16 7 6	£10 17 6
Headers—	10 7 6	8 17 6	11 17 6	15 17 6	10 7 6
Quoins, Bullnose, and 1½in. Flats—	13 17 6	12 17 6	16 7 6	19 17 6	14 7 6
Double Stretchers—	16 7 6	14 17 6	19 7 6	22 17 6	16 7 6
Double Headers—	13 7 6	11 17 6	16 7 6	19 17 6	13 7 6
One side and two ends, square—	17 7 6	15 17 6	20 7 6	24 17 6	17 7 6
Two sides and one end, square—	18 7 6	16 17 6	21 7 6	25 7 6	18 7 6
Splays and Squints—	15 17 6	14 7 6	20 7 6	23 7 6	15 17 6

Plinth and Hollow Bricks. Stretchers and Headers—
5d. each 4d. each 6d. each 6d. each 5d. each

Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres—
5d. each 4d. each 6d. each 6d. each 5d. each

Rounded Internal Angles—
4d. each 3d. each 5d. each 5d. each 4d. each

MOULDED BRICKS.

Stretchers and Headers—
8d. each 8d. each 8d. each 6d. each 8d. each

Internal and External Angles—
1/2 each 1/2 each 1/2 each 1/2 each 1/2 each

Cill Bullnose, Stretchers and Headers—
5d. each 4d. each 6d. each 6d. each 5d. each

	Per 1,000			
Majolica or Soft Glazed Stretchers and Headers	£21	17	6	
,, ,, ,, Quoins and Bullnose	26	17	6	
Compass bricks, circular and arch bricks of single radius £6 per 1,000 over above list for their respective kinds and colours	Not exceeding 9in. × 4½in. × 2½in.			
Camber arch brick, any kind or colour, 1s. 2d. each				

Stretchers cut for Closers and Nicked Double Headers, £1 per 1,000 extra.

* These prices are carriage paid in full truck loads to London stations.

	s.	d.	
Thames and Pit Sand	7	0	per yard, delivered l.
Thames Ballast	5	6	,, ,,
Best Portland Cement	28	0	per ton, ,,
Best Ground Blue Lias Lime	19	0	,, ,,

Exclusive of charge for sacks.

Grey Stone Lime	11s. 6d. per yard, delivered
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. stn.	

SLATES.

	In.	In.	£	s.	d.	
Blue Portmadoc	20 × 10	...12	12	6	per 1000 of 1200 at r.stn.	
,, ,,	... 16 × 8	.. 8	12	6	,,	,, ,,
Blue Bangor	20 × 10	...13	2	6	,,	,, ,,
,, ,,	... 20 × 12	.13	17	6	,,	,, ,,
First quality	20 × 10	...13	0	0	,,	,, ,,
,, ,,	... 20 × 12	...13	15	0	,,	,, ,,
,, ,,	... 16 × 8	... 7	5	0	,,	,, ,,

Eureka unfading	£	s.	d.	
green 20 × 10	...15	17	6	,, ,,
,, ,,	... 20 × 12	...18	7	6	,, ,, ,,
,, ,,	... 18 × 10	...13	5	0	,, ,, ,,
,, ,,	... 16 × 8	...10	5	0	,, ,, ,,
Permanent green	20 × 10	...11	12	6	,, ,, ,,
,, ,,	... 18 × 10	... 9	12	6	,, ,, ,,
,, ,,	... 16 × 8	.. 8	12	6	,, ,, ,,

TILES.

	s.	d.		Delivered
Plain red roofing tiles	42	0	per 1000	at rly. stn.
Hip and Valley tiles	3	7	per doz.	,, ,,
Broseley tiles	50	0	per 1000	,, ,,
Ornamental tiles	52	6	,,	,, ,,
Hip and Valley tiles	4	0	per doz.	,, ,,
Ruabon red, brown, or brindled do. (Edwards)	57	6	per 1000	,, ,,
Ornamental do.	60	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	0	,,	,, ,,
Selected "Perfecta" roofing tiles:—Plain tiles (Peake's)	46	0	per 1000	,, ,,
Ornamental do.	48	6	,,	,, ,,
Hip tiles	3	10½	per doz.	,, ,,
Valley tiles	3	4½	,,	,, ,,
"Rosemary" brand plain tiles	48	0	per 1000	,, ,,
Ornamental tiles	50	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,
Staffordshire (Hanley) Reds or Brindled tiles	42	6	per 1000	,, ,,
Hand-made sand-faced	45	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,
"Hartshill" brand plain tiles, sand-faced	50	0	per 1000	,, ,,
Pressed	47	6	,,	,, ,,
Ornamental do.	50	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,

OILS.

Rapeseed, English pale, per tun	£28	15	0	to	£29	5	0
Do., brown	,, ...	26	15	0	,,	27	5	0
Cottonseed, refined	,, ...	29	0	0	,,	30	0	0
Olive, Spanish	,, ...	39	10	0	,,	40	0	0
Seal, pale	,, ...	21	0	0	,,	21	10	0
Cocoanut, Cochin	,, ...	46	0	0	,,	48	10	0
Do., Ceylon	,, ...	42	10	0	,,	43	0	0
Do., Mauritius	,, ...	42	10	0	,,	43	0	0
Palm, Lagos	,, ...	32	5	0	,,	33	5	0
Do., Nut Kernel	,, ...	35	0	0	,,	35	10	0
Oleine	,, ...	17	5	0	,,	19	5	0
Sperm	,, ...	30	0	0	,,	31	0	0
Lubricating U.S. per gal.		0	7	0	,,	0	8	0
Petroleum, refined	,,	0	0	6½	,,	0	0	6¾
Tar, Stockholm per barrel		1	6	0	,,	1	10	6
Do., Archangel ,,		0	19	6	,,	1	0	0
Linseed Oil per gal.		0	4	1½	,,		—	
Baltic Oil ,,		0	4	5	,,		—	
Turpentine ,,		0	5	3½	,,		—	
Putty (Genuine Linseed Oil) per cwt.		0	11	0	,,		—	
,, Pure Linseed Oil, "Stornty" Brand ,,		0	10	0	,,		—	

VARNISHES, &c.

	Per gallon.		
Fine Pale Oak Varnish	£0	8	0
Pale Copal Oak	0	10	0
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of churches	0	14	0
Fine Elastic Carriage	0	12	6
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	16	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flatting Varnish	0	18	0
White Copal Enamel	1	4	0
Extra Pale Paper	0	12	6
Best Japan Gold Size	0	10	0
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	0
Berlin Black	0	16	0
Knotting	0	10	0
French and Brush Polish	0	10	0

GLASS IN CRATES.

English Sheet Glass:	15oz.	21oz.	26oz.	32oz.
Fourths	1¼d. ...	2¾d. ...	3¾d. ...	4¾d.
Thirds	2¼d. ...	3¾d. ...	4d. ...	5d.
Fluted Sheet	2¾d. ...	3¾d. ...	6d. ...	6¾d.

Hartley's English Rolled Plate:	¼in.	3/16in.	⅜in.
	2¼d. ...	2¾d. ...	3d.

Figured, Rolled, and Reporussine.	White.	Tinted.
	3½d. ...	5d.

TRADE NOTES.

Mr. A. G. Lees' All Time ... course has been specified ... by the Admiralty upon the ... at Gosport and on extensive ...

The Technical ... entilated by ... exhaust ... E. H. Shorland ... worth Manchester.

Messrs. Wm. P... turers, Leeds and ... a new range ... Paul's ... near London. ... College, London ... Hilton's ... Patent ... Illuminated ...

Under the direction of Mr. W. H. Fr... architect, of Gosport, the ... natural ... patent "Air ... pump ventilators and ... have been applied to the cinematograph theatre. Last night Boyle's latest patent "Acoumen" ventilators have also been applied to the theatre at Ilkeston.

PILKINGTON & CO.

(Established 1838.)

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TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender; it adds to the value of the information.

Ashton-under-Lyne.—For the erection of disinfecting station for the corporation. Messrs. Eaton, Sons, and Cantrell, Stamford-st., Ashton-under-Lyne, architects:

Robinson, J., Katherine-st., Ashton-under-Lyne	£476 0 0

Belvedere.—For the erection of a house at Belvedere, Kent, in Burlington-drive. Messrs. Ashdown and Price, 72, Finsbury-pavement, London, E.C., architects:

Woolf, A. W.	£477 0 0
Welby, C. W.	454 0 0
Ingleton, A. S.	443 10 0
Head, S. H.	335 0 0
Ames and Pond	331 17 0
Adams, E. T. J. (accepted)	277 0 0

Boston, Lincs.—For additions to Skirbeck Police-station, for the Holland Standing Joint Committee. Mr. E. J. A. Christie, Market-place, Boston, Lincs, architect:

Langley, J., and Son, Kirton	£238 0 0
Sewell, J., West Skirbeck	220 0 0
Parker, H. W., and Son, Wormgate	219 0 0
Leafe, J., and Sons, Sleaford-road	200 0 0
Jessop, C., and Co., Bargate-bridge	197 0 0
Comer, J. W., Pen-street	196 0 0
Pett and Bonfield, Frieston-road	192 0 0
Barber, J. T., and Son, High-street	177 0 0
Lucas, J., and Sons, West-street	172 9 6
Darby, J. W., High-street*	159 10 0

All of Boston. Accepted.

Charlton Kings.—For erecting new cloakrooms at school, for the Gloucestershire Education Committee. Mr. R. S. Phillips, Midland Bank-chambers, Gloucester, architect:

Capper, C. G., Cheltenham	£199 10 0
Heard, A. G., Bristol	192 19 0
Cornock, J. W., and Co., Cheltenham	185 10 0
Middleton, F. A., Charlton Kings	158 15 0
Drew, W., Cheltenham	149 10 0
Simmonds, J., Gloucester	134 0 0
Collins and Godfrey, Tewkesbury	121 17 0
Cleeveley, A. and E., Charlton Kings (accepted)	116 15 0

Chatham.—For installation of laundry engine and Gwynne's pump, at Caterham, for the Metropolitan Asylums Board. Mr. W. T. Hatch, M.I.C.E., Embankment, W.C., engineer-in-chief:

Whitaker, C. and Co., Brfd. Ltd., Bradford	£906 14 6
Tonge, R., Mount Pleasant, Sevenoaks	816 0 0
Brightside Foundry & Engineering Co., Ltd., Sheffield	749 0 0
Cannon, W. G. and Sons, Ltd., London-road, Southwark	707 1 2
Moorwood, Sons and Co., Ltd., Gray's Inn-road, W.C.	649 0 0
Wenham & Waters, Ltd., Paragon Works, Croydon	648 0 0
Lea, Son, and Co., Ltd., Pengwerne Works, Shrewsbury	644 0 0
Fryer, W. J. and Co., Bravington-road Works, Paddington	629 16 10
Cannon and Hefford, Stanbury Works, Stanbury-rd., Peckham* New pump room, &c. —	595 0 0
Tonge, R., Mount Pleasant, Sevenoaks	295 0 0
Cropley Bros., Ltd., High-street, Epsom	247 0 0
Axell, P. A., Elm-road, Purley, Surrey	239 0 0
Wenham & Waters, Ltd., Paragon Works, Croydon	238 0 0
Honour, F. W., The Green, Warlingham, Surrey	230 0 0
Wall, E., Alice Works, Summerstown, Tooting	214 0 0
Gorham, T. C., Raddlesdown Works, Whyteleafe	189 10 0
Freeman, Harry, Ltd., Mulgrave-road, Sutton	160 10 0
Windsor, H. and Co., 58, Oxberry-avenue, Fulham*	148 15 0

* Accepted.

Chingford.—For the provision and erection of 1,030 lin. yards of fencing, with reinforced-concrete posts and wire strands, around a strip of land at the south end of the Chingford reservoir works, between the new supply channel and the River Lee, for the Metropolitan Water Board —

Reinforced Concrete Fence Posts Co. (accepted) 2s. 1d. per lineal yard.

Flixton.—For sewerage extension, for the drainage joint committee. Messrs. J. P. Wilkinson and Son, MM.Inst.C.E., 301, Cathedral-street, Manchester, engineers:

Contract No. 2:—

Williams and Carnall, Clapham Park-road, Clapham, S.W.	£3,200 19 7
Booth, J., and Son, Ten Acres-lane, Newton Heath, Manchester	3,001 0 0
Price, A. H., and Co., Castle Boulevard, Nottingham	2,775 5 6
Meikle, W. P., Dale-street, Liverpool	2,713 13 2
Brebner, R., and Co., Edinburgh	2,684 12 7
Worthington, W. H., Ltd., Manchester	2,650 5 4
Bentley, J., and Co., Bradford	2,574 0 0
Cowburn, S., and Sons, Hindley, near Wigan	2,479 8 2
Edmondson and Wyatt, Werneth, Oldham	2,478 0 0
Johnson, S., and Son, Pendleton	2,444 16 6
Freeman, G., and Sons, Hollinwood, Oldham	2,399 0 0
Whittaker Bros., Flixton	2,382 3 9
Pollitt, W., and Co., Ltd., Bolton*	2,219 4 5
Horrocks, J., Westhoughton	2,075 19 0

Contract No. 3 —

Hughes and Lancaster, Ltd., London, S.W.	£1,692 12 6
Manlove, Alliott, & Co., Nottingham	1,493 10 0
Worthington, W. H., Ltd., Manchester	1,451 9 6
Adamson, D., and Co., Dukinfield*	1,406 7 10
Goddard, Massey, and Warner, Nottingham	1,294 9 6
Carlton Engineering Co., London, E.C.	1,270 10 0

* Accepted.

Fyfield, near Ongar.—For alterations and additions to the Industrial and Truant School, Fyfield, Essex, for the West Ham Education Committee. Messrs. W. and J. H. Jacques, 2, Fen court, Fenchurch-street, E.C., architects. Quantities by Messrs. R. L. Curtis and Sons:

Brand, Pettit, and Co.	£2,763 0 0
Webb, A.	2,349 0 0
Battley, Sons, and Holness	2,327 0 0
Paul, P. R.	2,291 0 0
Lowe, R. A., and Co.	2,285 0 0
Lawrence, W., and Son	2,274 0 0
Fitch and Cox	2,181 0 0
Patrick, J. and M.	2,144 0 0
Woodhaston and Co.	2,139 0 0
Symes, A. E.	2,116 0 0
Horswill, H. C.	1,969 0 0
Clark and Sons	1,953 0 0
Coxhead, E. J., Leytonstone	1,949 0 0

Accepted.

Lambeth, S.E.—For the supply and erection of a penstock and dam required for the southern low-level sewer No. 2, in St. Mark's-road, Lambeth, for the London County Council:

Glenfield and Kennedy, Ltd., Kilmarnock	£508 0 0
Blakeborough, J., and Sons, Brighouse	500 0 0
Cochrane, J., Burrhead	425 0 0
Markham and Co., Ltd., Broad Oaks Iron Works, Chesterfield*	369 10 0

* Recommended for acceptance.

Lancaster.—For erecting school at High-street Estate, for the Education Committee. Mr. A. G. Bradshaw, Town Hall, Lancaster, boro' surveyor. Quantities by boro' surveyor. Accepted tenders:—

Drainer and asphalter —

Mashiter, W. jun., Blades-street	£821 12 4

Excavator, mason, and bricklayer:—

Dilworth, R. L., St. Leonardgate	8,392 10 5

Carpenter and joiner:—

Peill and Riley, Greaves-road	2,550 0 0

Plumber, glazier, and gasfitter —

Abbott, W., Brock-street	777 7 9

Slater and plasterer —

Hall, R., Friar-street	1,007 11 6

Painter:—

Brash, J., Church-street	234 17 6

Total, £13,783 19 6.
All of Lancaster.

Limerick.—For building three villas in Castle View-gardens, for Mr. W. W. Whitaker. Mr. Channey, Cecil-street, Limerick, architect —

Bourke, P., Denmark-street, Limerick (accepted).

Littleborough, Lancs.—For the paving of Hare Hill-road, for the urban district council:—

Worrall, J., Shawclough (accepted).

London.—For the supply and delivery of steam-piping and fittings for the compressed air services at the second section of the central car-repair depot, for the London County Council:—

Mosers, Ltd., Borough, S.E.	£90 10 3
Russell, J. & Sons, Ltd., Wednesbury	86 19 6
Russell, J. and Co., Ltd., Queen Victoria-street, E.C.	80 4 11
Buck and Hickman, Ltd., Whitechapel, E.	75 19 8
Spencer, J., Ltd., Wednesbury	73 15 2
Standard Engineering Co., Ltd., Queen Victoria-street, E.C.*	69 5 0
Stewarts and Lloyds, Ltd., Winchester House, E.C. (incomplete)	56 13 6

(Estimate of the chief officer of tramways, £90.
* Recommended for acceptance.

Lydbrook.—For additions to Joy's Green school, for the Gloucestershire Education Committee. Mr. R. S. Phillips, Midland Bank-chambers, Gloucester, architect:

Bendall and Son, Chepstow	£675 0 0
Cooke, A. S., Stroud	650 0 0
Lewis, W. E., Ross	605 0 0
Collins and Godfrey, Tewkesbury	598 0 0
Simmonds, J., Gloucester	595 0 0
Flewelling, E. J., Lydbrook*	515 0 0

* Accepted.

Middlesborough.—For erecting a new men's wing at the workhouse, for the board of guardians:

Rudge, G., Normandy (accepted)	£1,528 0 0

Southampton.—For further works of dredging, for the harbour board:—

Tilbury Contracting and Dredging Co. (accepted)	£38,000 0 0

Stratford-on-Avon.—For additions to hospital. Mr. William Henman, F.R.I.B.A., 10, Temple-street, Birmingham, architect:—

Whateley, G., and Sons	£2,850 0 0
Blazier, T. and A.	2,814 0 0
Whittall, W. T.	2,810 0 0
Sapcote, W., and Sons	2,749 0 0
Dallow, J., and Sons	2,715 0 0
Webb, W. and J.	2,714 0 0
Elvins, T., and Sons	2,700 0 0
Tilt Bros.	2,678 0 0
Esplev and Co., Ltd.	2,650 0 0
Smith, G. F., and Sons	2,625 0 0
Bishop, W.	2,608 0 0
Harris, J., and Sons	2,521 0 0
Barnsley, J., and Sons	2,498 0 0
Griffiths, C.	2,498 0 0
Good, G.	2,495 0 0
Kennard, E. J.	2,468 0 0
Fincher, J. G., and Co. (accepted)	2,450 0 0
Grove, C., and Sons	2,319 0 0

Todmorden.—For the erection of a school to accommodate 516 children, for the borough education committee:—

Lumb, B., (accepted)	£5,173 0 0

(Cost of building and site per head, £11 12 6.)

Tottenham, N.—For coal store &c., at Fever Hospital, for the Metropolitan Asylums Board. Mr. W. T. Hatch, M.I.C.E., Embankment, W.C., engineer-in-chief:—

Jones and Stoodley, Marlborough-road, Wood Green	£767 15 0
Preston, T., Tavistock-terrace, Holloway	735 5 0
Chessum, J. and Sons, South-place, E.C.	717 0 0
Hampton, F. W., Warwick-road, Ashford	686 9 10
Pike, F., High-street, Ponders End	654 0 0
Stevens and Sons, Cronch-hill	598 0 0
Gilbert, W., Tynemouth-road, South Tottenham	593 0 0
Dainton, F. W., Calabria-road, Highbury	591 0 0
Oram, J., & Son, Waltham Abbey, Essex	560 10 0
Roberts, A. and Co., Ltd., Earl's Court-road, Kensington	565 0 0
Kazak, L., 3 and 4, Station-road, Belvedere (accepted)	539 0 0
Wall, E., Alice Works, Summerstown, Tooting	508 0 0

Winchcombe.—For heating installation at council school, for the Gloucestershire Education Committee. Mr. R. S. Phillips, Midland Bank-chambers, Gloucester, architect:—

Marshall, R. E. and C., Ltd., Cheltenham (accepted)	£76 5 6

Winchester.—For erecting a pavilion at new recreation ground, for the corporation. Mr. Walter V. Anderson, Guildhall, Winchester, city engineer —

C. A. Hutchings, Winchester	£97 10 0

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THE BUILDING NEWS

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OUR ILLUSTRATIONS.

Offices of the North-Eastern Railway Company, Cowley-street, Westminster. Messrs. Horace Field and Simmons, Architects.

Cathedral of Notre Dame, Rouen, Normandy. Elevation of West Front. Drawn by Mr. P. D. Hepworth. Pugin Studentship Competition. Hon. Mention drawings, 1911.

Royal College of Art. Design for Church Screen in Oak, with Details and Sketches of Ironwork. By Mr. J. B. Godson.

Selected Design East Anglian Institution for Blind and Deaf Children, Gorleston, Norfolk. Mr. John E. Burton, Architect.

The Hindusthan Co-operative Insurance Society's Building, Calcutta. Mr. Stephen Wilkinson, Architect.

The Clock Tower, Bury Secondary Schools. Mr. J. Theo. Halliday, A.R.I.B.A., Architect.

"DARK TINTAGEL BY THE CORNISH SEA."

To some of us, our most inseparable association with Tintagel has little to do with William of Worcester or Geoffrey of Monmouth, or even with the "Idylls of the King." It rather concerns a party of tourists who, as their countrymen were said to do in Froissart's day, took their pleasure "moult tristement." Their talk was of Mallory, and if they valued Tennyson at all, it was only for the tale he told, and not in the least for the poetry he put it in. But they were conscientious people, and they had an aim, and this aim was to seek out the exact spots in which men who perhaps never lived did things which never could have been done. Let us hope that they had their reward, passed their examinations, or gained their diplomas—for this, as experts say, is how diplomas in English literature are gained; not by appreciating the literature itself, but by ferreting out the driest of facts about its subjects, and about the lives of its authors.

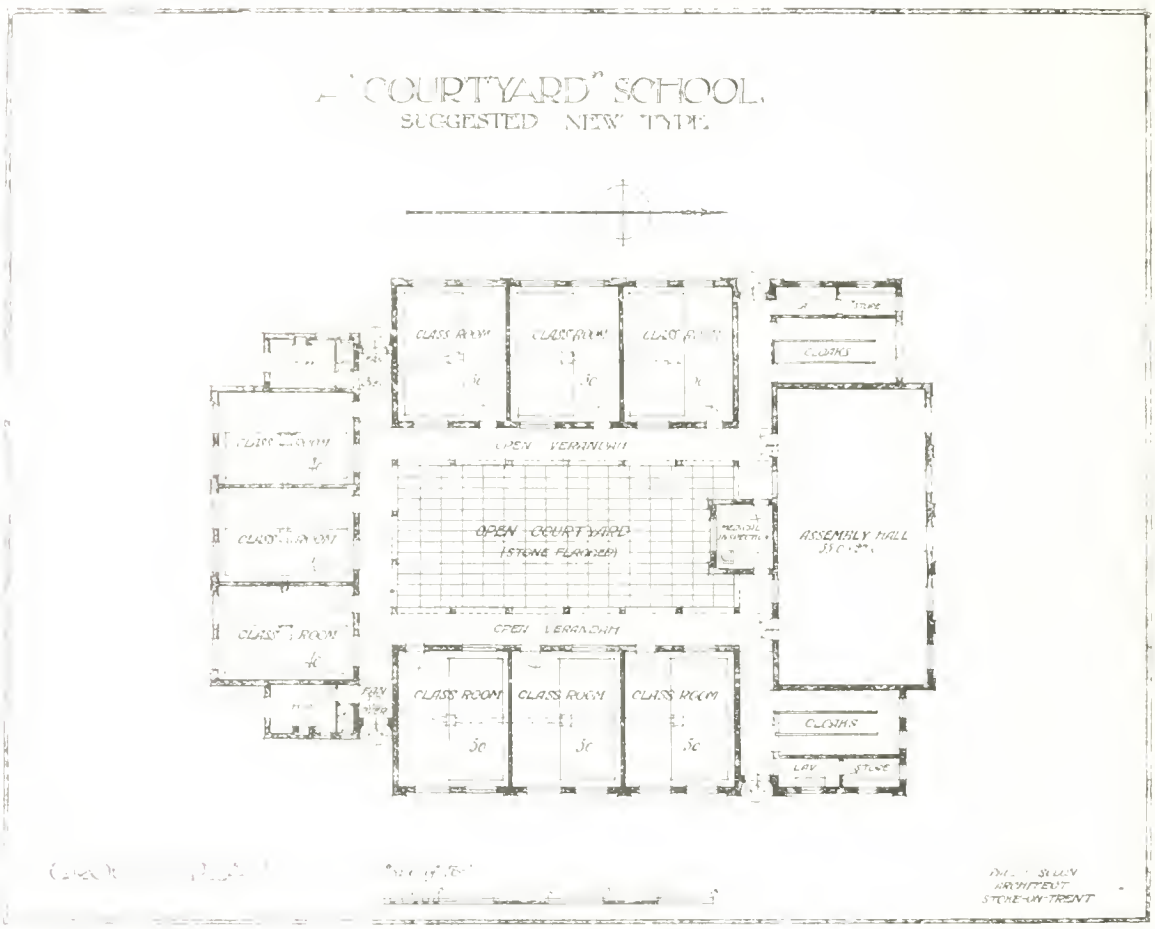
To anyone who expects to see a castle like Conway or Carnarvon or Harlech, Tintagel will be a disappointment. Considering how old it is, and that its very ruins must have half-perished even before these Welsh castles were begun, this is really not surprising. But its site, at least, still answers pretty closely to the description Geoffrey of Monmouth gave of it in the twelfth century. "It is situated on the sea, and on every side surrounded by it, and there is but one entrance into it, and that through a narrow rock, which three men shall be able to defend against the whole powers of the kingdom." A century or two later, Leland says, "The buildings of the Castle be sore weather-beaten, and in ruins, but it hath been a large thing." He goes on to say that "the gulfing in of the sea hath made there almost an isle, and no way to enter into it now but by long elm-trees laid for a bridge. In the isle remain old walls, and in the east part remaineth a wall embattled." The bridge of elm-trees has vanished, but the embattled wall, or, at least, *an* embattled wall, is still there. But as to its date, no architect, perhaps, would care to express a positive opinion. There is nothing to fix it as either Roman-British, Saxon, Norman, or Gothic, and the impression it makes from a little distance is that of belonging emphatically to the oyster-grotto order of architecture. Its stones may once have formed part of a rough wall; but they are too rough now, and too dilapidated, to have much recognisable mason's work about them. They look as if they have been hastily patched up in modern times, to support the sinking faith of the tourist, who might naturally look for more evidence of strength, if not of beauty. Tourists, however, on a fine summer's day, are dotted here and there all about the 16 acres or so of grass which make up the "island of Tintagel." With Cornish antiquities, even more than with historic places in general, "the wiser mind Grieves less for what time takes away Than what he leaves behind." He takes away a cliff and sometimes a cavern, and we miss them; but he leaves an hotel behind, and generally in the very place where it ought not to be. At Newquay he has left one on every picturesque prominence of the coast, from the great headland onwards; that headland where thirty years ago the visitors, almost like one family, went in procession evening after evening, to see the sun go down, and to sit on the grass looking over the Channel till the hues of sunset faded, and "the moon took up the wondrous tale." The seals are to be seen no more at Toivan Blistra, and there is a stucco castle flaunting its pretensions in the face of King Arthur's perishing ruins at Tintagel. Everywhere you see the abomination of desolation standing where it ought not.

But to inspect Tintagel Castle close at hand, now there is no drawbridge and no elm-trees to form a way, we have to follow the road downhill to the Castle cove, past the picturesque old Post Office, and by the side of the little rivulet. Bits of Cornish slate, smooth but uneven, like fragments of sea-shell, make up the road. The water is fringed with meadow-sweet, and the flowers that haunt the running brooks, till it gets down to the point where high tides wash into it and the sea-spray makes it salt. From thence onwards it bears the usual plants of an English salt marsh: the bright-coloured Aster tripolium, the wild celery which scents the air as you tread on it, along with sea-rockets and bitter-cresses, and all sorts of odd-looking vegetables which remind you of other seaside places where you have come across them all round the coast. Here, somewhere near the bottom of the cliffs, you ought to make formal application for the key of the castle grounds, and when possessed of it to mount the long, irregular array of winding steps which take you round the great rock to the narrow entrance gate. Once on the "island," you have a fine view each way up, down, and across the Bristol Channel. The isle itself is too windswept for many flowers to find a home there at least, in later summer. Perhaps so near the sea, and with so even a temperature, there may be more in spring. Up the Channel is Hartland Point, and down the Channel is Trevose Head, conspicuous at nights from Newquay by the intermittent light of its lantern. Tintagel Church is also a prominent object, about a mile away, largely Norman, perhaps partly Saxon, and possibly a bit here and there Roman-British. It was "restored," or what is better, conservatively repaired, more than thirty years ago. Once it had a central tower, and now has only a western one. The old stone benches remain round the south transept; there is a Norman font and some Norman carving.

But Tintagel is by no means the only antiquity on this North Cornish coast. Of King Arthur's time, if not before it, is or was St. Perran's Chapel at Perranzabuloe, six or seven miles west of Newquay. St. Perran came as a missionary from Ireland in the sixth or seventh century. He built a small chapel about 25ft. by 12ft.; the drifting sands concealed it, and it seems to have been totally forgotten till 1835. The lowest part of the enclosing wall was still left a few years ago; but excursionists in seventy years, or even in seven, may very well have used it worse than drifting sand did in seven hundred. Its best security, perhaps, consists in its situation. It stands in a desert area miles across, and full of abandoned pit-shafts, and as the guide-book wisely says, "the stranger will do well to take a guide." Beyond this desert roars the sea, and St. Agnes' Beacon looks down on St. Agnes' Bay. There are swarms of rabbits amongst the short turf, which grows, now here, now there, as the universal sand-drift grows lighter at one point and heavier at another. There are gulls and crows, and sometimes a cormorant; and not far off is, on its way to becoming a popular resort, the little village of St. Perran Porth. Here the sea and the wind together have rounded the rocks and fretted them into oddly-shaped masses, sometimes pierced with artificial looking holes. But further away from the sea there is another sight worth seeing. It goes by the name of "Perran Round." It is nearly circular, and about 130ft. in diameter. As far as can be seen, it is formed of earth piled up in seats stepped one above another, and will seat, it is said, 2,000 people. Miracle plays, it is believed, used to be performed there, as now at Ober-Ammergau. A deepish trench surrounds it outside the embankment, and it would seem that from this came much of the earth which forms it. Perhaps it was first meant for a fortification, or used for one when fighting was the order of the day.

"Blown sand" is a natural product of

[illegible] stream. They used to form a place gay with flowers and sacred to rabbits [illegible] to take a short cut across them [illegible] Central Beach, there was always a [illegible] sinking suddenly waist deep in [illegible] much to the disturbance of the local [illegible] arrangements. Now the [illegible] and the rabbits also, [illegible] they have emigrated, and joined [illegible] themselves in either East or West Pentreath though they could hardly reach the [illegible] except by swimming the Gannel at first a little brook, then a sandy channel in the sands, and at its mouth a bay in which a little fleet of fishing boats will at times take refuge in stormy weather. The cliffs on the Gannel are still unspoilt, they remain for a little while until Newquay grows into a bigger town so that they also can be let on building leases. But people who remember it as it used to be would be content at Clacton or Southend has arrived instead. But there is much to note within a few miles. Truro Cathedral is worth going to see, though one could wish it more Cornish and more completely built in Old Cornish ways. There is the Land's End with a different type of coast, with cliff castles, stone arches, and barrows; roadside crosses and field crosses, some of them set up as modern men might set up gas lamps, to guide and guard the way to church; some of them now removed to places where they will be better seen, as is one now at Penzance, with the inscription, "Hic procumbunt corpora piorum." But of all these innumerable old crosses there is none that lingers longer in the memory nor inspires more pitiful thoughts, than a quite modern one in the churchyard at Tintagel. It bears no name; but there hangs on it a lifebelt, with only this one word decipherable "Napoli."



[illegible] have had one town less in the county, if only they could have kept the village that used to be there. Lodging houses there were few at that time. Beyond the railway station, some half a mile of fields were interposed before the old village appeared. It was a quiet place, with here and there a haystack anchored by many ropes and stakes, so that the winds from the sea should not carry it away bodily. The great place of rendezvous was the [illegible] well at least for women and [illegible]. The cottagers it is true were [illegible] in modern conveniences, [illegible] was to be had and [illegible] But they gave visitors [illegible] appetites, and if you wanted fruit [illegible] packed with [illegible] new potatoes in French boxes, were to be had almost as cheaply as in France. Above all the place was wild as Nature left it, and it was rather hard to get there. There was plenty to look at when you did arrive. Now the glory has departed and what might pass for glory

DEFECTS OF MODERN ELEMENTARY SCHOOL-PLANNING: SUGGESTED NEW TYPE OF SCHOOL.

By Paul H. Solon.

Of recent years most of the English elementary schools have been planned on the Central Hall arrangement, this being generally accepted as the most convenient and economical form of school construction. Most "school architects" seem pretty well agreed on this; and yet, if one takes the trouble to critically analyse and test the points most vital to a modern school building, one cannot but come to the conclusion that it is not only very imperfect but in some directions it signally fails. In speaking of the Central Hall arrangement, I mean the scheme whereby the classrooms and cloakrooms are placed round three or four sides of the hall.

CROSS VENTILATION.

Firstly, the all-important question of cross ventilation now so much insisted upon by the Board of Education can never

be efficiently carried out under these conditions. The usual method is to place a dormer or high window opposite the lighting walls, with a view of creating a cross current of air. Assuming it acts, what really happens is this. A column or shaft of cold air moves between the open points practically without disturbing the lower stratum of the classroom atmosphere, the two atmospheres being of different temperatures. In cases of classrooms grouped all round the central hall, this method is particularly unsatisfactory, as the roof of the central hall retards what little "blow through" tendency there is.

DEFECTS OF A CENTRAL HALL.

Again, the central hall in this arrangement is a source of great inconvenience, for this reason. It is impossible to use it for singing or drilling without serious annoyance to the students in the adjoining classrooms. For this reason it is obvious that it should be effectively isolated from the classrooms.

EXTRACT VENTILATORS.

The ordinary extract ventilator used in the classrooms is more or less a farce. In cold, windy weather it works so well it has to be closed, and on hot, sultry days, when it is most required, it does not act at all.

MECHANICAL VENTILATION.

In towns where current is available, I would suggest a fan extraction from a continuous duct placed in the roof, with gratings in the ceilings of all classrooms, each grating being controlled by a valve, worked with a cord, which could be opened and closed without interfering with the other classrooms. The gratings should be of varing sizes as they approach the fan.

SUGGESTED NEW TYPE OF SCHOOL.

Up to the present, the only type of school that has attempted to deal with the cross ventilation question is the Staffordshire, or Verandah school. This type is being used with success by Mr. John Hutchings, A.R.I.B.A., the architect to the Staffordshire Education Committee. On the other hand, this scheme sometimes is objected to as being too draughty and exposed in inclement weather. Consequently, assuming that the Verandah school is on the right lines as far as cross ventilation is concerned, to give the required shelter and at the same time reserve the cross ventilation, it would be necessary to group the classrooms round a kind of courtyard, as shown in the accompanying sketch.

THE "COURTYARD" SCHOOL.

This is a plan for a mixed school of 420 students. It will be noticed that the central hall is well isolated from the classrooms, in accordance with what has been said above. The classrooms are so arranged that a continuous extract duct may be placed in the roof and connected with two 36in. fans, which would be placed in small soundproof turrets. The open court would be paved with stone flags or asphalted. The classrooms are taken in 50's and 40's, the 60 classroom being now generally admitted too large for one teacher.

CONSTRUCTION.

All classroom ceilings are flat, ceiled at the wall-plate, each block of three being roofed with a continuous ¼ pitch roof. The central hall would have an open roof, with large windows in the north wall, with supplementary dormers. The verandah to have a flat roof, constructed of boards on bearers, finished with asphalte. I confidently expect that a scheme can be evolved from this system that will revolutionise the present methods of school-planning. Needless to say, this type is not applicable to small schools, but more for the average "Council School," such as are being built all over England at the present time. The plan submitted is capable of improvement, and I should be glad of criticisms and suggestions, from those interested in school construction, in these columns.

THE ARCHITECTURAL ASSOCIATION.

The fortnightly meeting of the Architectural Association was held on Monday evening at 18, Tufton-street, S.W., Mr. Arthur Keen, the President, occupying the chair. Messrs. C. W. Brown and E. H. Smith were elected as members. Mr. E. Gunn, hon. secretary, announced that a visit would take place on Saturday, the 18th inst., at 2 p.m., to the offices of the General Accident, Fire, and Life Assurance Co., Ltd., Aldwych, by permission of the architect, Mr. J. J. Burnet, A.R.S.A.; and that on March 24 a members' smoking concert would be held at 18, Tufton-street, at 8 p.m.; light refreshments would be served during the evening, and a collection of drawings executed by English students in French ateliers, and in l'École des Beaux Arts would be on exhibition.

THE FUNCTIONAL APPLICATION OF THE ORDERS TO MODERN BUILDINGS.

Mr. A. R. Jemmett, F.R.I.B.A., read the following paper on this subject:—

On thinking over the wording of the title—"The Functional Application of the Orders to Modern Buildings"—it seemed evident to me that the accent should be placed on the word "functional"—the application of the Orders in such a way as to fulfil a function. We are all aware that some people may question the legitimacy of the whole proceeding; may contend, with much show of reason, that you cannot rationally apply the Orders to modern buildings—whether functionally or otherwise—particularly in this country, where Classic architecture is only an imported plant. Such people may well hold that the Orders, as perfected by the Greeks, were a natural production of the time and circumstance; that they were suitable to that time and those circumstances only; that they were applied by the Romans indiscriminately and without any real understanding—sometimes rationally, sometimes irrationally; that where they applied them functionally it was as much a matter of accident as of design; that the same remarks apply to the period of the Renaissance, which, as a matter of fact, was a fundamental mistake, turning architecture from the true path of progress and keeping it there ever since. This is a point of view for which I have the greatest respect; but it is not the subject for discussion this evening. Obviously, also, it would be most inconvenient to admit it here, as the admission would bring this inquiry to an abrupt termination. I will merely refer those who hold it to the dictum attributed to M. Due, Grand Prix de Rome and architect of the Salle de Pas Perdue of the Palais de Justice at Paris:—"There is no architecture without the Orders"—just to remind them of another point of view, and leave them to make what they can of it. It seems necessary for our purpose to consider Classic architecture as much an acclimatised or naturalised citizen as a Lombardy poplar, a French partridge, or a Jersey cow; as much a home product as a Brussels carpet or a French casement; and to grant the legitimacy of the application of the Orders, provided they are applied in such a way as to perform a function. What are these functions? And how may the Orders be best applied so as to fulfil them? These seem to be the questions before us to-night. It is, I suppose, the orthodox standpoint that, as architecture is a structural art, the chief function of each individual feature is a structural one. It is, I believe, contended that no feature has a right to exist except in discharge of some structural necessity, and that its value as architecture depends on the degree of success with which it exactly fulfils that function. Far be it from me to deny it; but I venture to suggest that it is true only as far as it goes. The truth, perhaps, but not the whole truth.

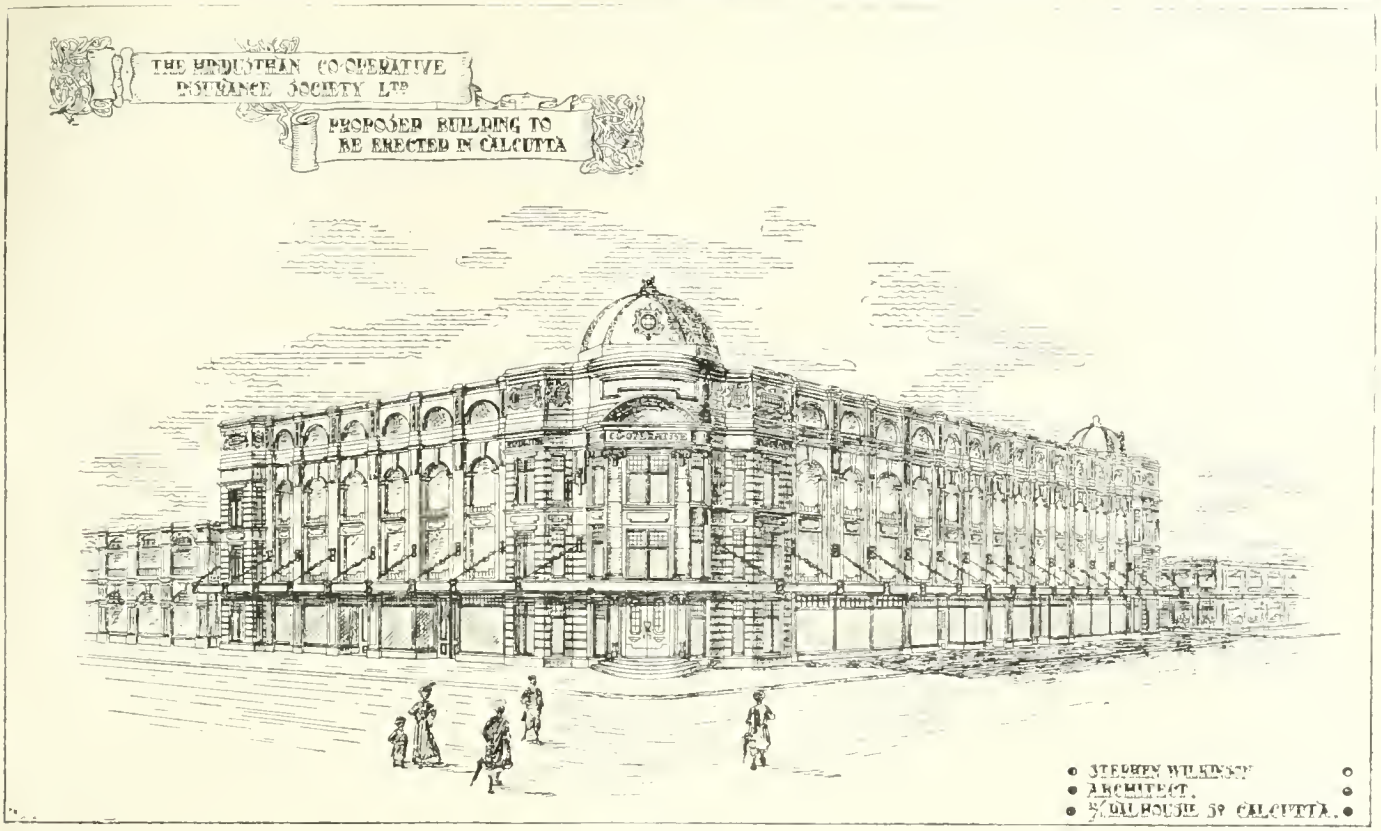
ROMAN USE OF THE ORDERS.

If we consider for a moment the use of the Orders as elaborated by the Romans, and again by the earlier Italians, we must admit that they often applied them in a way that was not strictly structural—as, for instance, in the Colosseum, with its concrete structure faced with superimposed tiers of applied Orders in stone—or in any colonnade with its intercolumniation too wide for the depth of its architrave. Here we get features which are not exactly structural. The architrave, for instance, does not bear as a lintel from column to column as it would have us believe, but either includes the frieze in the same stone to get depth for the bearing, or else is jointed like an arch. When we remember that such features are to be found in most of the buildings since the time of the Greeks, where the Orders have been applied, we realise that if we were to adopt the standpoint that the function of every feature is structural and structural only—if we take a strict view and refuse to admit any feature that is not an absolute structural necessity—it is evident that our use of the Orders will be extremely limited, and that there is very little scope for their application to modern buildings. I would venture, then, to put forward the point of view that, although the chief function of every feature may be structural, yet it may perform other functions equally necessary to the completion of the building as a work of art. For we must remember that the structure of a building has not only to serve a practical purpose, but also to express that purpose in its general appearance. That although this purpose may be—indeed, must be—to some extent expressed in the general lay-out and grouping of its structural masses, yet this expression is not complete. These masses have to be shaped, modelled, and decorated, to draw out, heighten, and complete that expression. For although the general arrangement and structure of the building may, after examination and critical analysis, prove satisfactory to the mind, yet it has to appeal through the heart to those not capable of this analysis; and to those who are capable it has to make its appeal with a swiftness that does not allow time for conscious analysis—an instantaneous, instinctive, emotional appeal which subsequent critical analysis should only confirm. If this be so, then the features employed in this process of drawing out and accentuating the expression already inherent in the general lay-out and structural grouping, to obtain this instantaneous emotional appeal, are performing a function, not altogether structural, perhaps, but none the less necessary. If we use the Orders for this purpose we may, I think, be said to be applying them functionally.

MANY WAYS OF APPLICATION MORE OR LESS FUNCTIONAL.

If we endeavour to elaborate and illustrate this point of view, we perceive that the Orders may be applied in many ways, all more or less functional; that it is possible for an Order to fulfil a structural function without necessarily fulfilling an expressive one; or an expressive but not a functional one; or both, or neither, and that their value varies accordingly. For example, the main entrance to a large public building may need a porch or outside shelter, and for this purpose an open portico with columns and pediment may be erected. Here the Order may be so constructed as to fulfil its structural function, while at the same time the whole portico may serve to express and accentuate the entrance, and this expression may be more exactly obtained by the treatment of the detail and decoration of the Order in harmony with the purpose and character of the building. In this case, the Order seems to serve the functions, both of structure and expression; but if the same portico is taken from the entrance and placed at random against some other part of the building where it serves no practical purpose, the Order, no doubt, may still be so constructed as to serve its structural function of supporting its own roof; but it no longer fulfils the function of expressing the arrangement and purpose of the building. In fact, it has become a misleading feature, confusing the expression, however structurally perfect

[illegible] they are not a structural [illegible] Ed the [illegible] to [illegible] or [illegible] [illegible] [illegible]



the entablature. There is still another treatment of the subject which was employed by Mr. R. Norman Shaw, R.A., in the New Zealand Chambers in Leadenhall-street. Now Mr. Norman Shaw is the grand master of fenestration, and when he was called in to design this building, he recognised at once that in this comparatively narrow street more light could be obtained up and down the street than from the side opposite; he therefore applied for permission to project some oriel bow-windows. He was told, however, this was not possible; but if he liked to set back his front, then he could project his bow-windows. This his clients objected to, so he asked what proportion of the whole front would have to be in solid brickwork. I think he was told one-third. This he contrived in four great piers, and a part of the ground story, and between these piers and about 2ft. to 2ft. 6in. back—viz., the required projection for his bow-windows, he sketched in these features and took his design again to the Metropolitan Board of Works, and obtained permission, provided the woodwork of the windows was kept 4½in. behind the front of the piers. This regulation is now given up, but in 1873, when this building was erected, all window-frames had to be set back 4½in., and in recessed jambs, because sometimes, when in a Queen Anne building, where the frames were flush with the wall, if a fire took place they fell out and injured the firemen. These various inquiries led to the design of the New Zealand Chambers, which are not only the best-lighted premises in the City, but the grandest and most impressive in design of any of Mr. Norman Shaw's works. These great piers rising from the ground to the main cornice have the same dignified aspect as that which is given by the employment of the colossal Order, but, at all events in this case, Mr. Jemmett's statement that it results in a "pleasing but most misleading effect," certainly does not apply. I would suggest, therefore, that our students should make a point of going down to Leadenhall-street, now that I have told the story of the conception of these New Zealand Chambers, to see how certain regulations and requirements may sometimes result, in the hands of a master, to an original treatment of the whole subject. As a matter of fact, I believe the bow-windows are not in wood, but in iron, so there is no fear of their falling on anybody's head.

Mr. Alan Potter, in proposing a vote of thanks to Mr. Jemmett and to Mr. Phené Spiers, urged that in Roman architecture the arch and its buttresses were actually structural members. In Roman work, therefore, the Orders were not structural and functional members, but were a clothing which ought to be sympathetic and harmonious in its application.

The motion was seconded by Mr. Herbert H. Hall, and having been supported by Messrs. W. Curtis Green, L. F. Jones, V. R. Talwalker, A. L. Snow, D. A. Forster, and the President, was carried by acclamation.

HINDUSTHAN CO-OPERATIVE SOCIETY'S NEW BUILDING, CALCUTTA.

Herewith we give a perspective sketch of the proposed new building about to be erected in Calcutta for the Hindusthan Co-operative Insurance Society, Ltd. The building is a very large undertaking, and is the first effort to house the poorer classes of the European community. It will contain no less than fifty-seven flats (seventeen on each floor). Each flat will comprise a dining-room, a drawing-room, and two bedrooms, with European baths and sanitary fittings to each bedroom, and a cook-house, or kitchen, to each flat. A wide verandah surrounds the whole of the building. The rents will range from Rs.120 to Rs.80 per mensem. The building will be erected in the centre of the city, and will be erected on ground leased from the Calcutta Corporation for a period of ninety-nine years; at the expiration of the lease the whole structure will become the property of the Calcutta Corporation. The building has a frontage of no less than 980ft., and the estimated cost is Rs.6,500,000 (six and a half lakhs of rupees). On the ground floor are thirty-three shops, and on the first, second, and third floors are six large offices, 48ft. by 86ft. The architect is Mr. Stephen Wilkinson, A.M.S.A., 32.1, Standard-buildings, Dalhousie-square, Calcutta.

JOINERY WORK IN OLD LONDON.

At Carpenters' Hall on Wednesday evening in last week, a lecture on this subject was given by Mr. Arthur Keen, F.R.I.B.A., President of the Architectural Association. Mr. J. Classon Preston, past master of the Carpenters' Company, occupied the chair.

Mr. Keen said: I can tell you nothing that you do not know about the use of your tools, the conversion of timber, the making of glued joints, and the general things of the workshop; but the question of the external appearance of your work—the decorative and artistic side of it—is my concern as well as yours. There are certain matters in the design of which the English have particularly excelled; lead-work is one of them, plaster work is another—but probably in nothing so much as in woodwork are they distinguished from the craftsmen of the countries across the Channel. In timber-built houses, in wonderful ships, in roofs of churches and halls, in beautiful joinery work, you young men can look back to a tradition that has been maintained for centuries past at a very high level, and in a way that must have commanded the admiration of those best qualified to judge in every time. I had the opportunity of attending here last summer at the examination for the Certificates of this Worshipful Company, and while I came away admiring very much the technical ability that had been acquired by many of the candidates, I was distressed to find how far the knowledge gained seemed to depend on the textbooks of construction, as if the height of a carpenter's ambition were to know how to frame a queen post roof or a stud partition, or to form a matched board dado with a skirting and a capping, or to make a pair of French casements that would keep out the wet but would be fit for nothing better than a Margate lodging-house. These things are well enough in their way; but they are only the beginnings of what a carpenter ought to know: they are, as it were, the learning to write, but afterwards comes the question of what to write! And I look forward with confident hope to the time when you carpenters will be men able to design your work in a capable way as well as to make it so well. I suppose there never was a time when one could get the work itself so well done as now, but all the same the average carpenter knows nothing worth talking about as to the design of his work so as to make it interesting in appearance and comparable with the work of the past.

THE LIMITATIONS OF DESIGN ITS BEST INCENTIVE.

A carpenter ought easily to become a good designer, because he has the stimulus that is given by handling the actual material—a stimulus that is the greatest want of the architect who designs on paper. The material of work offers at once certain possibilities

and fascinating which are a very material help in design. A mason who was given an odd lot of stones and bricks and flints or pebbles with which to lay the pavement of a courtyard would produce far more interesting results than if he first made a plan on paper, for he would soon be supplied with the material to carry it out. It you gave him [illegible] fields with which to [illegible] he would proceed to set them in lines and slopes and colours and he would exactly what was needed for spots and wavy lines and borders, and when he finished he will then work them into a pattern that will be properly disposed over the surface to be ornamented, and will suit every single bead and will be a beautiful thing when it is done. The design of very much of the old timber work, such as the roofs of churches, depended very much on this kind of limitation and selection. Everyone has wondered at the fact that the roofs of old churches so often [illegible] the divisions of the stonework below them, and it is generally explained by pointing out that they belong to a later date which always seems to me a very lame and inadequate explanation. I think it is more probably due to the use of particular materials. The roof of St. John's Church at Leeds has the principals spaced quite irrespective of the stone piers and arches below, and yet this church, which was erected about the year 1631, was carried out completely at one time. I believe the reason in this case was that the roof is panelled throughout with most beautiful plaster panels which are all of one size and which seem to have been taken as the unit of measurement controlling the divisions of the roof. In the old days the cutting up of timber was a difficult and costly matter, and the quantity of suitable stuff available in one place was limited. There would be a certain number of pieces suitable in size and length for tie-beams, a certain number that would make good purlins, some suitable for brackets, some that would have done for rafters if they had been longer, but were good for spurs or struts and so forth, and it is easy to see that these conditions would at once settle the kind of roof that could be made, the number of trusses, whether or not there should be smaller trusses between the main ones; how the trusses should be built up, whether the purlins should be near together or far apart, whether they should be strengthened by brackets or not, and so forth. I do not suggest that I am [illegible] the whole secret of the beauty and interest of an old timber roof, but I am quite sure that a great deal of it depended on the fact that the designer was the man who was handling the stuff and studying to make the most suitable and economical use of every piece. Of course, the great part of the secret lay in the fact that the men who made these wonderful roofs that we see in Suffolk and Somerset and other counties had been taught their business as designers, and not merely as workmen; they worked on the traditional way, and did the things that their fathers had taught them with such improvement as their skill and imagination led them to.

AN ANALOGY FROM SHIPBUILDING.

If you look in Evelyn's Diary you will find an entry, dated 1668, in which he says: "Was launched at Deptford that goodly ship the Phœnix. She is larger than the Sovereign, and carries 110 brass cannon; she was built by old Shish, a plain, honest carpenter, master builder of this dock; but one who can never render the account of his art by discourse, and hardly capable of reading. The family have been ship carpenters in this yard about [illegible] hundred years." Here is probably the largest ship that had ever been built up to that time, a big British man of war, built by a plain, honest carpenter who could hardly read or write his own name. It is worth while to go to Greenwich Hospital and see one of these old 17th and 18th century ships and to marvel, not only at the wonderful judgment shown in their construction, but at the beauty of the lines and [illegible] of the purely ornamental parts. [illegible] the judgment with which they are steered before the greatest [illegible] the stern ones almost solid wood on the bottom—a reduction of material higher up, and an increase again between wind and water, as a special protection at that dangerous point. The timbering of the decks framed everywhere into short lengths, so as to give the utmost strength and support to the sides of the ship. The curving in of the upper part of the hull, to help to keep the enemy from boarding the ship, and perhaps to reduce the danger from large quantities of water washing into the upper deck in a rough sea. The beautifully moulded curves fore and aft, where the bulwarks rise to the upper decks. The wonderfully built out prow, from which the bowsprit starts; the keel brought up with a fine curve and continued right out to the very extreme point to carry a curved figure of a king or saint or even a man on horseback; the picturesque cabins projecting out like bay windows and built up high at the back and covered with curved roofs, finished with ornamental lanterns or carved figures. Then the astounding masts and yards built up of innumerable timbers, stayed in every direction, and yet with nothing in the way of the free movement of the sails. The contrivances to give the shrouds a direct pull on the main timbers of the hull. From keel to cap, everything arranged to have due support itself and to carry the support on to some other part. I suppose that anything more like the structure of a living creature than these old wooden ships was never contrived, and all done by "old Shish, a plain, honest carpenter." It is a thing that is worth some consideration. Take, again, one of those extraordinary models of Japanese temples or pagodas shown at Shepherd's Bush last summer. Beautiful things, with fine curves, good proportions, and well-designed ornament; but a careful examination of them shows that nearly all their beauty arises out of the skilful way in which the timbers are put together to meet the requirements of the building. Precisely the same thing has obtained in this country, for I never saw here a piece of old building in wood that was not interesting. From the Guildhall at Lavenham to a humble mill or warehouse, our timber buildings show good proportion, beauty of detail, and many other characteristics of good, sound architecture. In every one of the applied arts, the designer who is, or has been, also a practical workman has a very great advantage over the mere studio man, and those who are accustomed to bench work and carpentry have already taken an important step in the necessary course to make them competent designers of beautiful work.

CUI BONO?

Now, in talking about this to a man whose knowledge and judgment I think highly of, he said: "What is the good of it all? What is it going to lead to? A modern carpenter is little more than a fitter of parts already prepared by machines, and he has less and less opportunity for the exercise of his knowledge and skill. In fact, his only chance of expansion is by becoming something other than a carpenter—say a builder or a joinery manufacturer, or something of that kind." Well, I do not know that it is my concern now to indicate what commercial outlook there is for such skill and knowledge as I would have you acquire, but I cannot conceive of such skill and knowledge not adding to a man's value in the market. Apart from this consideration, however, is the fact that no craft that man ever put his hand to begins and ends in mere workmanship; there is always an imaginative or intellectual side, full of interest and pleasure, and which is worth a vast amount of study and consideration for its own sake, and the craft of the woodworker possesses this aspect in a most unusual degree. The work of a joiner to-day is dull and uninteresting and very limited in comparison with that of past times, when a man was actively engaged in design and conference during the whole time that he was at work. But whether or not you are able to use your knowledge in the course of your daily occupation, you may get infinite pleasure and interest out of the study of fine examples of the work of past generations of carpenters. You may, however, look forward to far more than this pleasure. If I want a beautiful plaster vault or ceiling or an artistic piece of metal work, it may be far beyond my power to express on paper what I desire; but I know of many men whom I can visit in their workshops, and by discussion of models of what we find there, by sketches, by consideration of odd photographs and so forth, we may arrive at a mutual understanding of what is to be done, and I can leave the matter in their hands, knowing that what is done will be a delightful work of art, and that it will meet all the conditions of the case in a satisfactory way. Why should I not be able to find a worker in wood who will do the same thing for me if I have, say, a few yards of old panelling to be used in a room and to be extended and altered to cover the whole surface of the walls—so that the architraves and pediments, the window-linings and the parquetry, shall be harmonious and suitable, and that the room when finished shall be a pleasure to all who come into it; so that, if an inscription is to be cut anywhere, the lettering shall be well shaped and spaced and suitable in character to agree with all the rest? It ought to be quite possible.

THE JOINER'S AIMS AND IDEALS.

What a joiner should aim at acquiring is (a) a thorough knowledge of every detail of construction, including staircasing, dome and shaped roof work, etc., and (b) an artistic knowledge of style of all dates. More knowledge of construction and proper balance of design is gained by making working drawings of actual examples than by all the rules, photographs, or formulas yet printed. Things nearest to us are often the least noticed, and you may be surprised to find what endless good examples of woodwork there are near this building. It must be mostly in joinery work, because, since Crosby Hall is gone, there is little or nothing left in the way of artistic carpentry in the City. The hall of the Charterhouse shows the kind of roof that succeeded the fully-developed open timber roof. For other open timber roofs built before the Fire of London you may go to Gray's Inn, the Middle Temple Hall, or The Hall at Lambeth. Carpentry as an artistic craft practically died with the advent of the English Renaissance, as we call it, under Inigo Jones and Wren. There are many, many churches built by Wren in this city, but not one of them has an open timber roof. Many of these roofs in Wren's churches are, however, marvels of scientific and workmanlike construction as carpentry pure and simple. Not even the tie-beams were allowed to show inside the church, and yet these roofs are built successfully over fully-pitched, vaulted ceilings and domes in a way that calls for the warmest admiration and the most careful study on your part. You may find drawings of many of them in Clayton's great book on the "Parish Churches of Sir Christopher Wren," published in 1849, but the roofs themselves are in existence for you to go to see and to measure and examine for yourselves, and I commend to all of you as a useful exercise to go and find out how the dome of St. Stephen's, Walbrook, is made, for it is only a few inches thick between the plaster inside and the lead outside from base to apex. The lead-covered spires of many of these churches are remarkable pieces of timber construction.

SEVENTEENTH-CENTURY JOINERY IN THE CITY.

While the English Renaissance in the seventeenth century put an end to artistic carpentry, it gave a tremendous impulse to joinery, not only by the alteration of its character, but by giving it a more responsible position in the treatment of architectural interiors. In the time of Henry VIII. and Elizabeth English joinery work in staircases, mantel fronts, screens, and panelling reached a very high level of excellence, both as handiwork and as a matter of artistic handling. But it was accessory to architectural design rather than a part of it. The detail of it was small and complex, and it was used, as Professor Blomfield very correctly points out, in the manner of the tapestry and colour decoration of earlier times, although with admirable skill and truth. In the seventeenth century a marked change appears; the panelling on walls receives careful consideration as an

element in the proportion of the building; doorways and screens present well-marked architectural features, correct in section and proportion, according—as Benvenuto Cellini would have said—to the "rules of art." The organ became a general adjunct of a church, and the case for it offered a remarkable opportunity for the exercise of the joiner's art. The wooden reredos became the accepted feature of the east end of a church. Church galleries became almost universal, and their fronts were another very interesting instance of skilful treatment in wood. Pews took the place of benches, and in many cases they were beautifully carved and panelled. At the same time, staircases took on a very different method of treatment, both in construction and design, and through the seventeenth and eighteenth centuries they were important and beautiful features in the artistic treatment of houses and churches. Now I want to show you how admirably this new aspect of joinery work is exemplified in all directions within a few hundred yards from this building. You might go and look at the old gates forming the entrance to Staple Inn; they are simple enough, but they are admirably satisfying and suitable for their purpose, and it will be worth your while to find out how they are made. The diagonal boarding at the back of the panels appears to have acted successfully in preventing the gates from sagging. There are methods of using boarding found in old gates that are little used in the present day, but they are generally sound and good constructionally, interesting in appearance, and well worth noting and remembering. The gates to the entrance of the Brewers' Hall are good examples of well-designed panelled and carved gates, with wrought-iron cresting on the top of them, and there are a great many gates to the old churches in the City that are well worth studying. Then there are a good many very nice old doorways near here, with columns or pilasters and pediments in various forms, and in some cases with elaborately-carved brackets and shell canopies. Unhappily, many have been removed or destroyed, even within my memory—an additional reason for making careful drawings of the remaining ones while they do remain. At No. 25, Crutched Friars is a doorway that for a simple, homely piece of Classic detail is one of the most delightful examples that I know of. You will find, if you make a measured drawing, that the design of it will fix itself on your memory so well that you could redraw it from memory quite a long while afterwards, and you will learn a great deal at the same time about the uses and forms of mouldings and carved capitals and a good many other things. There are other doorways that are worth notice, to be found in many places—mostly in retired nooks and corners and unfrequented back streets. One at No. 33, Mark-lane—in an inner courtyard—is a particularly rich and beautifully detailed one, executed about 1690. It would seem very likely that Grinling Gibbons was concerned in the carving of this doorway, for the cherubs' heads are quite in the character of his work, and very much like those in St. Paul's. The whole house is an interesting piece of domestic architecture. The front is a fine example of design in brickwork, and there is a back entrance door that was probably as fine as this front one, originally, if one may judge by the portions that remain, but the pediment is gone. At the rear of the building there is an unusually elaborately wooden eaves cornice, with large carved modillions and rich mouldings. And there is also a very richly-carved attic cornice that is a model of good scale and proportion. The staircase is a well-known example, and is the best of its kind that I have seen. There is a very great deal of inlaid work: the very treads and landings are inlaid in patterns, as are also the panels of the dado and other portions. In one respect the treatment of the stairs is very unusual. The end of each tread forms an oblong block ornamented with vertical bands of inlay and the usual carved scroll, which in this case is very beautifully carved, occurs under the oblong block at the end of the next step, with the moulded nosing running along to form a cap to it. There are remarkable diversities in the carved and twisted balusters, and some of them must be due to alterations made from time to time when broken balusters were reinstated. There is a fine carved and fluted doorway in the staircase hall, and there is also standing in a corner a big leaden female figure that once formed an ornament in the garden of the house. There are a great many other old doorways to be found in the City, and generally of very good detail.

UNSUITABLE DESIGNS FOR JOINERY.

I am not prepared to say that all the examples are sound and satisfactory as examples of design in woodwork. I feel a good deal of hesitation in accepting some examples which are quite delightful in form, because they possess characteristics that do not agree with the material they are made of. The art of the woodworker has been open to this criticism from very early times, and I think more in Gothic times than in the centuries of the Renaissance. The reason for it is, of course, that stonemasons have taken the lead and carpenters have tried to imitate in wood the forms that are suitable only for such a material as stone. So that we find arches and tracery, buttresses, and even flying buttresses, pinnacles, and other features that are sound and right when formed of stone, but quite unsuitable for wood. This defect is seen more in early Gothic woodwork than in late, and even in early work it is generally associated with such beautiful carving that the weakness of it is easily pardoned. The wonderful canopied stalls at Winchester, dated from the fourteenth century, show what I am speaking of. Tracery is quite right in woodwork when it is merely a pierced pattern cut out in a board and suggested by, but not imitative of, the stone windows and other tracery about it; but when it is treated with curved moulded ribs and with shafts provided with capitals and bases, it is wrong in principle, and can never be really satisfying in appearance. There are many forms that are just as suitable to wood as to stone, and therefore properly decorative—as, for instance, the sunk joints often seen in old weather boarding. These were probably derived from stone rusticated joints, but they are constructionally right in wood because they serve to keep water from getting into the tongued joints. Some of the best joinery work to be seen anywhere is to be found in

THE HALLS OF THE CITY COMPANIES

—buildings full of character and charm, but comparatively little known, except to the chosen few who are privileged to be members of the Companies or guests at their entertainments. One of the less known of the City Companies' halls is that of the Stationers' Company, behind St. Martin's, Ludgate Hill—a quaint old-world place in its external appearance, and full of old associations. The building possesses some of the most interesting joinery work of the seventeenth century that is to be seen in London, or, for that matter, anywhere else. Screen, panelling, fireplaces, doors, all carried out at the same time—in 1671—a few years after the Fire. The woodwork in the hall and stockroom was made by Stephen College, "the Protestant Joiner" (in 1671), who, ten years later, was tried for sedition and hanged at Oxford. The stockroom was enlarged in 1887, but all the old panelling was re-used. The chairs in the hall, made by Chippendale for the Company, are a very fine set. Another hall which is full of beautiful joinery work, is that of the Brewers' Company in Addle-street. The whole building is full of charm and old-world flavour. A fine gateway entrance from the street, with a great coat-of-arms over the door; a large old-fashioned courtyard with an external stone staircase leading up to the hall on the upper floor. The hall screen is so curiously reminiscent of the one at Stationers' Hall that the same man must surely have been concerned with it, and as the dates of both are within a year or two of each other, this may quite probably be the case, although I believe someone named Wm. Whiteing was the person who actually received payment for it from the Company, or, at any rate, for the work in the Court room. There is a fine old inlaid table in the hall that formerly belonged to the state barge of the Company, and a beautiful lead cistern in the kitchen. The Court room has a carved and inscribed fireplace, and most excellent panelling—more architectural in its design than usual. There are carved divisions between the wide panels forming a kind of pilasters, and extremely well managed at the top, so as to form an effective finish to the carving. There are many other halls that are well worth a visit and careful study—in fact, they form a most remarkable series of buildings, and are full of interesting pictures, wonderful plate, good furniture, and fine old embroidered hearse cloths.

THE CITY CHURCHES.

Undoubtedly, however, the finest joinery work of all is to be found in the City churches, and here it will be seen how important a part it played in the architectural design; it forms the gallery fronts, the wall panelling, the casing of the piers and bases, the reredoses, the great pulpits, which are always such a point of interest in Renaissance churches; the entrance screens, the organ cases, the font covers, the pews; all are of oak, and quite commonly of very rich and beautiful detail. Such a thing, for instance, as the font-cover of St. Stephen's, Walbrook, with its charmingly-designed little wooden figures at the eight angles, is a perfect jewel of refined and delicate work in wood. Font-covers in all periods are among the best pieces of ornamental work in our churches, but it would not be easy to find any more skilfully designed than this. Is it not worth while to spend a Saturday afternoon or two in making carefully-studied drawings of such things, and learning something of the secret of their beauty? The magnificent choir-stalls and Bishop's Throne at St. Paul's, together with the organ and much else in the way of woodwork there, are beyond the scope of my present subject; they are among the finest things of their class in all Europe; we will glance at them and pass on to other matters more within our compass. There are a great many fine organ-cases in the churches of this City—in fact, very few that are not fine and interesting. One hardly knows whether to give one's attention more to the design of them or to the execution of the work. Both are admirable. One of the finest is that at St. Lawrence, Jewry, a church which possesses some of the most elaborate woodwork in London, but many others are very large and of fine proportion and beauty of detail—St. Stephen's, for instance, or St. Bride's, in both cases forming practically the west end of the church. There are very few things in a church that give better opportunity for the exercise of design in connection with joinery work than an organ-case, and as the actual construction of the woodwork, from the workman's point of view, is complex and interesting, I commend these organs to you for careful study. Closely connected with the organ fronts are the vestibule screens that are found in most of the larger churches, and they are generally very well treated; sometimes they have fine fluted columns with well-carved caps; sometimes there are iron standards connected with them (St. Clement's, Eastcheap). The doors in them have fine pediments over them; there are often coats of arms or panels giving the names of benefactors of the church or parish, and the glass sashes have the bars arranged in patterns. Often there are richly-carved pews attached to the screens. There is a good example at St. Mary-at-Hill, by Billingsgate Market, where practically all the woodwork in the church is of a fine description. The screen has carved posts projecting from it to carry the gallery, in which is a fine organ-case. The gallery front itself is elaborately carved, with rich panels and coats of arms. Some of the most beautiful iron sword-rest in the City are here, and the pulpit is of quite uncommon richness, and completed with a fine staircase up to it, and an elaborate canopy. Balancing the pulpit, on the other side, is a rounded reading-desk—again with a good stair up to it, furnished with carved handrails and twisted balusters. There is a finely-designed reredos of very large size, and altogether more architectural in character than many others—well composed and

TIMBER: ITS GROWTH DISEASES SEASONING AND PRINCIPAL USES.*

[illegible] only by the tree [illegible] the layers about [illegible] the layers of [illegible] was [illegible] [illegible] [illegible]

Bethell. His celebrated patent, dated July, 1838, does not mention the words "creosote" or "creosoting." It contains a list of no less than eighteen various substances, mixtures, or solutions, and among them a mixture of coal-tar and dead oil distilled from coal-tar, which is the origin of the so-called "creosoting" process. Pure creosote is the product of the destructive distillation of wood. Commercial oil of creosote is a dark brown liquid obtained from coal-tar, of which it constitutes from 20 to 80 p.c. It is produced by distillation, and consists of the light and heavy oils of tar, but its composition is very variable. There are several patent wood preservatives and antiseptics on the market, among which are Carbolineum Avenarius, and Solignum, both of which profess to preserve wood and protect it against fungus, dry rot, and the ravages of insects and vermin. The benefits of creosoting are of a threefold nature:—(1) Physical action.—A very greatly-increased solidity is obtained by choking the pores, the wood becoming more or less solid blocks. (2) Physiological action.—The smell of creosote imparted to the wood prevents germinal life, well known to be destructive to timber, being developed within it. (3) Chemical action.—The tar acids in the creosote are antiseptic, and also cause some changes in the wood, which are stated to play an important part in the preservation of timber.

SEASONING.

It is generally thought that natural or air seasoning gives the best results, for which purpose the wood is piled in a seasoning yard, protected, so far as possible, from sun and rain, but with air circulating freely on all sides of each log. Bad ventilating is sure to cause dry rot; stacking timber vertically or at an angle is inclined to produce unequal drying; the planks should be stacked flat or on edge. It may be interesting to you to know a method of patent artificial seasoning adopted by my firm, which is as follows:—A stoving building is erected, about 26ft 0in. by 8ft. 0in. (inside measurements), built in brick and lined with cement, with a flat fire-proof roof of concrete, and a pair of teak doors closely fitted at one end. Three openings 12ft. in diameter form ventilators in the roof, in which there are also two small holes for lowering a registering thermometer through. Trolley lines are laid on the floor so that the timber can be loaded on to the trolleys outside and run into the stove. Under the floor a chamber is formed with an arrangement for super-heated steam, which is conducted from an adjacent boiler through a system of pipes to discharge-pipes, which distribute the steam evenly in the main chamber. The timber is carefully stacked on the trolley, allowing space all round same; the trolley is then drawn into the chamber, the doors are secured, and the ventilators closed. Steam is then admitted for a certain number of hours, and subsequently superheated steam for a further number of hours. During the whole process the temperature must be constantly tested, and regulated to conform to a tabulated list, which, however, varies according to the thickness, kind, and initial state of the timber, and the atmospheric conditions prevailing, all of which factors have to be taken into consideration. The required temperature (which it may be necessary to raise to 225° F.) must be arrived at gradually, and sudden changes carefully avoided. The temperature can be regulated in various ways, either by slightly reducing or increasing the amount of steam admitted, by cocks on the superheater, or by slightly opening for short periods one or more of the ventilators. With care the desired temperatures at the required periods can be obtained within three or four degrees. The time of steaming varies between twenty and thirty-six hours, during the whole of which supervision is necessary. When the processes of steaming and superheated steaming are completed, the supply of steam is shut off, the ventilators are fully opened, and the fire under the superheater allowed to die out, so that the temperature in the chamber may gradually cool. Volumes of vapour are at first emitted, but these rapidly diminish, and cease altogether within about twenty-four hours after steam has been shut off. The temperature is then tested, and if it is within about 15° of normal, the doors are slightly opened, to assist in ventilating the chamber. The doors, however, are not fully opened before thirty-six hours after steaming, or until the temperature inside the chamber is within five to ten degrees of that outside. The timber is then removed into sheds, and, providing the treatment throughout has been properly carried out, within about fourteen days' time the timber is equivalent to seasoned wood. Timber is not diminished in bulk or decreased in strength by this process; in fact, the following particulars of tests carried out by me go to show that, if anything, the strength of timber is increased by the process.

Results of Tests on "Stoved" and "Unstoved" Yeo. Deal.

Size.	Span.	Initial crack.	Final fracture.	Stoved.	Unstoved.	Av.
in. in.	ft. in.	tons.	tons.			
2⅞ by 4½	3 6½	2·25	2·6	—	—	—
,, ,,	,, ,,	2.	2·9	—	—	2·75
,, ,,	,, ,,	—	2·6	—	—	—
,, ,,	,, ,,	1·4	2·75	—	—	2·675
8¾ by 2¾	,, ,,	—	7·25	—	—	—
,, ,,	,, ,,	7·5	7·5	—	—	—

The theory of the process is that moisture in the timber is expelled by its conversion into a more fluid state by opening the pores and ducts of the fibres, and allowing steam, and then superheated steam, to permeate the material, and the heat in the chamber and the timber will assist in expelling the moisture, etc., after the steam is shut off. We find that the resin in soft woods flows to a small extent, but this is not of great importance. Also, any shakes that may be in the timber are slightly increased, but the process does not *produce* shakes. As a rule, we find that the best results are obtained with freshly-cut timber. I believe this system is similar to the artificial systems of seasoning known as Sturtevant's and Erith's.

HARD AND SOFT WOODS.

Timber may be broadly classed under two heads—viz.: (1) Hard wood (non-resinous and non-coniferous), which includes all leaf-bearing trees, such as oak, elm, mahogany, walnut, etc. (2) Soft wood (resinous and coniferous), which includes all the pines and firs.

HARD WOODS.

These are many in number, and form a very interesting study; but I shall content myself with referring to three of them only, all of which are now extensively used in the building trade. Naturally, the first is oak, found in great variety in Europe, Asia, and North America. The properties of the English oak have been accepted as being good for all kinds of architectural work by all practical men. Riga oak, which takes its name from the port of shipment, is obtained from a tree found in the interior of Russia, whence it is brought by river to Riga. It is characteristic of this oak that the medullary rays are very numerous, and distinctly marked, and its fineness of grain and figured appearance, when cut, recommend it for good joiners' work, or veneers for cabinet purposes. Among other European oaks largely used is that grown in Austria and Hungary. Passing from Europe to America, we find three or four valuable kinds of oak employed in this country. I understand that there are three hundred different species of American oak known to botanists, about forty to fifty of which are found in the United States. These are divided into two groups, termed "White Oaks" and "Black Oaks," the former yielding valuable timber, but the timber of the latter is soft and porous, and unfit for constructional purposes. White oak, which flourishes in almost every variety of soil, derives its name from the pale colour of its bark. It opens very sound, and shrinks but little during the process of seasoning, and it is therefore very suitable for carriage building and joiners' work. Some authorities go so far as to say that it is much the best foreign oak for construction. Experiments that have been made show that white oak compares favourably with all foreign oaks, but is slightly inferior in strength to that of English oak. Canadian red oak is another oak imported into London annually, but in larger quantities into Liverpool, principally for cabinetmaking, but it is not, however, considered good for architectural or engineering work, requiring strength and durability. The term "wainscot oak" has reference solely to the form of its conversion, and can be supplied to any oak, whatever its origin, which is cut with a view to exhibiting its figure. The wainscot oak of commerce is mainly imported from Austria Hungary and Russia, but similarly figured oak is also imported from America, and is commonly known as "quartered," descriptive of the method of sawing. The European wainscot is prepared by removing a plank from the centre of a log, and sawing the remainder more or less at right angles to the line of the original cut into boards or planks as required.

TEAK.

Of the vast timber supplies of the East, none are so important to us as those of the Indian Empire, and of these, teak stands pre-eminent. It is found principally in Central and Southern India and Burmah, but it is also plentiful in Siam, and found, to some extent, in several islands in the Indian seas. Its durability is remarkably long, and even the attacks of white ants seem to be resisted by it. It possesses, indeed, so many valuable properties, that it has long been held in favour as a material for construction. For some years past it has been largely used by railway companies for staircases, and is now adopted by the L.C.C. for fireproof doors and stairs. It is also very widely used for joinery purposes. Practically the whole of the joiners' work in the Victoria and Albert Museum is made of teak; the deeply moulded and carved ceiling in the vestibule is also made of this material, the panels being inlaid with holly-wood. There is a practice of girdling the teak tree in Burmah three years before it is felled by cutting a ring through the bark and sap, in order to kill the tree. This object is attained in a few days or weeks, the natural juices being prevented from rising through the sapwood. The great heat of the climate seasons the wood, and makes it lighter for floating down the rivers to the place of shipment. This practice of girdling and seasoning the trees, however, is considered by some to be prejudicial to the quality of the timber, their suggestion being that it results in the tree drying too rapidly and becoming brittle. A large amount of teak is now imported from Siam and Java. As early as between the years 1865 and 1870 inclusive, Moulmein alone sent to Europe nearly 150,000 loads, and Rangoon about 28,000 loads. These shipments are, of course, now very much larger; but it is interesting to note that the market price of £10 to £11 per load of 50 cubic feet, which obtained in 1860, has now risen to from £15 to £17.

MAHOGANY.

Among the rich variety of timber trees met with in Central and South America and the West Indies, a large number never reach our markets. Spanish mahogany is found in Central America, Mexico, and the Island of Cuba, and may be said to include the finest of all the West Indian mahoganies, having regard to beauty of colour and richness of figure. It is not subject to heart or cup shakes to any extent. Honduras mahogany, formerly found in abundance in the forests of Central America, and first imported into England about 1725, is not now so plentiful. It is well known to commerce as a valuable wood for furniture and joinery purposes. Its quality varies very much, according to the situation in which it is grown; but the best of it comes from Northern districts. Honduras and other descriptions of mahogany have only about 1in. of sapwood, and being free from most defects, the loss in conversion is trifling. African mahogany has for some years been imported into the London markets. It is hard, with a wavy and figured appearance, takes a high polish, and, like Spanish mahogany, possesses great beauty.

SOFT WOOD.

Dantzic, Memel, Riga, and Swedish fir, mentioned in most architects' specifications, are all yielded by pines, and are not, I believe, botanically different species, but merely timber of the same tree grown in or shipped from different places. Broadly

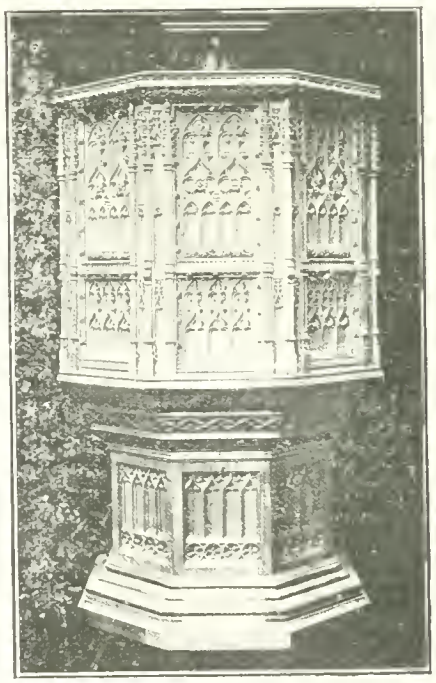
speaking, all the red and yellow timber coming from the Baltic ports goes under the name of "Fir," though in reality it is the wood of the pine. White fir is spruce, commonly known as "white deal." Dantzic wood takes its name from the port of shipment, the forests only a few of which are drawn being in Prussia and Poland, and on the borders of Russia, where it is floated into large rafts and floated to Dantzic, advantage being taken of this mode of transit for bringing large quantities of corn from the interior for shipment to foreign markets. Riga fir also takes its name from the place of shipment, although it is largely drawn from many of the forests in the interior of Russia. The tree is of almost perfectly straight growth, and very free from knots, with a clean, fine straight grain. Swedish grain, as its name indicates, is a native of Sweden, where it was very abundant in earlier times; but the great demand for this class of timber in recent years has outgrown the rate of production, and consequently the original stock has become seriously depleted. It is soft and straight in grain, liable to heart and star shakes, slow in growth, and makes its wood at about half the rate of Dantzic and Riga fir. Norwegian spruce or White fir is very abundant on the mountain slopes of Norway, and seems to flourish most in a damp climate. It is also found on the mountain slopes of North America. Spruce fir is an evergreen, and assumes a beautiful form with its lower branches drooping nearly to the ground. The wood is white in colour, tough, light, and elastic, but when cut, it is inclined to warp. There are about thirty or more species of pines in Canada and the United States, the best known being the red pine of Canada. This timber, unlike Riga and Dantzic firs (which take their title from the port of shipment), derives its name from the reddish colour of its bark. The timber is white tinged with yellow or straw colour, and possesses a clean, fine grain, which works up to a silky face. These qualities, and the fact that it rarely shrinks, render it a choice and valuable wood. Yellow pine is found in North America growing in every variety of soil but flourishing best in deep, moist, loamy sand. It is often called "Weymouth" pine in compliment to Lord Weymouth, who first introduced it into this country; but in America it is known as white pine. Of late years it has become very scarce in this country, the market price rendering it almost prohibitive, except for works where the cost is no object. I believe that contractors generally have experienced great difficulty in obtaining yellow pine, so extensively used in former times for panels and for the best joiners' work. This, I understand, is mainly attributable to the fact that the greater portion of the supply of this timber is consumed in America, hence the necessity of substituting other woods, such as cypress, which, I believe, is being used largely for panels, as it can be obtained in long lengths and wide widths. Another successful substitute for yellow pine is New Zealand white pine. It is very clean, sound, and mellow, and can be worked up to a smooth surface, and, like cypress, costs considerably less than yellow pine.

SPECIFICATIONS, AND THEIR OUT OF DATE PHRASEOLOGY

Specifications are usually drawn up indicating the kind and quality of wood that is to be used in the proposed building, and therefore should define what may or may not be used, and so convey to the mind of the contractor what is wanted. Unfortunately, this is what many of the clauses do not achieve. Those familiar with the working of the building trade are aware that the out of date and obsolete phraseology used in many specifications is sadly in need of reform. Disputes and misunderstandings are continually arising. Timber is specified which it is impossible to obtain, and the kinds very often most suitable and easily obtainable are not specified at all. Timber is not made, but grown, and is consequently afflicted with various proportions of defects, sap, shakes, knots, etc., and most disputes are centred around the description. "Free from sap, shakes, large and loose knots, and other defects." As someone has said: "If only the supply of perfect timber were large enough, and if all the clients' pockets were long enough to pay for it, the rigid application of this standard would solve the problem; but the proportion of wood free from defects which it is possible to obtain is so small, and the cost so prohibitively high, that in practice there is a general admission that this standard cannot be severely applied, and more especially as the timber imported at the present time is not nearly so perfect as in former years." The matter is further complicated by the fact that the ports which send us the best sawn carcassing and joiners' timber, such as Archangel, Petersburg, Soderham, Gefle, etc., are not those from which the logs of timber they have superseded used to come. While in the past the ports of origin were limited to about a dozen, there are now about one hundred places in Russia, Sweden, Norway, and Prussia from which sound, usable fir is exported. It will be readily conceded that some alteration should be made in our specifications on such points as these, which would tend to obviate misunderstanding between clients, architects, and contractors in connection with the use of all forms of wood.

SERIOUS MISCHIEF CAUSED TO OAK BY HOT-WATER PIPES.

A striking illustration of the danger of erecting new oak work in the immediate vicinity of existing hot air or water-pipes is



illustrated by the experiences at St. John the Baptist's Church at Newport, Mon., a structure built about 40 years ago, and to which a handsome new pulpit of carved English oak has been recently been added. The rostrum in question was designed by Mr. Frank R. Kempson, F.R.I.B.A., of 16, High-street, Cardiff, and is of Perpendicular type. It was made at a cost of £160, by Messrs. Harry Hems and Sons, of Exeter. Butt jointed throughout, it appears to have been a creditable example of modern ecclesiastical joinery; but surprise has lately been experienced, damp oozing out of its lower parts, with the result that several of the joints opened. The reason for this has now been discovered, and is thus explained by the Rev. J. Frank Summers, M.A., the vicar.

The base of the pulpit is, of course, hollow, and hence was air tight. The hot water pipes pass right underneath, and steam has risen into the hollow, and, having no way of escape, has become condensed into water, and has simply saturated the woodwork. It is hoped that by boring holes in the floor of the pulpit, and making a passage for air underneath it, the mischief may be overcome. The hot water pipes must also be cased with asbestos, or some other non conducting substance. Mr. Kempson satisfied himself that the wood used by Messrs. Hems was perfectly seasoned, and had been stored in their yard for some years.

WELDED STEEL PIPES FOR WATER-MAINS.

Before the Birmingham Association of Mechanical Engineers at the Grand Hotel, Colmore-row, Birmingham, on Saturday evening, a paper was read by Mr. C. L. MacCarthy on "Welded Steel Pipes for Water, Gas, and Sewage Mains." He pointed out that the most important requirement of a pipe was reliability, by which was meant not merely that the pipe must be strong, but that the engineer should have a reasonably good idea of just how strong it was. Mild steel pipes were at once the strongest and most reliable, and were gradually but surely taking the place of cast iron, not only for water, but for sewage and gas mains. Another advantage which the lap welded steel pipe claimed over cast iron was its increased carrying capacity, the smoothness of the bore reducing the friction, known as "skin friction," between the fluid and the surface of the pipe. This was an important point frequently overlooked, or often under-rated; but seeing that the capacity of a given bore may be more than doubled by substituting a smooth for a rough interior surface, it would be understood that it was a matter worth careful consideration. The smooth rolled surface of the lap-welded pipe took an excellent coating of protective solution, having a hard, glossy surface. Added to this, the pipe was a smooth cylinder from end to end, as there was a complete absence of anything in the nature of rivets, butt straps, or lapped plates. In consequence, the frictional resistance was less, and the velocity and, therefore, the carrying capacity greater with lapwelded than with any other form of pipe. The question of the life of steel pipes had long exercised the minds of engineers, and had been the subject of much conjecture, owing to the fact that there were no data on which to base a rule. All that could be said was that the oldest and best known steel pipe lines were, as far as could be ascertained, in as good condition and as free from corrosion now as when they were laid.

At Hereford new fruit-dealers' premises have been erected in the High-street from designs by Messrs. Groome and Bettinson, of that city. The builder was Mr. Charles Cooke, also of Hereford.

After a hearing extending over four days, the Essex Local Government Committee have decided that the district of Tilbury, including the Docks, should be formed into a separate urban council area, and that the parish of Little Thurrock should be added to the present urban district of Grays.

For the National Gallery at Melbourne, Mr. Frank Gibson, acting under the terms of the Felton Bequest, has purchased three important pictures—Sir Joshua Reynolds's portrait of "Miss Theophila Offley Pike," painted in 1784, Hoppner's "Miss Perdita Robinson," and a "Farmyard," by George Morland.

Eugene J. A. Duquesne, architect to the French Government, and holder from 1897 to 1901 of the Grand Prix de Rome, has been appointed professor of architectural design at Harvard University. Mr. Duquesne is comparatively a young man, having been born in 1868 but has succeeded in gaining a high rank in his profession. It is understood that when Mr. Duquesne takes up his residence in the United States he will continue the practice of his profession in addition to his teaching at Harvard.

H.M. Consul-General at Antwerp reports that tenders are invited by the municipal authorities of that city for the carrying out of alterations and repairs at the Royal Flemish Theatre. The estimated value of the contract is 208,060fr. (£8,322). A deposit of 15,000fr. (£600) will be required with each tender. Tenders must be sent in sealed envelopes to the Burgomaster, Hôtel-de-Ville, Antwerp, to arrive not later than March 16. The *cahier des charges* may be obtained (price 3fr.) at the Hôtel-de-Ville, Antwerp. A copy may be seen by British contractors at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C.

CURRENTE CALAMO.

Mr. Thomas H. Mawson, Hon.A.R.I.B.A., assisted by Mr. Robert Atkinson, A.R.I.B.A., has the honour of being first in the field with a concrete scheme of civic art and town planning, as embodied in his suggestions for the proposed improvement of the town of Bolton. We hope many architects will follow his example and take the initiative on behalf of towns in which they are resident or otherwise interested, and give us many more such handsome results as that so ably conceived and well illustrated which is before us. Let them strike boldly his keynote: it is the right one. "The first aim of the civic architect" who has to remodel an old town should be "to weld the existing praiseworthy yet scattered units into one commanding and connected presentment." It follows, of course, "that all public and commercial buildings gain in effect by being grouped." Here, in London, we have thrown away opportunity after opportunity of recent years—notably at South Kensington, for instance—of demonstrating that axiom, and missed the chance of grouping buildings seized by those in French and German cities who were wiser.

That it is equally true that the haphazard arrangement of public and commercial buildings almost inevitably results in a tangential and wasteful traffic plan all are well aware who have studied the haphazard growth of our modern English towns, and the expansion of the older ones. Many of these, like Bolton, cannot, for various reasons, return *de novo* to right principles. The wisdom of those charged with their improvement is assuredly to take advantage of some current opportunity—such as London had when the Thames Embankment was made, and very imperfectly availed itself of, and which in Edinburgh was certainly better used by the making of Prince's-street and Gardens, in Paris by the forming of the Place de la Concorde and the Champs Elysees, in Berlin the Unter den Linden and Kaiserplatz, and in Vienna the Ringstrasse. One magnificent opportunity in connection with the new bridge across the Thames London has now before it, and if we all do our duty not even the City Bridge House Estates Committee shall snatch it from us!

Bolton's opportunity certainly seems to lie in the creation of the noble Park Causeway suggested. In his illustrations Mr. Mawson includes a coloured frontispiece view across the Causeway towards the proposed art gallery and museum, a perspective view from the town hall towards the parish church, a general plan, a perspective view from the new Church Boulevard looking towards the town hall, a large-scale plan of Queen's Park showing the new Causeway and its connection with the town, sections and elevations of the museum and art gallery, and perspective views of new Pylons, Causeway, Queen's Park (with art gallery and museum in the distance), the junction of Crescent-road with the new Causeway and entrance to Queen's Park, and the town hall from the new Crescent road. The whole scheme seems well thought out. It makes the town hall the chief centre, and groups and connects the rest by avenues, parks, and broadways, which will gradually suggest or compel improvements in every direction. That, rather than piecemeal slum scheduling, seems to us the method which is likely not only in Bolton, but elsewhere, to work most advantageously. That is the policy of the true architect as contrasted with the schemes likely to be forthcoming from mere borough engineers.

A correspondent, who signs himself "A Competitor," in a letter in the *Manchester Guardian* of Wednesday, criticises our remarks last week, on p. 314, with reference to the opinion of some of the competitors that the area of 5,500 square yards on which the new Library and Art Gallery are to be arranged, is too restricted to allow proper provision for apartments of the required size. It is a free country, and every man is entitled to his own opinion, "A Competitor," among them, to his—

> "that the area mentioned is quite sufficient for the purpose and the apartments required, that a magnificent building can be erected on it, and that the official reply, restating the area as definite, was a perfectly proper reply, and one which would not, of course, have been given except after thoughtful and earnest consideration."

The fact remains that some of the competitors did not think so, and we can assure all concerned that their standing is a sufficient guarantee that their representations were neither ignorantly nor unintelligently made, and that they deserve consideration.

That no such consideration should be accorded may or may not be justifiable; but we confess we do not appreciate "A Competitor's" final plea that "many competitors will have spent during the last two months a large amount of money and time in carrying out the wishes and conditions of the City Council, without avail, if these suggested alterations were now made." Competitors must have been very eager to start work if they could not wait till the official replies to the competitors' questions were received. The business of those concerned is to get the best plan for their money, and if those most likely to respond see difficulties that might easily have been avoided, consideration for the lost labour of those who did not should hardly hinder profit by good advice.

An action by a near dweller for damage caused by the collapse of a football club grand stand at Clayton, near Manchester, during the great storm on Feb. 17, 1910, was decided at Manchester Assizes on Monday by Mr. Justice A. T. Lawrence, in so commendably common-sense a fashion, that any comment as to cause would be out of place. We are, however, not quite so sure as the counsel for the defence seemed to be, that when owners are erecting structures of the sort in question, "one does not, however, take into consideration the force of a sudden blast that might increase the velocity of a gale, because that would be to provide a protection which went beyond what was ordinary and usual." We know nothing, of course, about the precautions taken in the instance under notice, but our own observation of a good many similar structures leads us to fancy that a good many people responsible for them must be of the learned counsel's opinion! We are certainly sometimes surprised that much more lamentable opportunities of testing the soundness of this view of the law do not occur more frequently!

To turn the top of a mountain into a colossal statue of the Prince Regent of Bavaria may seem a rather extravagant way of honouring his memory. But that the tribute is more sincere than that of Mr. Paul Waterhouse's friend Deinocrates to Alexander the Great there is no doubt. The Prince Regent has always ruled Bavaria in a spirit of the greatest loyalty to her liberal Constitution. A few years ago, when he visited the Munich Town Hall with the Kaiser, the Kaiser caused much resentment by entering in the visitors' book some such sentiment as "The will of the Sovereign is the supreme law," while the Prince Regent set his signature to a different and pointedly Liberal aphorism. One hesitates to say anything that might set the fashion in favour of mountain statues here, where opportunities are limited; but in cases where differences of opinion arise, as at Liverpool, perhaps the idea might find favour. Few of our mountains, unfortunately, are high enough to insure the inaccessibility that would be so desirable in the case of most of our statues.

Certainly the term "gamblers in art," applied by Mr. David Murray, R.A., in his sensible speech at the Royal Amateur Art Society's opening meeting on Tuesday, was not a whit too strong. These people, as Mr. Murray said, no more regard a work of art for its beauty than they do a postage stamp. It is pathetic to think of the Masters who produced these works, for which such enormous sums are asked, that they should have received so little, and that all this gambling in their products is in the hands of middlemen. It is still more a matter of regret when this gambling is abetted by national and public institutions, and public money goes into the pockets of those who trade on the vulgar instinct that glories—not in the possession of a really great picture, but the one that has fetched a record price.

The Shakespeare Memorial National Theatre Committee has this week renewed by deputation to the General Purposes Committee of the London County Council the request recently made by petition for the grant of a secure option on the site of the Council's Spring-gardens property for the erection of the Shakespeare Memorial National Theatre. The deputation was a representative one, and our own feeling is that the London County Council might advantageously respond to the request. We are taking it for granted, of course, that a building worthy of its purpose and site is contemplated.

What a wife for a house agent she will make some day if poppa's pile perishes! A Detroit millionaire gave his little daughter, at Christmas, a superb doll's house—a doll's house lighted with electricity, that had baths and a garage, and every luxury that its architect could devise. "Well, my dear, do you like your new doll's house?" father asked one day during Christmas week. "Oh, yes, papa; tremendously," she replied. "But I've let it furnished to Cousin Angela for ten dollars a month."

The dredging operations which have been in progress for the last three years at Sheerness Bar and in the vicinity have been completed. The old channel where it crossed the bar had only 20ft. of depth at low-water spring tide, but the new channel has a depth of 25ft. to 28ft. at low-water spring tide, except for a 24ft. patch over the bar. As a result of the extensive dredging which has been carried out, there is not less than 27ft. in any part of the channel, and it is not considered that there is any likelihood of silting. A new survey of the channel will be made during the ensuing surveying season for the preparation of new charts.

Modern Brickwork.*

Modern Brickwork. By Arthur B. Searle. London: Crosby Lockwood & Son, 7, Stationers' Hall Court, E.C. [illegible] 8s. 6d.

Bury Secondary Schools Clock Tower

and Runcorn stone dressings. The roofs are covered with Westmoreland slates, and the woodwork and windows finished white, the lead lights having zinc cames. Messrs. J. Byrom, Ltd., of Bury, were the builders.

Plans have been approved by Selby Urban District Council for the erection of a new post office on the site of the old Albion Hotel, adjoining the present post office in Micklegate. The building will be of two stories. On the ground floor is the main office, and in the rear are postmen's and messengers' rooms, the sorting office and other apartments.

It has been decided to hold the annual conference of the Institute of Cleansing Superintendents at Newcastle-on-Tyne on July 18 and following days. Mr. J. W. Sykes, the cleansing superintendent for the city, is the president-elect. It is expected that many members of the various councils in England, Scotland, Ireland and Wales, with their superintendents, will be present.

An important work of street improvement has just been begun by the Nottingham Corporation in Carrington Street and Greyfriars Gate, two important thoroughfares which diverge at an acute angle from Lister Gate, forming with it a Y on plan. Houses are being demolished in Carrington Street, which will be increased in width from 50ft. to 70ft., and Greyfriars Gate will be widened from 35ft. to 60ft. The total cost will be about £70,000.

Middlesex Deputy Chairman Prince Alexander's Took Letter that new buildings [illegible] erected to accommodate two wards to be named "The Queen Mary Ward" and "The Prince Edward of Teck Ward" at the accommodation to [illegible] patients in the large out-patient department, a nurses' home and, in a set [illegible] took possession of the two first-mentioned [illegible] The erection is being rapidly proceeded with, and they are expected to be completed by July next, when the Queen has consented to open them.

Building Intelligence.

ABERDEEN.—The Caledonian and Great North of Scotland Railway companies have agreed upon a plan for the reconstruction of the Aberdeen Joint Passenger Station, which was built in 1867-7 at a cost of £124,000. The new station will provide 13 platforms, of which the four westmost will be through platforms, while the remainder will be bay or dock lines. There will also be provided house and carriage loading banks at each end of the station, and a loading bank for fish traffic on the east side of the station court-yard. The total length of the platforms and loading banks will be almost exactly 2½ miles. The longest platform will be 543 yards in length. In the centre of the station there will be a concourse, 210ft. in length by 65ft. in width inside barriers. On the west side of the concourse, opposite the entrance, there will be a bookstall, telegraph office, stationmaster's room at platform level, and a footbridge leading from the concourse to the west platforms. There will also be luggage lift and subways. The new station buildings, which will stand between the concourse and the cab yard, will be 520ft. in length, with a maximum width of 90ft. The new station will be covered with all-over roofing of the ridge and furrow type, and the platforms will be protected by a considerable distance by verandah roofing. The cost of the new station is estimated at £250,000.

EDINBURGH.—The General Post Office, which was built in 1856 and greatly enlarged in 1893, has just been further extended by a seven-story block added to the east wing, next Low Calton, and by the heightening of the main original building abutting Princes-street and North Bridge by two stories, including heating, lighting, and furnishing, an expenditure of £65,000 has been involved by the present additions. The Edinburgh Architectural Association visited the Post Office on Saturday afternoon, when Mr. A. R. Myers, A.R.I.B.A., F.S.I., principal assistant architect, H.M. Office of Works, acted as leader of the party. At the close of the inspection a vote of thanks was accorded to Mr. Myers, on the motion of Mr. Hippolyte J. Blanc, R.S.A. Photographic experiment with the outline existing prior to the extension revealed the fact that if the eastmost part of the additions were carried up to the normal height of the old buildings, a monotonous sky-line would be created, and that from certain points the public view of the Calton Hill would be obstructed. It was decided, therefore, to secure part of the extension by increasing the height of the existing building. This addition to the original building will be occupied by offices provided for the accountant's and secretary's branches, and also accommodation for the medical officer. A new staff dining room is also provided on the uppermost floor, which now forms the south-west tower to the North Bridge front. The extension to Low Calton consists of seven stories. The basement and first floors are occupied by the telegraph engineer's stores, and also the landing platform for the receiving and dispatching of mails. The parcel and letter sorting rooms occupy the second and fourth floors. The upper floors are occupied by offices for the staff of the superintending telegraph engineer, and accommodation is also found for new heating chamber and boilers, which heat the whole block of buildings, new and old. Fresh retiring rooms, cloakrooms, and lavatories are also provided. The whole of the work has been carried out under the direction of Mr. W. T. Oldrieve, F.R.I.B.A., F.S.A. Scot., principal architect of Scotland to His Majesty's Office of Works. Mr. J. Reid, of the Office of Works, has supervised the whole of the extensions as clerk of works. The principal contractors have been:—Low Calton extension—General builder's work, Messrs. Colville and Co.; steelwork, Messrs. W. Finlay and Co.; Motherwell. Old round stories—General builder's work, Messrs. James Millar and Sons; reinforced concrete structural work, Stuart's Granolithic Co.

IPSWICH.—A meeting of the committee

charged with the arrangements for providing the King Edward Memorial Sanatorium for Ipswich met on Saturday at the Town Hall, Ipswich, when it was agreed to accept the site offered as a gift by Mr. E. S. Pretyman, M.P., and to invite tenders for iron fencing to surround it. A lengthy discussion took place in reference to the plans submitted by Mr. H. Munro Cautley, A.R.I.B.A., of Museum-street, Ipswich, and they were unanimously adopted. It was decided that the buildings should be constructed of red brick up to the first floor level, with stucco, on brick, above. The roof is to be tiled and the windows will be fitted with green shutters. Various sanatoria had been visited by the sub-committee, including Cheltenham, Benenden, Frimley, Nayland, Holt, and others. The cheapest among them, it was stated, was considered to cost £300 per bed; but it is hoped that the outlay on the Ipswich institution will work out at considerably less than that.

SELBY ABBEY.—Tenders for the rebuilding of the south transept of Selby Abbey have been considered by the architect, Mr. J. Oldrid Scott, F.S.A., F.R.I.B.A., and that of Messrs. Bowman and Sons, of Stamford, has been accepted. The cost, which is estimated at £8,000, is to be defrayed by Mr. William Liversidge, of Millgate House, Selby, to whose liberality the town of Selby and the Abbey church in particular owe so much. The work of erecting the new transept is to be proceeded with immediately.

CHIPS.

A new post-office has just been built at Sale, Lancs, at a cost of £2,000, from plans by Mr. R. J. McBeath, M.S.A., of that town.

A new clubhouse and garage have just been built in Dawson-street, Dublin, for the Irish Automobile Club. Messrs. Batchelor and Hicks, of that city, are the architects, and Messrs. William Beckett and Sons the builders. The cost has been £4,000.

Mr. A. A. G. Malet, M.I.C.E., Local Government Board inspector, held an inquiry at Nantwich on Tuesday week relative to an application by the urban district council for sanction to borrow £3,600 for experimental works in the parish of Madeley with a view to securing an additional supply of water for the urban district.

The directors of the Great Northern Railway Company have arranged terms with a deputation from the Peterborough Corporation as to the new highway bridge which they propose to construct between Thorpe-road and Cowgate in that city. The structure will be 50ft. wide, and as soon as it is completed the company propose to rebuild their station.

A Local Government Board inquiry has been held at the Brereton Rooms, Oundle, by Mr. M. K. North, M.Inst.C.E., into an application by the Oundle Urban District Council to the Local Government Board for sanction to borrow £709 for the purchase and adaptation of the Oundle Town Hall for purposes of a council chamber, offices, and fire-station.

A Local Government Board inquiry was held at the Guildhall, Ludlow, on Wednesday week, before Mr. A. A. G. Malet, M.Inst.C.E., as to an application of the town council for sanction to borrow £3,600 for purposes of water supply, including the erection of certain works in the township of Bromfield. Mr. H. P. Maybury, consulting engineer to the council, explained the proposals.

In October last the London County Council agreed to convey to the Commissioners of Works, subject to a perpetual rent-charge of £2,000 a year, a site between Kingsway, Sardinia-street, and Lincoln's Inn-fields. The Commissioners now wish to take additional land immediately to the north of this site at a rent of £1,200 a year. The site available for the erection of buildings on the additional land will have an area of about 5,335 square feet, with frontages to Kingsway and Lincoln's Inn-fields.

The inauguration took place on February 8 of the Tata hydro-electric installation, whereby the heavy rainfall on the Ghats is made available as a source of power for various industries, and particularly the cotton-spinning, of Bombay. The undertaking contemplates a supply of 40,000 indicated horse-power delivered in Bombay. The distance from the power-house, near three large mountain lakes, to the receiving-station is 42½ miles. The consulting engineer to the undertaking is Mr. Alfred Dickinson, of Birmingham and London.

PROFESSIONAL AND TRADE SOCIETIES.

EDINBURGH ARCHITECTURAL ASSOCIATION.—At a meeting of this association, held on the 1st inst., Mr. J. A. Williamson, A.R.I.B.A., read a paper entitled "Notes on the Recent International Town-Planning Conference." London, said Mr. Williamson, had been referred to by Mr. W. E. Riley as furnishing an impressive summary of the evils resulting from an incapacity to appreciate future growth and development in a city. The Town Planning Act would have accomplished some good if it only forced on the public notice the urgency of the problem as to whether development was to proceed on rational lines, with due foresight and provision for the inevitable necessities of the future. Two extremes were mentioned which the town development should take. This should be either in solid continuous rings, or by the growth of numerous detached townlets, spreading from a centre such as the existing villages on the outskirts of the town. Developing the city on the principle of grouping the buildings in certain parts, and leaving adequate spaces round each group, was recommended as the right course. The lecturer contended that the new Act was, unfortunately, too English in intent and application. Custom had decreed a place for the tenement in the economy of Scottish towns, and it was important that the question of its continuance should be debated and determined as a preliminary to any town-planning scheme, as not only was the general lay-out of internal areas affected, but the widths also of main and subsidiary roads. Edinburgh, containing nearly 12,000 acres, was said to have 50 per cent. of its area in open spaces and public parks, with an average density of 31 persons to the acre. In this respect Edinburgh might be regarded as approaching the ideal of a garden city were it not for isolated cases, where the actual density ran up to 500 and 600 per acre. The lecturer concluded by emphasising the need for foresight and shrewd anticipation of development in the immediate preparation of a town plan. A vote of thanks was conveyed to the lecturer by Mr. James B. Dunn, president, who was in the chair.

THE GLASGOW INSTITUTE OF ARCHITECTS.—The annual meeting of the institute was held on Wednesday in last week, the president, Mr. John B. Wilson, F.R.I.B.A., occupying the chair. The forty-third annual report of the council recorded with regret the deaths of Messrs. Campbell Douglas, F.R.I.B.A., I.A., David Thomson, I.A., and Alexander Cullen, F.R.I.B.A., I.A. Messrs. Douglas and Thomson were two of the original members of the institute, and Mr. Cullen joined in 1897. During the year one fellow, two associate members, and four student members were admitted. The membership of the institute now stands as follows:—102 fellows, 65 associates, 36 lay, and 23 student members, giving a total of 226. The council noted with satisfaction the success of two Glasgow students in the last R.I.B.A. competitions—viz., Mr. Herbert L. Honeyman in winning the Essay Medal, and Mr. A. G. Henderson in winning the Arthur Cates competition. It has again been arranged that a selection of the R.I.B.A. prize drawings will be received for exhibition during the fortnight commencing April 10 next. The following were the winners of the institute's prizes in the Glasgow School of Architecture—viz., Wm. Bennett, for general design, £3 3s.; Jas. M'L. Brown, for measurement, £2 2s.; and J. S. M'Kay, for drawing, £2 2s. The ninth triennial competition for the Alexander Thomson Memorial Student-ship falls to be held this year. The subject of competition is a design for a bridge. The trustees again offer a second prize of £20, in addition to the studentship of £60, should the quality of the work and the number of the competitors warrant this. During the past year the council had submitted to it a proposed course of architectural training in the Glasgow School of Architecture. A committee was appointed to confer with the joint committee on the school of architecture on the subject, and a scheme has been framed which provides for a combination of practical training in the office and attendance on day classes in the school of architecture. The matter is, however, still in the hands of the institute's committee for consideration, and has not yet been finally decided upon by the council. In accordance with the decision that the institute should hold from time to time exhibitions of designs submitted by members and others in competitions of importance, an exhibition of the designs submitted in the competition for the National Museum of Wales was held for a week in April last, when nine sets of drawings were on view. The question as to the representation of architecture in the Scottish National Exhibition to be held this year was raised, and it was agreed to call the attention of the art section committee to the omission of this branch of art. The council is glad to report that the executive committee have agreed to allocate space for the exhibition of architectural designs in the fine art section. During the year the council had under consideration the Conditions of several competitions promoted in the institute's province which had been found to be unsatisfactory, and representations were made in these cases for amendment of the Conditions. The council agreed to support a scheme for the standardisation of plumber work, providing for the use by registered plumbers of a special trade mark approved of by the Board of Trade. Messrs. John Watson and W. J. Blain were appointed as representatives to Haldane's Trust for five years from August 1, 1910. The president and Mr. Chas. R. Mackintosh were appointed as representatives on the governing body of the Glasgow School of Art for three years from August 1, 1910. Messrs. Geo. Bell and Alexander Wingate were appointed as representatives on the committee supervising the work of the architectural classes in the technical college for three years from September 1, 1910. Mr. Skirving was appointed as the institute's member of the district council for Glasgow and the West of Scotland of the Association for the National Registration of Plumbers. The President referred to the signs of improvement in business, and expressed the hope that when the somewhat foolish craze for over-building has subsided and the threatened land taxes and other minor grievances were disposed of, they might touch upon a period of prosperity for the profession. He trusted that with it would also come a quieter and staider time for their own art. As to the new scheme of architectural education, the problem now before them was to suit the requirements of office work with the advantages of the more academic training. He was himself a strong believer in the usefulness of the regular office routine of apprenticeship, and was somewhat sceptical as to the advantage of testing youths in the design of a palace before they even knew the usual width of a door or the height of a stair step; but much, nevertheless, could and should be done to improve on our present system. He was hopeful that we shall arrive at a scheme which will give all the advantages of the academic training without unduly breaking up the usual office work. Another tender and thorny subject was that of competitions. Now that the R.I.B.A. had finally adopted the new code of Regulations—or, rather, "suggestions"—their hands would probably be strengthened. But if architects were to have better conditions, the improvement would not come from pressure upon competition promoters until it came from within the profession. So long as they had architects offering their designs under the most unreasonable conditions, so long would committees and other unknowing people take them at their own estimate. Honourable, upright, and dignified action within the profession was the sure and only remedy for this and other evils. Having referred to the recent Town-Planning Conference, and the abandonment of the proposal to exhibit the plans in Glasgow owing to the attitude of the corporation in the matter, the president dealt in conclusion with the R.I.B.A. Licentiate scheme. While as an allied society they were in all loyalty bound to support the R.I.B.A., there was much in the scheme itself, he thought, to claim their

support. All must be agreed that some scheme of Registration which, while it would secure that the architect so enrolled was an artist, would at least [illegible] that he had been [illegible] profession, was [illegible] but a necessity. And [illegible] was to have a [illegible] approval, it [illegible] by a majority of [illegible] Incidentally to [illegible] to their own strength. [illegible] the R.I.B.A. [illegible] of the Glasgow Institute [illegible] or associates, which [illegible] fellowship, being admitted direct upon the recommendation of the local [illegible] without the formality of submitting drawings and the needful proposals of three members of the R.I.B.A. Already several names had been added to their proposal list, and he trusted that next year's report would show a marked increase in the numerical strength of the Glasgow Institute.

THE GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE.—At a meeting of the Glasgow Technical College Architectural Craftsmen's Society held in the college on March 3, Mr. James S. Boyd, Licentiate R.I.B.A., read a paper entitled, "A Study of French Architectural Masonry." The organisation of the workmen and the conditions of labour in a first class mason's yard in Paris were described and compared with similar yards in this country. Over one hundred photographic slides, showing the construction of domes, vaults, skew-bridges, etc., in Paris, Versailles, and Rouen were exhibited and described. The speaker stated that the boldness in French masonry construction was traditional, just as caution or lack of boldness was traditional in British work. In concluding, the opinion was expressed that architects in Britain should be trained to thoroughly master the practical application of geometry to building work, so that they (as master craftsmen) may assist the actual workmen in solving any difficult constructive problem that may arise in the carrying out of the design of the master mind.

GLOUCESTERSHIRE ARCHITECTURAL ASSOCIATION.—The president, Mr. Walter B. Wood, occupied the chair at a meeting of the Gloucestershire Architectural Association held at the Northgate Mansions on Thursday, Feb. 23, when Mr. L. Richardson (Hon. Fellow) gave an interesting and instructive lecture on "Brick-Earths and Brick-making in Gloucestershire." Mr. Richardson described the various ways in which bricks might be made, either by the slop process, semi-plastic, or plastic processes. The slop process was that which was adopted in the Severnside brick yards; the semi-plastic at Robinswood Hill; while the plastic was that most generally used in Gloucestershire. He next described the various brick-earths available in the county, and said that a loam was the best available earth. It, of course, was composed of sand and clay; but very excellent bricks could be made by mixing and grinding together sand and "strong" clay. The sandy beds that crop out in the lower portion of the slopes of the Cotswolds afforded the best natural brick-earth in East Gloucestershire, and the beds could always be detected by their attendant growth of gorse bushes. The Stonehouse, Robinswood Hill, Pulford, and Aston Magna pits were all of this deposit. The Great Potteries obtained their raw material from the same beds. At one place bricks are made of coal measure shales, as is also the case at Shortswood, near Mangotsfield. At Stoke Gifford the red (Keuper) marls are ground up for brick-making purposes, and it was pointed out that this rock was largely used in the Midlands for this purpose. The lecturer emphasised the necessity of exercising great care in opening a brickyard. Suitable "earth," a site near a railway or proximity to a likely market were essential desiderata. Brick-making seemed quiet in some parts of the county. The brick-earth was there; but a reliable market was the defect.

LIVERPOOL ARCHITECTURAL SOCIETY.—"Domestic Architecture" was the subject of an interesting paper read by Mr. Ernest Newton, A.R.A., F.R.I.B.A., London, at the meeting of the Liverpool Architectural Society, held on Monday evening. Mr. Arnold Thornley presided. The lecturer said that the last thirty or forty years had seen an extraordinary activity in domestic architecture, more especially in England, but it was impossible, at present, to reduce this manifestation of development to any sort of order, or to be sure where it was leading us. Personal predilection was their only guide. One man was attracted by the stately ordered architecture of the seventeenth and eighteenth centuries; others sought their inspiration from earlier times; some went in for form; others for colour and texture and the skilful or playful manipulation of materials. Again, they had men whose dogma was "straightforward, commonsense building"; and others who threw off the shackles both of old work and common sense, and deliberately used forms of no known, or even or even guessed at parentage. He would be a rash man who would pass judgment on any of these schools. It was all very bewildering; but there was, he thought, one clear thread in this confused tangle—they were all very much in earnest. Everyone was making his contribution in his own way, and so long as their work was really their best, and done with real conviction, they could leave the future to straighten out the tangle. It had been remarked more than once that the French system of training architects might be good for the production of monumental architecture, but that the French people could not build country houses. He believed the French could do what they liked, but the set in France was more towards town architecture, and their domestic work in towns was proof enough that their training was as efficient for domestic as for monumental work. Mr. Newton was warmly thanked for his lecture, on the motion of Mr. Edmund Kirby, seconded by Mr. W. E. Willink, and supported by Mr. T. E. Eccles.

HEATING AND DOMESTIC ENGINEERS' ASSOCIATION FOR BIRMINGHAM AND THE THREE COUNTIES.—At a meeting of engineering employers in the above-named trades, held at Birmingham on March 3, it was resolved to form a branch association of the National Association of Master Heating and Domestic Engineers, to cover Birmingham and the three counties of Warwick, Stafford, and Worcester. An organising committee was elected consisting of Mr. John P. Achurch (Parker, Winder, and Achurch, Ltd.), Mr. Charles Barter (Benjamin Parker, Ltd.), Mr. G. N. Guest (Hollings and Guest, Ltd.), Mr. J. Jackson (J. Jackson and Co.), and Mr. W. L. White, 82, Upper Trinity street, Birmingham, the last named being the convener. The new branch association is to promote and forward the interest of heating and domestic engineers in the area above named, and to be affiliated with the National Association, whose headquarters are at 12, Great James-street, Bedford-row, London, W.C. (Mr. H. B. Watt, secretary).

MANCHESTER SOCIETY OF ARCHITECTS.—On Wednesday, the 1st inst., Mr. W. A. Forsyth, F.R.I.B.A., read a paper entitled "Notes on the Preservation of Ancient Buildings." The lecturer spoke of the principles that should be observed in the renovation of an average village church or manor house. Second, as to the means of carrying out the actual works. Restoration should have enduring qualities. All works should be given ample time in execution. Accurate drawings of the buildings should be made, showing all the irregularities. He advocated the use of freehand drawings. A ruled plan cannot be accurate. The specification should be complete in every detail, and photographic records are valuable. Tenders should be avoided. He knew of no more satisfactory method than a ten per cent. profit arrangement. Coming to the actual operations, Mr. Forsyth dealt in turn with each part of the work. Rubble walls, he said, are largely misunderstood to-day. It is usual to point them; but, as a rule, no pointing is required, except in the dire extremity of the solid materials having become loose. The difficulty of making either plastering or pointing adhere to rubble is not realised. There are three distinct schools in the preservation of stonework to-day. The first might be called the "Limewashers." There is a strong sentiment amongst them against attempting to repair in the actual form and material of the original. If a stone mullion is crumbling, it is repaired with brick or tiles, and the place smeared over with mortar. They are anxious that their patching should reveal itself for all time. To a certain extent this school is justified by the glaring results of the second, the "Replacers," whose entire creed is to cut out and replace with new to match. The third school is the "Fakers," whose delight is to deceive, and to remove all evidence of renovation. It is difficult to say which process is the most desirable. Mr. Forsyth proceeded to give instances of each method. At Westminster a great work of "limewashing" is being carried out by Professor Lethaby, the decay of the stone being arrested by the application of limewash; some colouring is utilised to assimilate the applied material to its environment. The use of the same methods of construction as obtained in the original building was advocated, such as the cutting of the mouldings on groin ribs in situ. After dealing exhaustively with the use of wrought-iron tie-rods, and warning architects against the use of metal in association with stone, concrete, or brickwork, Mr. Forsyth spoke of the treatment of roofs. Machine-made tiles should be entirely excluded. English oak, he said, is the only timber. In repairing old roofs, all work should be done in position, to avoid the taking down of old rafters, tie-beams, and purlins. Old, seasoned material should always be employed. In plastering, slow-setting limes should be used.

ROYAL INSTITUTE OF BRITISH ARCHITECTS: PROPOSED EXTENSION OF TIME FOR ADMISSION AS LICENTIATES. A special general meeting of the Institute will be held on Monday week, the 20th inst., when the chair will be taken at 8 o'clock p.m. precisely, for the following purpose:—The chairman to move, under Clause 1 of the Supplemental Charter of 1908, that the Council be authorised to continue to elect Licentiates of the Institute until the 31st December, 1911.

THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.—An ordinary meeting of the council of the above body was held at No. 31, South Frederick-street, Dublin, on Monday last. The vice-president, Mr. R. Caulfeild Orpen, F.R.I.A.I., was in the chair, in the unavoidable absence of the president. There were also present:—Messrs. J. H. Webb, W. Kaye-Parry, Frederick Hayes, C. J. MacCarthy, A. G. C. Millar, Charles H. Ashworth, Lucius O'Callaghan, Frederick Batchelor, Harry Allberry, G. P. Sheridan, and C. A. Owen, hon. secretary. A considerable amount of correspondence was dealt with. The professional practice committee brought forward an amended letter of invitation to tender, which was ordered to be circulated among the members of council, and put on the agenda for discussion at the next meeting.

At Sproughton, near Ipswich, a village hall seated for 200 persons was opened last week. Mr. Cocksedge, of Ipswich, was the builder, and Mr. Challis prepared the plans.

At Richmond, Surrey, a new parish hall, 60ft. by 32ft., is being built in Church-road as an adjunct to St. John's Church. Mr. Arthur Grove, of Hare-court, Temple, E.C., is the architect.

Exhibits drawn from fourteen of the trade schools (or day technical schools) in London are on view in the Whitechapel Art Gallery, where the seventh exhibition held there in connection with the educational work of the L.C.C. was opened on Friday. It will continue open until Saturday in next week, the 18th inst. The walls of the gallery are covered with drawings, designs, and photographs connected with the trades represented. Dressmaking, art needlework, and metalwork are shown in glass cases, and the specimens of cabinet-work, furniture carpentry, plumbing, etc., are shown on raised platforms.

Our Illustrations.

NORTH-EASTERN RAILWAY NEW OFFICES, COWLEY STREET, WESTMINSTER, S.W.

The old Georgian character long preserved in the immediate precincts of the Abbey, on the south side of Westminster School, has necessarily been interfered with by the recent opening up of new streets and consequent rebuildings during the past few years; but in several instances this type of work has been adapted for the more important of the new premises erected. The North-Eastern Railway offices, of which we give two illustrations, is a notably successful instance. The entrance-hall reproduced herewith exhibits the careful treatment of the interior, while the chief entrance is in keeping with the excellent façade, which is of red brick and stone. Messrs. Horace Field and Simmons are the architects to the railway company.

R.I.B.A. PUGIN STUDENTSHIP COMPETITION, 1911.

WEST FRONT OF ROUEN CATHEDRAL: HON. MENTION DRAWINGS.

This admirable plate is taken from the series of drawings placed second in this competition. The drawing shows the entire façade which covers the full breadth of the nave and aisles, and is flanked on the left by the old *Tour St. Romain (12th century) and on the right by the Tour de Beurre (1480—1510), styled by Ruskin "a masterpiece of Flamboyant Gothic." The façade was constructed in 1509—1530 wholly by one architect—Rowland le Roux, under Archbishop Georges d'Amboise, whose tomb, by same architect, is one of the marvels of the Lady-chapel. The delicate sculpture with which the central doorway is enriched includes incidents in the lives of the archbishops in the pillars of the recess and of angels and prophets in the voussoirs. This fine work is due to Theroulde and Desolbeaux, who also carved the Jesse tree in the tympanum, the climax of the design. The two side doorways have been incorporated from the older building, and belong to the commencement of the 13th century. Mr. P. D. Hepworth, the author of this set of sketches, to which an Hon. Mention was awarded by the Council of the R.I.B.A., has sent us the above note. We hope to give some more of his drawings shortly.

ROYAL COLLEGE OF ART, SOUTH KENSINGTON.

WOOD CHURCH SCREEN AND SKETCHES OF IRONWORK.

This church screen, by Mr. J. B. Godson, is very unlike the conventional type of work common in many modern churches. The broad fret-enriched cresting, banded in shapings after the Elizabethan manner, is broken in the centre by the overdoor arrangement, introduced seemingly to mark the entrance to the chancel and afford space for the open-worked rood. The panels below are carved as well as fret, and the detail by the side, so vigorously drawn, gives an excellent idea of Mr. Godson's skill and intentions. Note how well the foliations fall into place and hold together for strength. The historic studies of ironwork on the same double-page plate are from the same exhibition, and were drawn by Mr. H. P. Hugill, chiefly from good specimens of the 17th century. They furnish several suggestive hints for contemporary use. The Italian Gate from Windsor Castle is particularly interesting, and, though so simple, is very pretty and strong.

EAST ANGLIAN INSTITUTION FOR BLIND AND DEAF CHILDREN, GORLESTON.

Our illustrations are reproduced from the original competition drawings of the design submitted by Mr. John E. Burton, of Norwich, which was placed first in the competition recently held. Mr. H. P. Burke Downing, F.R.I.B.A., was the assessor, and was appointed by the President of the R.I.B.A., and the following is a copy of his report:—"The Conditions and instructions to competing architects, supplemented by answers given to certain questions put by the competitors, have made quite clear the requirement of the governors, and they may be congratulated upon the result of the competition. A great deal of thought and labour has been expended by all the competitors, and some quite admirable designs have been produced. The problem set to the competitors was not a simple one, especially in view of the number and variety of the buildings comprised in the whole scheme. The grouping and interrelation of these buildings and their position on the site and aspects secured must constitute important factors in any decision upon the respective merits of the designs. Compliance with the regulations of authorities concerned, efficient drainage, economy of cubical contents and cost, and the provision for playing fields, are all among the matters which have had my careful consideration. I have carefully compared all the designs submitted, and I place first that numbered 3. The drawings present an extremely well thought-out scheme. The plan is well arranged, and is most economical; corridors are short, and there is no wasted space; the buildings are well lighted and ventilated; the drainage is simple and efficient. The arrangement on the site secures to the full all advantages of aspect; the elevation is simple, suitable, and expressive. Rather more than half the site is left free for playing fields, which, moreover, are well situated to obtain the maximum amount of sunlight, and, for a considerable area, come under the shelter of the buildings from the north and north-east winds. The future enlargement of the institution would be simple. I have checked the cubing of the buildings as given by the author of the design, and it is reliable. With regard to cost, I am of opinion, in view of the variety and extent of the accommodation to be provided, that the whole of the work will not be carried out with such satisfactory finishings, although of the simplest kind, as are properly required for buildings of this character within the limits laid down by the governors. This design is most economical in plan and treatment, and the author estimates the cost at £7,865. The estimate is fairly made, but must, I think, be regarded as sanguine." The designs placed second and third by the assessor proved to be those submitted by Messrs. Johns and Browne, Ipswich, and Messrs. Olley and Haward, Great Yarmouth, respectively. The problem set for the competing architects was to design a residential school for 125 children, and to provide workshops and a house for the head master at about £70 per head. Hence, rigid economy both in planning and in the use of materials was the main aim, whilst producing a workable and efficient scheme. The illustrated design was planned on lines simple and direct, and with the idea of providing for all living rooms and dormitories plenty of air and sunshine. The service road runs on the N. side of the site, and has access to the kitchen, sickrooms, and workshops without passing through any part of the premises to which the children have access. In this roadway runs the main line of drains and the water-pipes, etc. As the kitchen has to serve all the "homes," it has been placed as centrally as possible. The sickrooms are not intended for the detention of infectious cases, but only for the isolation of those children suffering from minor ailments, and they have accordingly been placed in a position within easy reach of the common kitchen and of the headmaster, whilst at the same time they have the benefit of a southern aspect, and are secured from unauthorised visits from the children. All classrooms and dayrooms are provided with large French casements, which can be fully opened in suitable weather. The common rooms for teachers and the headmaster's office have been placed in positions which allow of abundant supervision of the children at play time. In the "homes" it has been thought well to place the dormitories for the blind children on the upper floor, so that the children may be accustomed to the use of stairs, as they will have to use them in after life. The building is to be constructed with local red bricks, with parts of the outer walls covered with cement stucco. The roofs are of slate. The staircases, floors of lavatories, and landings of concrete, with Terrazzo paving to the lavatories. Since the selection of this design a laundry has been added to the group of workshops, and the kitchen block has been enlarged and rearranged to make provision for three bedrooms for the servants, and the work is now being built by Mr. F. Grimble, of Yarmouth, whose tender of £8,940 was recently accepted by the governors of the institution. This sum gives a total cost of the buildings in their final form of £71 per head.

The County of Durham Education Committee have adopted a scheme for the erection of an institution for 120 defective and epileptic children at an estimated cost of £12,800.

The new Selby and Goole railway, which has been opened for some time for goods traffic, was inspected by Colonel von Donop, of the Board of Trade, preparatory to being utilised for passenger service.

Mr. Walter Jenkins, of Calthorpe-road, Edgbaston, architect, who died on December 18, left estate valued at £70,289 gross, with net personalty £55,435. He bequeathed £200 to the Birmingham Bluecoat School.

The new council of labour representatives of Ruskin College at Oxford have decided to proceed at once with the rebuilding of the institution. A plan for a block of buildings to accommodate fifty students has been adopted.

The Bishop of Norwich unveiled on Sunday a window which has been placed in the south-eastern aisle of Norwich Cathedral by the Rev. F. B. De Chair, Hon. Canon and Rural Dean of Norwich, in commemoration of his ordination in the cathedral on St. Matthias Day, 1861. The window contains a figure of St. Matthias, halberd in hand.

At a vestry held on Saturday at St. Aidan's, Blackhill, County Durham, it was decided to redecorate the interior of the church in accordance with a scheme to be devised by Messrs. J. E. Parker and Jos. J. Eltringham, architects. An offer of an oak choir screen to be erected as a memorial to the Ormerod family was accepted with thanks.

Works of high-pressure water supply are about to be carried out by the Carrick-on-Suir Urban Council. The supply is to be taken from Coumshannon, about nine miles from Carrick and is a lake in a gorge of the Comeragh mountains, about 1,000ft. above sea-level. Mr. James Reade, Waterford, has prepared plans for a scheme estimated to cost about £1,300.

An inquiry was held at Morley Town Hall on Friday by the Light Railway Commissioners into an application by the Morley Corporation for powers to construct a light railway in South Queen-street and Fountain-street, within the borough, at an estimated cost of £49,000. There was no opposition to the application, and the Commissioners intimated that it would be granted.

Two stained-glass windows, which have been placed in St. Cross Church, Winchester, to the memory of the late Master of St. Cross, the Rev. Canon Alan Brodrick, were dedicated on Wednesday week. The window in the north transept depicts the subject of the Wise Men bringing their gifts to the infant Christ. The second window is at the east end of the north aisle, and has as its subject Christ blessing little children.

Scarborough Corporation have resolved to purchase the northern portion of the Belvedere Gardens, situated between the esplanade and the sands on the south sea-front, and including the famous rose-gardens, for the sum of £3,500. The corporation have been given the option, to be exercised before November, 1914, of purchasing the southern portion of the same gardens for £2,750. The area of the northern portion is seven acres, and that of the southern portion five acres.

The Wigton Rural District Council (Cumberland) have from time to time had trouble with the sewage-disposal of their district. The latest difficulty is that of Fletchertown, for which two schemes have been proposed, one being by bacterial treatment, and the other land irrigation. The council have now instructed Mr. Harry W. Taylor, A.M.I.C.E., of Newcastle (Messrs. Taylor, Wallin, and Taylor), to investigate the matter and report as to the most effectual manner of disposal.

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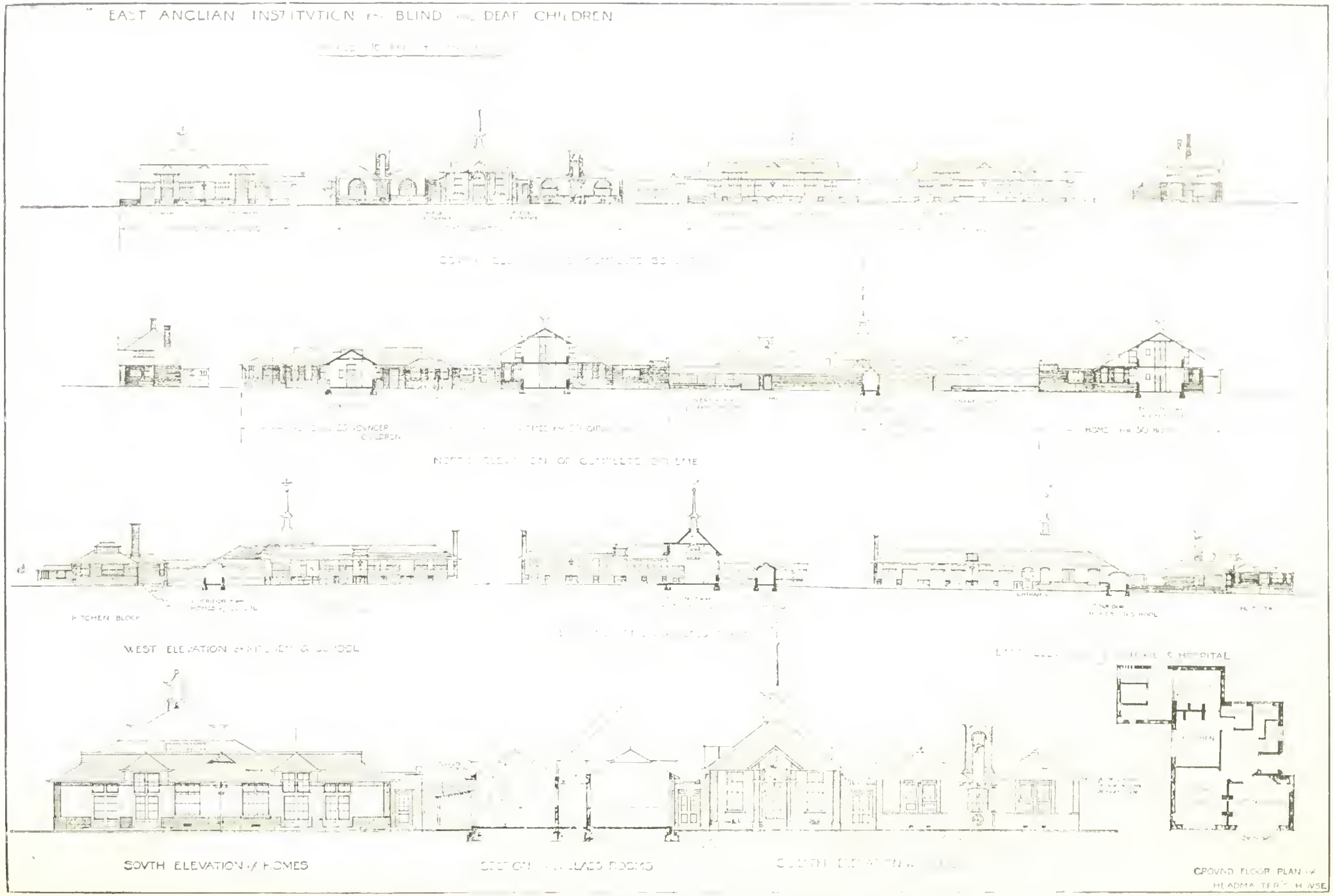
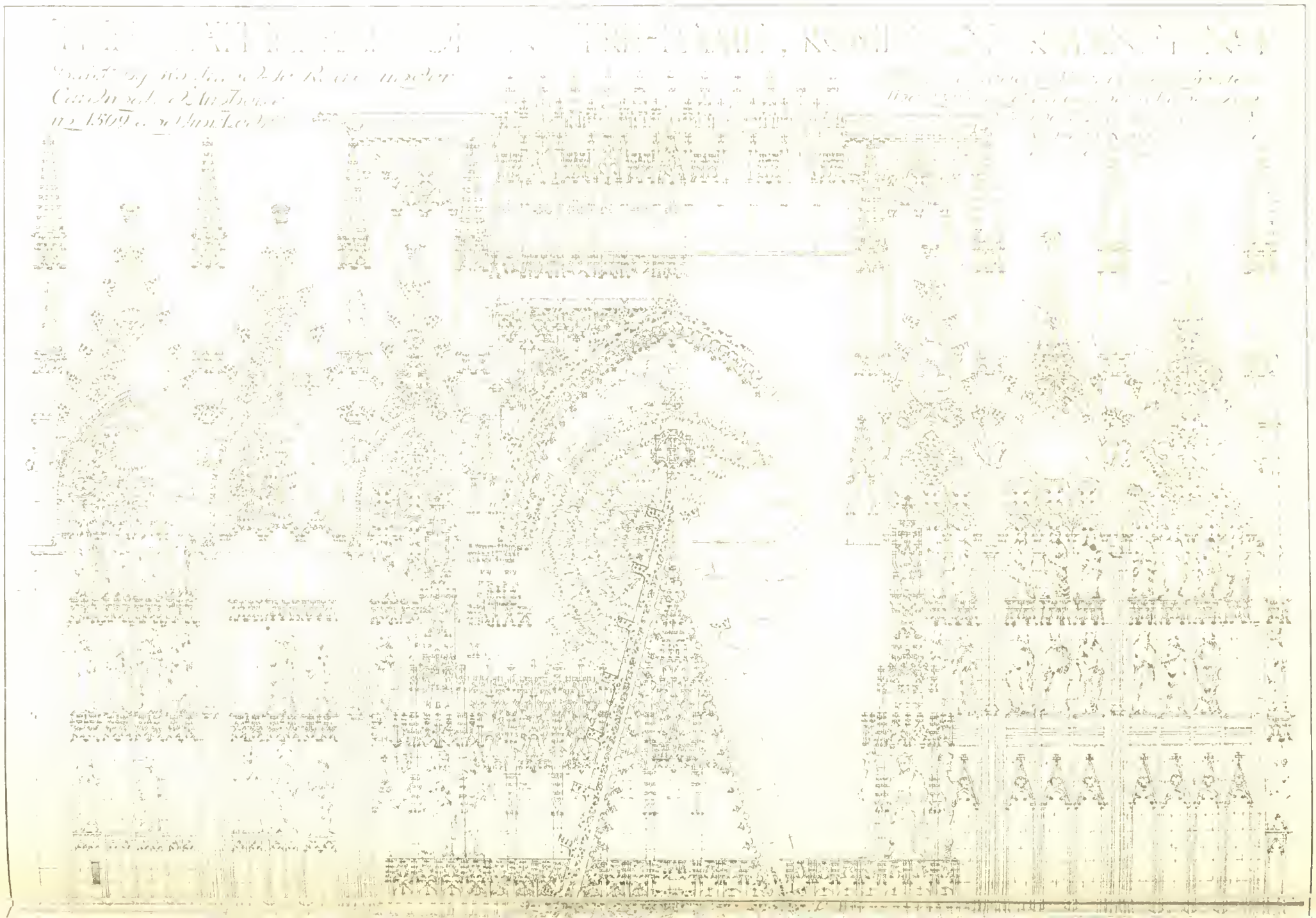
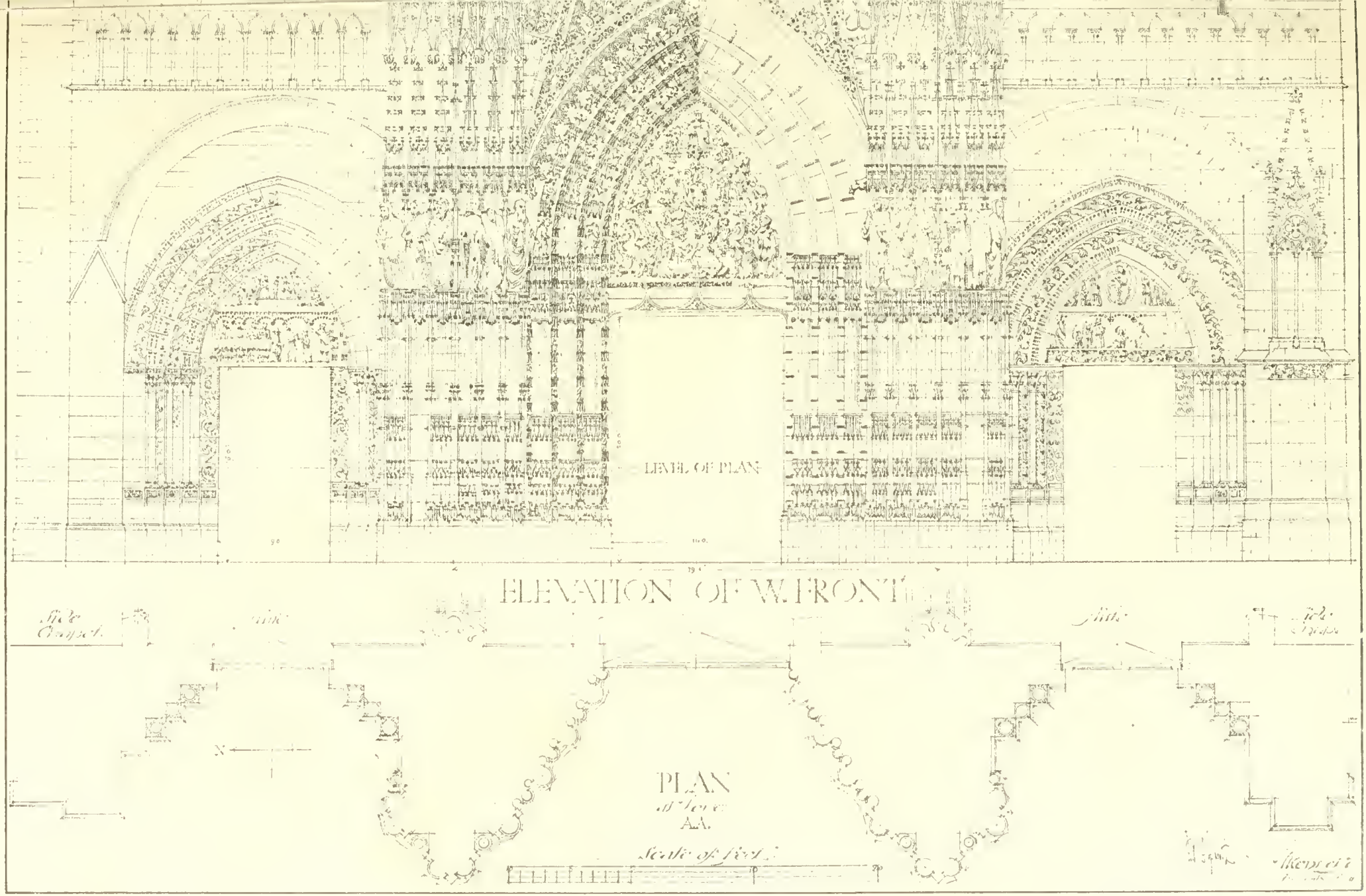
* See Pugin drawing of St. Roumain's Tower, by F. C. Mears in the BUILDING NEWS for Nov. 11, 1904.



SELECTED DESIGN FOR THE EAST ANGLIAN INSTITUTION FOR BLIND AND DEAF CHILDREN, GORLESTON, NORFOLK. Mr. John E. Burton, Architect.





"PHOTO-TINT" by James Akerman, Queen Square

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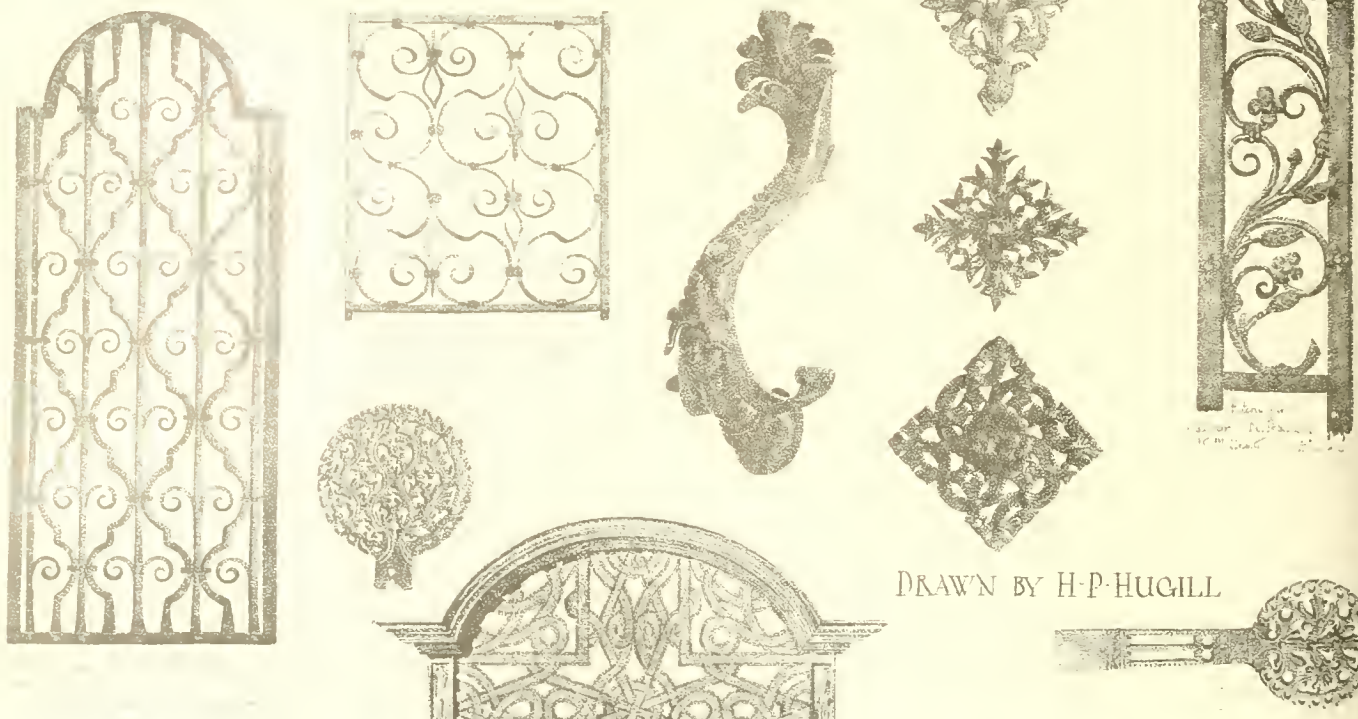
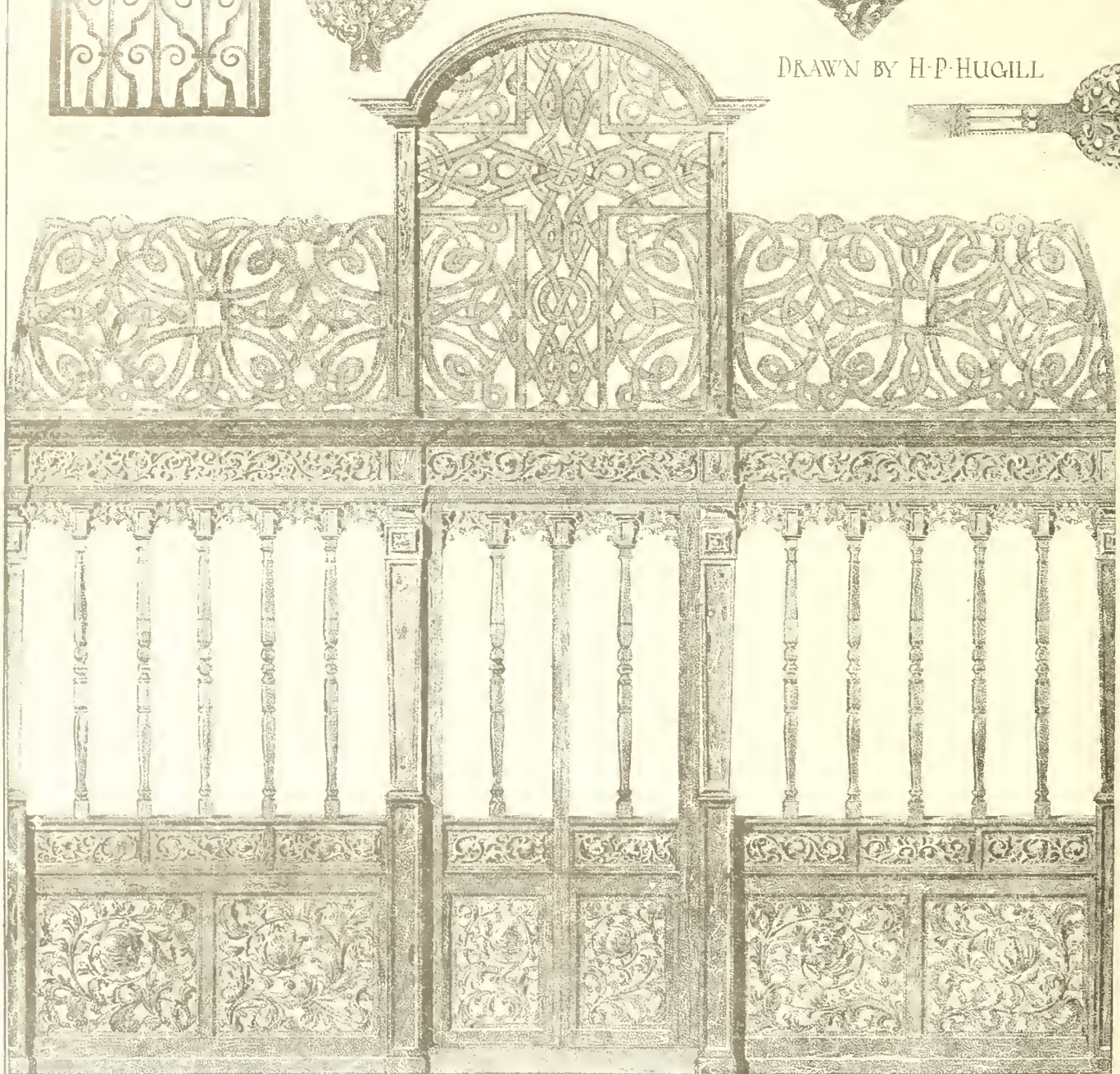
STUDIES OF HISTORIC IRONWORK

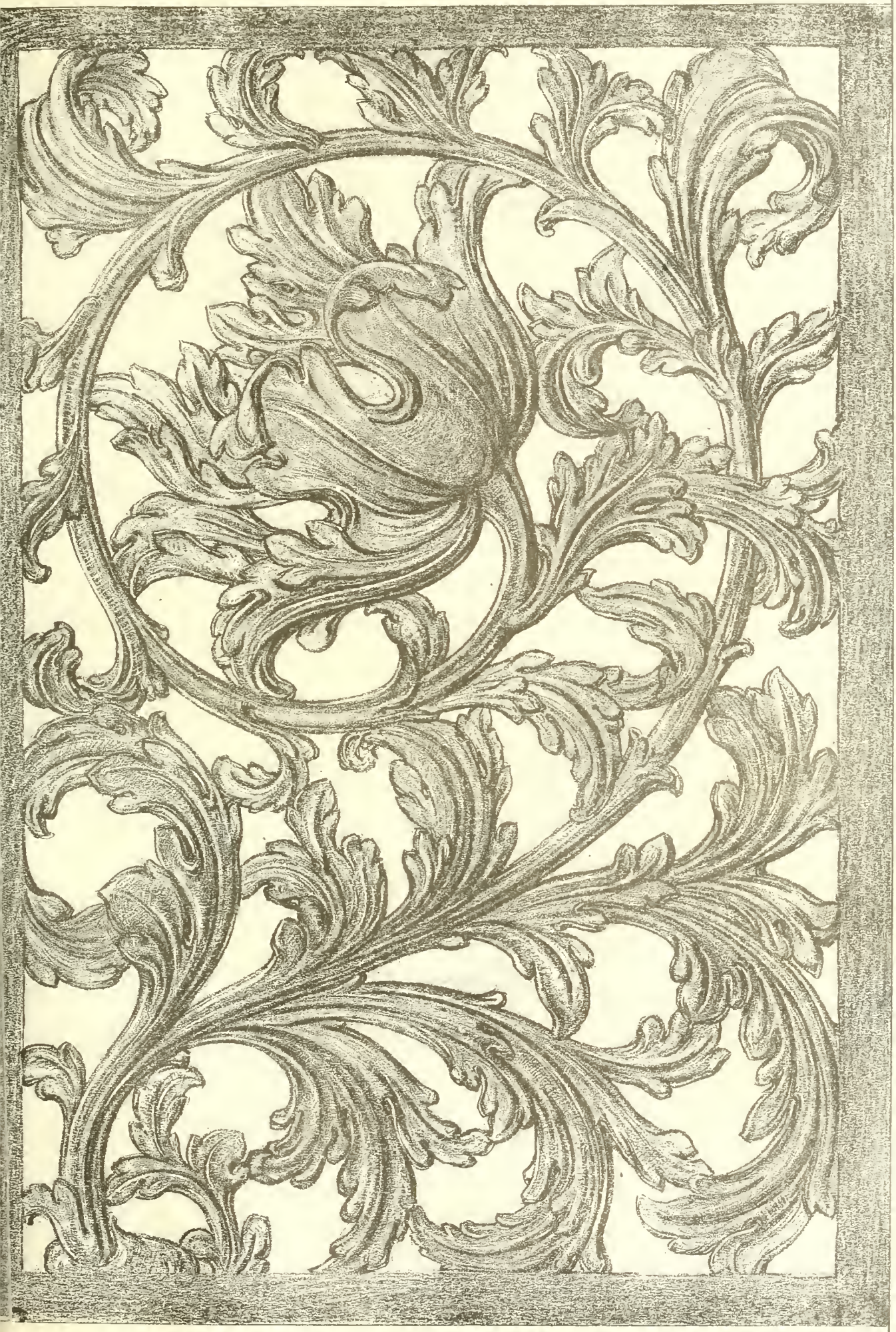


DRAWN BY H·P·HUGILL



DESIGN FOR A CHURCH SCREEN BY J·B·GODSON

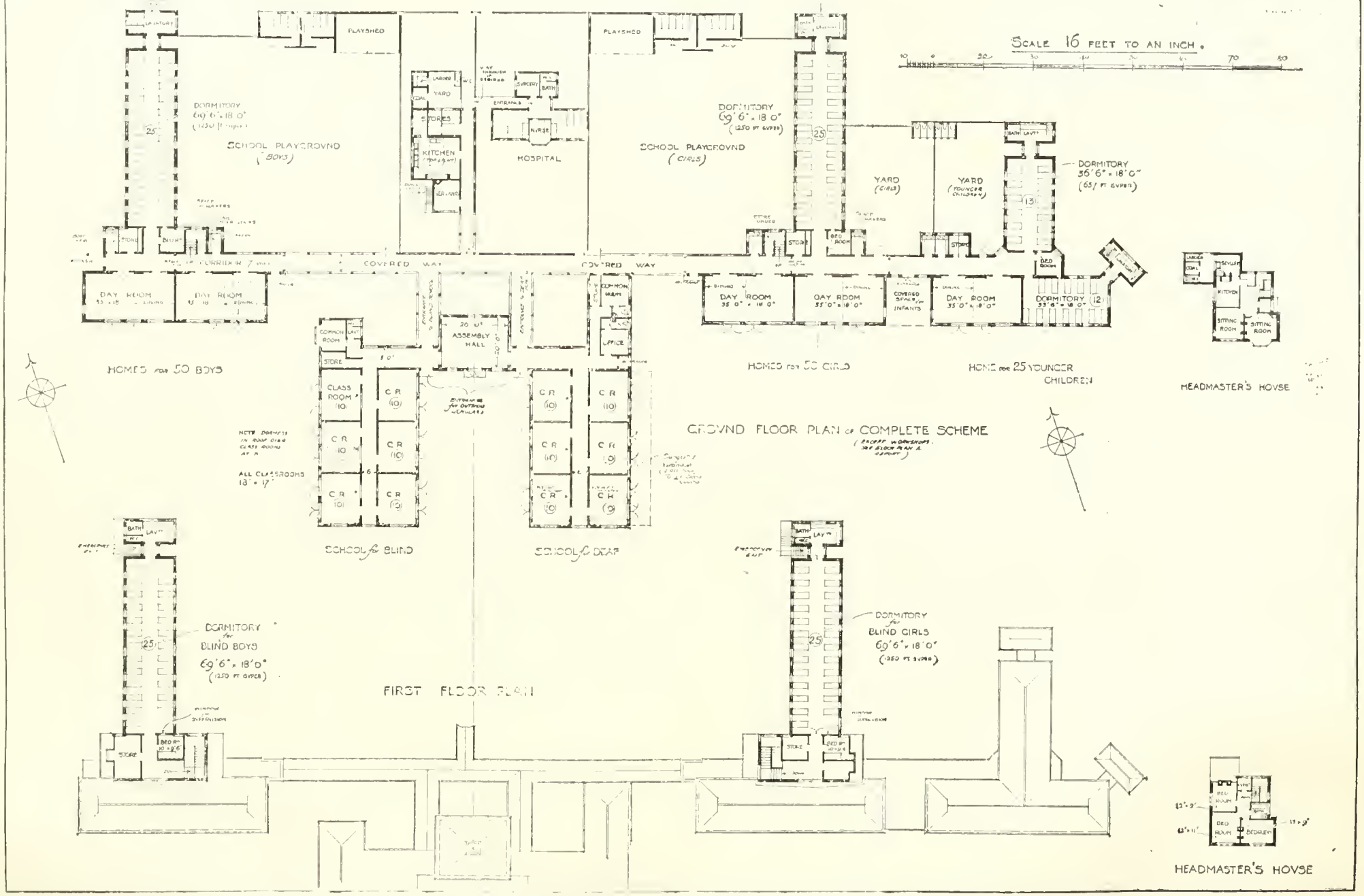
EXHIBITED AT THE ROYAL COLLEGE OF ART



"PHOTO-TINT" by James Akerma[illegible] Queen Victoria.

OFFICES OF THE NORTH-EASTERN RAILWA
Messrs. HORACE FEL

COMPANY, COWLEY STREET, WESTMINSTER.
: Simmons, Architects.



SELECTED DESIGN FOR THE EAST ANGLIAN INSTITUTION FOR BLIND AND DEAF CHILDREN, GORLESTON, NORFOLK.—Mr. JOHN E. BURTON, Architect.

COMPETITIONS.

THE [illegible] DENBIGHLINE. [illegible]

[illegible] WINDOW COMPETITION. [illegible] £10 [illegible] buildings [illegible] are [illegible] of such [illegible] been [illegible] 1910 and must [illegible] another com- [illegible] Queen students com- [illegible] designs submitted by them [illegible] One of the two candi- [illegible] awarded a prize of £5 was [illegible] in prize in 1910; she has [illegible] awarded as ineligible. The [illegible] reports that the rest of the [illegible] of efficient high standard [illegible] second Cox prize being given to [illegible] Price, therefore, of [illegible] to be awarded to George [illegible] and Mary Gilbert in [illegible]

DERBY.—The Corporation of the Borough of Swadlincote have awarded the three premiums [illegible] Messrs. Hurst, Nield & Partners, Nottingham; 2, Mr. W. Reid Schofield, 15, Park Lodge; 3, Mr. J. T. Halliday, 14, John [illegible] Manchester. With designs [illegible] at Bishop Yards, Penrith. [illegible] Mr. [illegible] 17, [illegible] from [illegible] More than two hundred architects [illegible] or [illegible] and particulars [illegible] The [illegible] £12,000.

WALLSEND NEW SCHOOL BUILDINGS.—The Condition of this competition [illegible] considered by the Council of the [illegible] Architectural Association, and [illegible] attention to the fact that the pro- [illegible] do not state that an architectural [illegible] is to be appointed to make the award, [illegible] pledge given that the author of [illegible] premiated design will be employed to [illegible] the work, while there is some valid [illegible] to [illegible] his employment. In these [illegible] the Condition also [illegible] a distant visita- [illegible] to Regulations issued by the [illegible] R.I.B.A. and members of the Northern [illegible] Architectural Association [illegible] competitive [illegible] are modified.

[illegible] Mr. [illegible] Westcott Quayle has [illegible] appointed to [illegible] to the Mersey [illegible] Mr. [illegible] Road, Douglas, [illegible] £100 per annum.

[illegible] Mr. [illegible] Bateman, [illegible] Architect, [illegible] Mr. A. H. [illegible] Manchester, architect.

[illegible] Mr. [illegible] Mr. Architect, [illegible] Mr. Architect, [illegible] Mr. [illegible] Mr. [illegible] Mr.

WATER SUPPLY AND SANITARY MATTERS.

BRYNMAWR.—The urban district council, like many of their neighbours, are in trouble with respect to the sewage-disposal of their district. Various proposals have been made from time to time for its solution. Many years ago the council bought a large area of land for a sewage farm; but the result has not been satisfactory. A recent proposal has been to dispose of the sewage by discharging it into the sea; but, inasmuch as this would entail a very long and costly outfall sewer, the council desire a cheaper means of disposal. They have now instructed Mr. Harry W. Taylor, A.M.I.C.E., of Newcastle-upon-Tyne (Messrs. Taylor, Wallin, and Taylor), to look into this matter carefully and advise the council as to the most economical and satisfactory method of disposal.

WELSH WATER SUPPLY FOR BIRKENHEAD.—Arrangements are being made to commence the works for the new water supply to Birkenhead immediately in the Alwen watershed, a mountainous piece of ground in the heart of the Hiraethog moor. The distance from the Bryntrillyn and Pentrevoelas road down to Pont-yr-Alwen will be first taken in hand. Mr. E. Lovell Clare, surveyor, has completed, on behalf of the Birkenhead Corporation, all the negotiations respecting the acquirement of lands and easements for the upper reservoir, and the contract has been let to Messrs. McAlpine, of Glasgow, for about £180,000. The work is expected to cover about seven or eight years, and will cost some millions of pounds.

A convent is about to be built at Nenagh, County Tipperary, at an expenditure of about £10,000. The architect is Mr. O'Malley, B.E., of Limerick.

The partnership hitherto subsisting between J. Lunn and H. Kaye, architects, etc., Milnsbridge, and Huddersfield, Yorks, under the style of Lunn and Kaye, has been dissolved.

The Worksop Urban District Council decided on Monday to make application to the Local Government Board for sanction to acquire loans, for works of sewerage £2,777, and for street improvements £1,423.

The Scottish ironmonlders gained on Wednesday an advance of a farthing a ton an hour, or a shilling a week time rates, and 2½ per cent. piece rates, the advance to take effect in all shops throughout Scotland from May 1.

A fire broke out at Robert Gordon's College, Aberdeen, on Wednesday morning, the east wing, which contained classrooms for classics, mathematics, physics, and chemistry, being destroyed. The damage is estimated at about £10,000.

At a meeting on Friday of subscribers to the new town-hall at Bethesda it was announced that £600 had already been subscribed. Plans and specifications of the new buildings, prepared by Mr. R. Ll. Jones, architect, Carnarvon, were submitted and approved.

The London County Council Education Committee decided on Wednesday to recommend the Council to authorise a grant not exceeding £35,000 to the governors of the Northampton Polytechnic Institute for the erection of a technical institute for optics.

At a meeting of Kelso Town Council on Monday night, there was a further discussion on the proposal to bring in a gravitation supply of water from Heatherhope, in the Cheviots. Mr. Parker, who is an engineer, estimates the cost at £25,000. Eventually the scheme was adopted.

The Birmingham City Council on Tuesday gave authority for an expenditure of £8,750 upon the extension of the Jewellers' School in Vittoria-street, a new lease of the site having been obtained from the Governors of King Edward's Foundation. It was also decided to promote an order by the Light Railways Commissioners, enabling the Corporation to construct about five furlongs of tramway in Beechlanes to connect with the Hales Owen route.

The Rochdale Corporation at their meeting on Thursday in last week adopted plans by Mr. Hathaway for the extension of the art-gallery at an estimated outlay of £6,500. It was explained that the whole of the Willow Bank site will be utilised. The extension will be carried from the existing gallery to the junction of the Esplanade and Manchester-road, and down Manchester-road to the limit of the site, the new fronts being in keeping with the present building. At the corner of Manchester-road there will be extra ornamentation and a bay window. The ground floor will provide additional museum accommodation, and above there will be two more galleries for pictures.

Our Office Table.

A meeting of the Lord Provost's Committee of the Edinburgh Town Council was held on Wednesday to consider the offers for erecting the Usher Hall. The question was first discussed as to whether an estimate for the whole work by one contractor should be accepted, or whether separate offers should be entertained. It was agreed by 16 votes to 2 to accept the offer of a single contractor. This decision limited the available tenders to five or six, and it was thereupon agreed to recommend for acceptance by the town council the estimate of Messrs. Neil M'Leod and Sons, builders, Edinburgh, amounting to £59,916. The limit proposed for the building, without the site, was £70,000, so that the estimate recommended for acceptance is well within that figure. The recommendation comes before a special meeting of the town council to-day, when no doubt it will be adopted, and the work will be proceeded with forthwith.

The London County Council is inviting applications for the appointment of a Principal of the L.C.C. Central School of Arts and Crafts, Southampton-row, W.C. The person to be appointed will be required to possess high qualifications as a practical artist, and must give evidence of administrative and organising ability. He must be in touch with the industrial application of the work of the school, and will be required to give his whole time to the duties of the office. The salary will be £1,000 a year. Applications must be sent in not later than to-morrow (Saturday).

Dr. Furneaux, the Dean of Winchester, writes:—"The accounts recently published in the daily Press of the condition of Winchester Cathedral are unnecessarily alarming. There is no evidence of any recent settlement of the nave piers, nor any reason to anticipate the need to underpin them. Neither is there any ground for uneasiness as to the stability of the south transept when the work of underpinning it has been completed. But it is true that the Dean and Chapter are advised that the south aisle wall must be underpinned as well as buttressed, and this fact has obliged us to raise our estimate of the total sum required to £108,000. Of this amount, £99,000 has been collected, £9,000 being still needed."

The sketch in water colours of "The Harbour of Refuge," by Frederick Walker, A.R.A. (the "Little Billee" of Du Maurier's "Trilby"), which was bequeathed to the Tate Gallery by Sir William Agnew, is now in the possession of the trustees, and has been accepted by them. In due course it will be hung in the gallery at Millbank, to which Sir William Agnew presented, in 1893, the picture in oils of the same subject, and where it now forms one of the chief attractions. This picture, the background of which is from studies at Bray, near Maidenhead, was exhibited at the Royal Academy of 1872. The sketch is the original design from which Walker elaborated the large picture in oils; it was reproduced, by permission of Sir William Agnew, in J. G. Marks's "Life and Letters of Frederick Walker, A.R.A.," 1896.

A conference of local authorities of the North-East Coast, under the Housing and Town-Planning Act, 1909, will be held in the Geographical Institute, Newcastle-on-Tyne, to-morrow (Saturday), under the auspices of the National Housing and Town-Planning Council. The following points will be considered in detail:—(1) The improvement of houses which are not in all respects fit for human habitation. (2) The right of complaint to the Local Government Board of inaction by the local authority. (3) The housing of the poorest poor, and the provision of lodging-houses. (4) The building of new cottages, and the development of garden suburbs. (5) The closing of houses unfit for human habitation. (6) Town planning. The aim of the conference will be to explain the scope of the law and discuss the best methods of securing its full administration.

In connection with the forthcoming Town-planning Exhibition, to be held in the galleries of the Royal Scottish Academy at Edinburgh from Monday next, the 13th inst., until Saturday, April 1, an interesting programme of lectures is being arranged. Leading authorities on town planning will read papers on various aspects of the movement, and a number of local gentlemen who have taken a special interest in the subject will also be included. Professor Patrick Geddes and Mr. Henry Vivian will give addresses, and amongst others who will take part in the proceedings are Dr. Leslie Mackenzie, of the Local Government Board; Councillor M'Arthy; Councillor Cameron; Dr. Williamson, city medical officer of health; Mr. Williamson, city superintendent of works; Mr. Macnaughton, of the Heriot Trust; and Mr. Alexander Heron, of the Merchant Company.

A lecture on "Our Buildings, particularly the Artisan's Dwelling," was given at the Outlook Tower, Edinburgh, on Thursday night by Mr. Stoughton Holborn, M.A. Professor Geddes presided. The lecturer said that for the bulk of our population the vision was bounded by buildings, and, apart from holiday times, we rarely got entirely away from them. Here was the widest opportunity for art, yet nowhere was it more absent. Important as environment was, it was ineffectual without a quickening of the spirit of appreciation. Where the beauty of the past remained, it did not in itself serve to make later comers appreciative, for they ruthlessly destroyed it. Trinity Church or the Nor' Loch had failed to stimulate appreciation in the people of Edinburgh, who had destroyed them to build railways and sheds. Passing to the workman's cottage, Mr. Holborn said that before a thing could be beautiful it must be subservient to its purpose. With blackboard illustration he pointed out how the monotony of long and dreary streets might be avoided if a quadrangular system of building were sometimes followed. The architectural opportunities of the quadrangle were immense. Further, there would be an open space which might be planted, and where children could play in safety. The latter part of the lecture dealt with the actual plans of individual dwellings, and the lecturer showed the advantage of abandoning the parlour in the smaller type of dwelling and substituting an alcove or cosy corner of a large living room.

A report was submitted to the Warrington Town Council on Monday night by the street-improvement committee regarding the widening of the Liverpool-Manchester main road on the Liverpool side of the town. The committee propose to widen the road to 60ft., and the county authorities propose to widen their portion of it between Sankey Mill Bridge and the canal bridge, but propose to make the width taper from 60ft. to 45ft. at the canal bridge. The committee regretted that the Lancashire County Council could not see their way to make the road 60ft. wide throughout, and appointed a deputation to the county council. It was complained that the county method would make a "bottle neck" on an important road.

Under the auspices of the Carpenters' Company, Professor Vivian B. Lewes gave an address on Thursday in last week at Carpenters' Hall on "Fire and Fire Risks." Lord Reay presided. Fire, said the lecturer, was an absolute loss to the community. It converted materials which man required into gases which were really only useful to Nature. The total loss by fire in the British Empire was £70,000,000 yearly, and that loss was spread over the entire community. The match was the commonest cause of fire, statistics showing that at least 1,700 fires were due to it every year. Defective flues and fire-places were responsible for over 800 fires a year. Then, again, there were the various methods of lighting. The sun's rays being accidentally focussed on a bottle of water was a risk. When they came to artificial illuminants, they had with all of them a certain amount of danger. They knew how even electric-lighting systems went wrong, and also the considerable trouble arising from oil lamps, especially those with glass reservoirs, and from escaping gas. The motor had brought in a certain amount of danger by the petrol, which had the power of

...erpage ...ot from ... Upper ... old devise.

Mr John Howard ... Park ... recent ... Portland place, and ... Street, City, ... ent chairman of ... ...pencil Sons ... Colls and ... ...ghton, ...ded to ... December 29 ... ...ate £119,797 ... the net personal ... ...s. ... testator ... ...es to ... ...e household ... furniture and ... ...sual £3,000 per ... ...num or £1,500 ... ...should she ... ...marry; ... ...his ... ...Victor ... Benjamin Howard ... ...ordinary ... shares in George ... ...and Sons and ... Colls and Sons, and his ... ...portrait ... Sir W. Q. ... ...ainter); to Wallace Elliot, ... still a director of the company, 50 preference shares and 750 ordinary shares of £10 each therein; to James McMillan £2,000, and to each of his children £50; to the executors £100 each; to Maud and Maggie Wallis £100 each; to Denison William Allport £200; to William Sayer £100; and to Henry T. Challacombe, for many years manager of the Dorking business, Edward Brooks, and Octavius Newling £200 each, and Thomas J. Colbus, J. J. Wilson, and H. H. Lentchford £100 each. Among other charitable bequests are £500 to the President of the Royal Institute of British Architects for educational and benevolent objects; £300 to the Builders' Benevolent Institution; and £300 to the Builders' Clerks' Benevolent Institution. The residue of his estate and effects he leaves to his son and daughters Ethel Anne Mitchell Elgar, Nina Howard Wallis, Adele Brenda Winter, Kate M. Colls, Hetty M. Murphy, Evelyn Colls, and Annie M. Neild, the share of his son to be double that of his daughters.

Part VI. of the Local Taxation Returns for 1908-9 that relating to urban district councils others than town councils—has been issued as a Blue-book [Cd. 259]. The report shows that there were 815 such councils in England and Wales. The receipts of these councils, excluding receipts from loans, amounted to £11,525,958. The amount raised by means of public rates was 5·14 per cent., and the receipts from the principal undertakings which produce revenue, together with those in respect of private improvement works, rather less than 24·4 per cent. of the total receipts. The councils spent £473,619 on the maintenance and repair of 2,391 miles of main roads, and £919,164 on 11,692 miles of roads other than main roads. The total amount of the loans raised by the councils during the year was £2,340,923, and the total repaid £1,691,795. The outstanding loans of the councils at the end of the year amounted to £36,598,419. The total amount of loans outstanding increased during the year by £650,312.

The paper on "Modern Electrical Deck Equipment," recently read before the Institution of Mechanical Engineers, and the discussion which followed, largely turned on the relative merits of electric and hydraulic power, particularly for operating coal hoists. In the adjourned discussion Mr. Roger T. Smith introduced the conveyor belt for this class of work, and adduced strong arguments in its favour. A large number of these belts are in use, notably at Hull, Hartlepool, the Tyne, and, for loading china clay, at Fowey, Cornwall. The primary advantage of the belt conveyor is the evenness of its load, the maximum scarcely varying from the normal working load. The result is that the load factor of the power plant is very high, so far as the conveyor is concerned. This makes it specially suitable for electric driving, although steam, gas, oil, and hydraulic engines can be used. In some situations the conveyor has an advantage in the matter of the time required for loading, as it can easily deliver a constant, regular stream of material, whereas with the other methods there is usually time lost in adjusting shoots for each new waggon tipped, and sometimes it is necessary to wait for waggons.

The Prudential Assurance Company's sixty-second annual report (for the year ending December 31, 1910) states that the number of ordinary policies issued during the year was 80,311, assuring the sum of £7,162,196, and producing a new annual premium income of £146,473. The premiums received during the year were £1,805,121, being an increase of £96,011 over the year 1909. The number of policies in force at the end of the year was 903,896. In the Industrial Branch the premiums received during the year were £7,126,317, being an increase of £254,547. The total number of policies in force in this branch at the end of the year was 18,820,127; their average duration exceeds eleven and three-quarter years. The assets of the Company, in both branches, as shown in the balance sheet, after deducting the amount written off securities, are £77,529,226, being an increase of £3,327,525 over those of 1909. The valuation has again been made by Mr. Schooling, and in the Ordinary Branch the surplus shown is £1,751,114, including the sum of £332,353 brought forward from last year. In the Industrial Branch the surplus shown is £1,547,961, including the sum of £179,778 brought forward from last year. The total surplus of the two branches, as shown by the valuation, is thus £3,299,075.

The Waygood Athletic Association (R. Waygood and Co., Ltd., London, S.E.) are holding their twentieth annual concert on Monday, March 20, at The Horns, Kennington. A really good programme is being provided, and we feel sure visitors will, as in the past, spend a most enjoyable evening. Among the vocalists are Miss Rosa Dallow, Miss Mary Williams, and Mr. Rumbell Jackson; Miss Violet Carmen is the elocutionist; the cornet solos are by Mr. Celian Kottaun. The humorists are Mr. Fred Curtis, Mr. Kenna Lawson, Mr. Walter Montagu, and Mr. Archie Naish. Mr. Maurice Garland, the Merry Magician, will exhibit his inimitable sleight of hand. Mr. Albert Jordeu is the accompanist. Doors open 7.30 p.m.; commence at 8 p.m. Tickets, unnumbered reserved 2s., admission 1s.

The new hall at Shrewsbury School will be opened by the Duke of Teck on May 5.

At a meeting of the Sleaford Rural District Council, Mr. Ellis has been appointed highway surveyor at a salary of £120, increasing to £150 per annum.

Mr. Sydney D. Kitson, M.A., F.R.I.B.A., of Leeds, president of the Leeds and Yorkshire Architectural Society (and half-brother of Lord Allendale), has been elected a Fellow of the Society of Antiquaries.

A special meeting of the Kettering Rural District Council was held on Friday. Out of sixty-two applicants for the post of surveyor, four were interviewed, and eventually Mr. W. H. Darby, formerly assistant to the county surveyor of Worcestershire, was appointed.

The "Oesterreichischer Zentral-Anzeiger" (Vienna) of February 19 notifies that the Servian Academy of Science and Arts have decided to begin work on the erection of a new building in the spring. The cost of the enterprise is estimated at 1,500,000 dinars (£60,000).

The Local Government Board have sanctioned the proposal of the corporation of Rochdale to carry out, from the plans of their borough engineer, Mr. S. S. Platt, the first section of extensions at the sewage-disposal works, at an estimated outlay of £32,000. The Board stipulate, however, that a commencement shall be made with the second portion of the scheme within four years from the receipt of the sanction to the loan for the first half.

It was reported to the London County Council on Tuesday that the widening of Woolwich Common-road, Well Hall-road, and Shooter's Hill-road, and the improvement of Woolwich Common-road between Ha-Ha-road and Mill-lane, have been completed at a net cost of £1,480 5s. 9d., the Council's contribution being £786 17s. 2d. The paving works in Military-road have been completed at a cost of £977 4s. 8d., the whole of which is payable by the London County Council.

Mr. Arthur Banks Skinner, F.S.A., from 1905 to 1909 Art Director of the Victoria and Albert Museum, South Kensington, died in his fiftieth year at Hollington, Sussex, on Tuesday. Mr. Skinner entered the South Kensington Museum in 1879 as a Junior Assistant, and was appointed Assistant Director under Sir Caspar Purdon Clarke in 1896. On the departure of Sir Caspar Clarke to take up the direction of the Metropolitan Museum in New York, in 1905, Mr. Skinner succeeded him as Art Director, retiring four years later.

MEETINGS FOR THE ENSUING WEEK.

Friday (To-day). — Birmingham Architectural Association. Paper by Professor Selwyn Image.

Saturday (To-morrow).—Society of Architects. Visit to the Wesleyan Connexional Hall, Westminster. Meeting at Entrance in Matthew Parker-street, 2.30 p.m.

Monday.—Victoria and Albert Museum. "German Gothic Architecture" (Lantern Illustrations), by Banister F. Fletcher, F.R.I.B.A. 5 p.m.

Junior Institution of Engineers. "The Design of a Modern Brewery and Plant," by Geoffrey Brooks. Royal United Service Institution. 7.30 p.m.

Royal Institute of British Architects. "The Burlington and Devonshire Collection of Drawings," by J. Alfred Gotch, F.S.A., F.R.I.B.A. 8 p.m.

Royal Society of Arts. "Applications of Electric Heating" (Cantor Lecture No. 2), by Prof. J. A. Fleming, D.Sc., F.R.S. 8 p.m.

Tuesday.—British Museum. "Byzantine Architecture." (Lantern Illustrations), by Banister F. Fletcher, F.R.I.B.A. 4.30 p.m.

Institute of Sanitary Engineers. "Ventilation of Dwellings and Public Buildings," by J. Lawrence. 7 p.m.

Royal Sanitary Institute. "Rescue Works in Mines," by Leonard Hill, M.B., F.R.S. 8 p.m.

Institution of Civil Engineers. "The Electrification of a Portion of the Suburban System of the London, Brighton, and South Coast Railway," by Philip Dawson, M.Inst.C.E. 8 p.m.

Wednesday. — Carpenters' Hall Lectures. "Metal Work," by W. Bainbridge Reynolds. 7.45 p.m.

Auctioneers' Institute. "Tithe Rent Charge and Other Payments in Lieu of Tithe," by P. W. Millard, L.L.B., F.S.S. 7.45 p.m.

Royal Society of Arts. "The Adulteration of Food," by Col. C. E. Cassal, F.I.C. 8 p.m.

Thursday.—Royal Society of Arts. "Education in India," by C. H. Archer Hill, C.S.I., C.I.E. 4.30 p.m.

Carpenters' Hall Lectures. "Woodland Industries," by M. C. Duchesne. 8 p.m.

Friday (March 17).—Royal Sanitary Institute's Meeting at Bristol. Assemble in the Civil Court, Guildhall, 10.45 a.m. Visit Reservoir of Bristol Waterworks Co. 2.30 p.m.

Glasgow Architectural Craftsmen's Society. Discussion on the Fixing of Tiles. 8 p.m.

Leicester and Leicestershire Society of Architects. "The Influence of the Classic Revival in Leicester," by Arthur Wakerley, F.R.I.B.A.

Institution of Civil Engineers. "The Production of Water-gas," by Alwyne Meade, Stud.Inst.C.E. 8 p.m.

Royal Institution. "Water Supply," by J. H. Balfour-Browne. 9 p.m.

Saturday (March 18.) — Architectural Association. Visit to Offices of General Accident Fire and Life Assurance Office, Aldwych (facing St. Clement Danes Church). 2 p.m.

Mr. J. L. Middleton has practically completed his restoration of the Old Palace, Richmond, and is now in residence. This interesting old home of our kings was first occupied in 1121 by Henry I.

The urban district of Walthamstow received at their last meeting the sanction of the Local Government Board to the borrowing of the sum of £3,346 for widening Woodford New-road on the east side, and decided that the work be put in hand as soon as possible.

The Congested Districts Board of Ireland have completed the purchase for £36,000 of the portion of the Sandford Wells estate which comprises the town of Castlerea and Sandford mansion and demesne. The lands have been let hitherto on the eleven-months system; they will now be divided amongst the people of Castlerea.

A new school for boys at Walsoken, near Lynn, was opened on Friday. The plans of Mr. H. J. Green, of Norwich and Lynn, were selected in competition, and the contract of Messrs. Sutton and Sons, of Upwell, for a little over £2,000 was accepted for the erection. The new school contains five classrooms, all opening into one main corridor, and has accommodation for 222 pupils.

A new Roman Catholic church, situate in Roxburghe-terrace and Park-avenue, Whitley Bay, was opened on Sunday, when the Bishop of Hexham and Newcastle celebrated mass. The church has been built (of brick with stone facings) by Mr. W. Gray, of Whitley Bay, from the designs of Mr. Edward J. Kay, Stockton-on-Tees, and has accommodation for 300 people. The interior decoration is of oak, and the benches are of pitch-pine.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, Effingham House, 1, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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Handsome Cloth Cases for binding the BUILDING NEWS, price 2s., post free 2s. 4d., can be obtained from any Newsagent, or from the Publisher, Effingham House, 1, Arundel-street, Strand, W.C.

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Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

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MARMADUKE.—Yes.

D. R. W.—Please send.

TITUS.—Yes; if brief and practical.

INQUIRER.—They are neither in our advt. pages nor in our "Directory," so we have no clue to their existence.

WORKER.—You are suffering from lead-poisoning. See a medical man, and communicate with the factory inspector.

WEST GATE.—For illustration of golf club-houses see our issues of July 22, 1904; April 5, 1907; Dec. 3, 1909; and May 20, June 24, and July 8, 1910.

CLASSICAL GOTHIC.—What else did the French architects do in the early stages of the Renaissance? One of the best known examples is the Church of St. Michel at Dijon.

V. W. M.—Eaton Hall was rebuilt in 1874-5 for the first Duke of Westminster, from the late Mr. Alfred Waterhouse's designs; we published a large scale plan of the staircase and hall in our issue of Jan. 4, 1889, a photograph of a mantelpiece, Jan. 6, 1888, and view of entrance gates and lodge, June 1, 1894.)

X. L.—The best architectural models we have ever seen are those made by Mr. Berthold Audsley, 7, Guilford-place, W.C. They are really miniature architecture itself.

A. L. J.—Thanks. 2. The proper pronounciation is "Chi-che-ro-ne." Cicero was the chief speaker of his time in Rome, and so, as a rule is a guide in Rome to-day, to the sights of the city.

SEA PIG.—Thanks. Of course both are typographical errors. When tables like that stand, sometimes not unaltered for weeks, the figures slip, drop out, and get transposed. We regret we do not know the makers of the chimney-pot in question, but will make further inquiries. Whoever they are, they are oblivious to the advantages of our "Directory" pages.

"BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Liver," "Harvest Moon" (both somewhat late), "Batten," "Margis," "Ink Sp'ash," "Showman," "Harvey," "Oxonian," "Prospero," "Arte et Labore," "Also Ran," "Pylon," "Cada," "Chocolate Soldier," "Bournemouth Queen," "Me," "Briton."

CHIPS.

A tower and spire are about to be added to the Church of the Immaculate Conception, Newtownbutler, Co. Fermanagh. The architect is Mr. George L. O'Connor, F.R.I.A.I., Dublin.

Mr. Archie Colls, of Messrs. Trollope and Sons and Colls and Sons, has succeeded his late father, Mr. J. Howard Colls, as the president of the Camberwell and Dulwich Pension Society.

In connection with the Macroom water supply—the scheme for which was prepared by Mr. P. Coughlan, engineer to the urban council the council have appointed Mr. Francis Bergin B.E., of Dublin, as consulting engineer at a fee of 2½ per cent. on the cost of the works.

The death occurred on Friday of Alderman Henry Farrow, J.P., builder and contractor, at his residence, Eaglehurst, Wisbech. Mr. Farrow, who was in his seventy-first year, had been a member of the Wisbech Corporation since 1882 and served as mayor in 1890, 1891, and 1897.

Towards the sum of £9,000 needed to defray the cost of erecting a permanent church in connection with the City of London School Mission £5,530 has so far been raised. The building, which has been designed by Mr. H. P. B. Downing, F.R.I.B.A., will accommodate upwards of 800 worshippers.

The death is announced of Mr. George Heaton, of Wigan, one of the original members of the Society of Architects, with which he was actively connected for nearly twenty-five years. He was transferred to the class of retired members on becoming eligible in 1910, at the close of a long professional career.

With reference to our previous notice relative to the proposed execution of certain municipal works in Szeged (Hungary) in 1911, the "Zentral Anzeiger" of February 19 notifies that the municipal authorities of Szeged have decided to expend 8,000,000 krönen (£333,000) for the carrying out of a comprehensive scheme of public works, of which the following are the more important:—The erection of schools, barracks, a railway-station, a market-hall, a municipal building, and a hospital; also paving, asphalting, and general road improvements.

H.M. Consul-General at Antwerp (Sir E. C. Hertslet) reports that tenders are invited by the municipal authorities of that city for the construction of a minerals warehouse on the East Quay of the Bassin Asia. The estimated value of the contract is 47,000fr. (about £1,900). A deposit of 2,500fr. (£100) will be required with each tender. Tenders must be sent in sealed envelopes to the Burgomaster, Hôtel-de-Ville, Antwerp, to arrive not later than March 23. The *cahier des charges* may be obtained (price 1fr.) at the Hôtel-de-Ville, Antwerp. A copy may be seen by British contractors at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C.

Estimates have been prepared by the engineer to the North-Eastern Railway Company showing in detail the expenditure which will have to be incurred on new works in the event of sanction being given to that company's Bill of the present Session. The total estimated expenditure is put down at £434,812. The details are as follows:—New railways at Monkseaton, £56,300; new railway at North Blyth Staiths, £113,000; new railway from Monkseaton to Seaton Sluice, £29,500; widening of the Newbiggin branch, £6,900; widening of the York and Newcastle Railway from Lazenby to Redcar, £34,663; widening and alteration of the Leeds and Selby Railway in Leeds, £151,488, new roads and subway at Seaham Harbour £16,900; bridge-widening at Darlington, £900; and bridge-widenings at Northallerton, £2 002.

Trade News.

WAGES MOVEMENTS.

DEWSBURY: STRIKE OF PLUMBERS.—A dispute of operative plumbers in Dewsbury, Batley, and Ravensthorpe culminated in a strike on Saturday. The rate of pay hitherto has been 7d. an hour, which is below that of other members of the society to which they belong—the National Operative Association of Plumbers. Except for those working for the two municipal corporations, whose pay is satisfactory, the men contend that as skilled artificers they are of equal value to their employers as the following craftsmen, who are paid thus: Joiners from 8½d. to 9d. an hour, plasterers 9d. and stonemasons 8½d. to 9d. The firms to whom the appeal for an advance has been made are unanimous in refusing it.

TRADE NOTES.

The Isolation Hospital, Stanhope, is being supplied with Shorland's warm-air ventilating patent Manchester grates, exhaust roof ventilators, and special inlet ventilators, by Messrs. E. H. Shorland and Brother, Ltd., of Failsworth, Manchester.

Mr. B. J. W. Lone, the London director of the Leeds Fireclay Co., Ltd., has taken up the sole agency for London and district for the Buttermere Green Slate Co., Ltd., Keswick. All inquiries should be addressed to 2 and 3, Norfolk-street, Strand, W.C.

Boyle's latest patent "Air-pump" ventilators have been employed for the ventilation of the naval dirigible-balloon shed erected by Messrs. Frances Morton and Co., Ltd., of Hamilton Ironworks, Garston, Liverpool, for Messrs. Vickers, Sons, and Maxim, Barrow-in-Furness.

A large clock is to be erected in the parish Church, Monkton Wyld, Dorset, which will show time on one dial facing south, and strike the hours upon the present church bell. Messrs. John Smith and Sons, Midland Clock Works, Derby, are carrying out the work.

An appeal is being issued for £900 for the restoration of St. John's Church, Woolwich.

The partnership hitherto subsisting between J. W. Logan and C. R. Hemingway, railway contractors, Doncaster, under the style of Logan and Hemingway, has been dissolved.

Mr. Arthur M. Tippett has been appointed engineer-in-chief, and Mr. David A. Hendrie chief mechanical engineer, in the Department of Railways and Harbours in the Union of South Africa.

Various extensions have just been completed at the gasworks, Teignmouth, under the direction of the engineer, Mr. Gray, of that town. The contractors were Messrs. Willey and Co., of Exeter.

The enlargement of the council-house at Birmingham is approaching completion. The contractors are the Building Construction Company, Ltd., of London, whose tender amounted to £128 000, and the foundations were put in by Messrs. Rowbotham, of Birmingham.

At St. Albans a new Conservative clubhouse is to be built on the south side of Hatfield-road from plans by Mr. Harry R. Finn, of St. Peter's-street, St. Albans, selected in limited competition. It will be Georgian in style, and will contain on the first floor an assembly-room seated for 300 people.

At St. Peter's, Cheltenham, the Archdeacon of Gloucester has dedicated a Caen stone reredos (with panel representing the Last Supper) and oak clergy rest and choir-stalls. Other alterations include the taking down of the stone pulpit and its rebuilding in a more suitable position, the enlargement of the chancel floor, and the flagging with stone of the floor of the nave beneath the dome. The stone panel is a replica of that in the marble reredos made for King Edward VII. in Queen Victoria's memory at Whippingham.

The reconstruction of the bridge carrying the South-Eastern and Chatham Railway over Ravensbourne-road, Lewisham, has just been completed at a cost of £4,885 3s. 10d., one-half of which will be borne in equal proportions by the Deptford and Lewisham Metropolitan Borough Councils, and the second half by the London County Council. By means of the improvement the road has been widened for a distance of 38ft. from 20ft. to 40ft., and the headway increased from 13ft. 6in. to 16ft. The contractors were Messrs. W. Pattison and Sons, Ltd.

LATEST PRICES.

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GLASS IN CRATES.

LIST OF COMPETITIONS OPEN.

Southmoor—Parochial Hall and Institute (cost, £1,500)	£15, £5	The F. S. Myers, South Moor, Stanley, S.O., Durham	Mar. 15
San Thomé, Portuguese West Africa—Laying-out Streets, Sewerage, Water Supply, and Lighting		The President of Municipal Council, San Thomé, Portuguese West Africa	,, 25
Gidea Park—Town Plan of Gidea Park (E. G. Dawber, H. V. Lanchester, and M. E. Macartney, Assessors)	£100, £50	The Secretary, Town Planning Exhibition, 33, Henrietta-st., W.C.	,, 31
Manchester—Library and Art Gallery (Prof. Reginald Blomfield, A.R.A., assessor)		Thomas Hudson, Town Clerk, Town Hall, Manchester	,, 31
New Cumnock—United Free Church (£3,700 limit)	£10	The Rev. W. Scott, The Manse, New Cumnock	,, 31
Coventry—Municipal Buildings and Proposed Town Hall. (E. Guy Dawber, F.R.I.B.A., 22, Buckingham-street, W.C., Assessor.)		Geo. Sutton, Town Clerk, 10, Hay-lane, Coventry	April 1
Carlton—Sewage Disposal Scheme		James Senior, Clerk, Carlton, near Barnsley	,, 6
Corbridge, Hexham—Sewerage and Sewage Disposal Scheme	£15, £10	J. H. Nicholson, Clerk, Midland Bank Chambers, Hexham	,, 13
Kilkee, West Clare—Sewerage and Sewage Disposal Scheme		T. Kelly, Clerk, The Workhouse, Kilrush	,, 15
Swansea—Castle-street Improvement (Assessor, S. S. Reay, F.R.I.B.A.)	£50	The Town Clerk, Guildhall, Swansea	May 5
Aspatria—Sewerage Scheme		F. Richardson, Clerk, Aspatria, Cumberland	June 10
Athens—Court of Justice (cost £160,000)	£400, £320	Comm. Intel. Branch, Board of Trade, 73, Basinghall-street, E.C.	Aug. 8
Glasgow—Alexander Thomson Travelling Studentship	£60, £20	C. J. Maclean, Secretary, 115, St. Vincent-street, Glasgow	Dec. 29
Lowestoft—Elementary School (Limited to Norfolk and Suffolk Architects)	20gs., 10gs., 5gs.	R. B. Nicholson, Town Clerk, Town Hall, Lowestoft	No date
Inverness—Remodelling Northern Meeting Assembly Rooms		Thomas G. Henderson, Secretary, Eastgate House, Inverness	do.

LIST OF TENDERS OPEN.

BUILDINGS.

Tamworth—High School (120 places)	Staffordshire Education Committee	Graham Balfour, Director of Education, Stafford	Mar. 11
Biggleswade—Power Station and Attendant's House	Urban District Council	J. T. Eayrs, Eng., M.I.C.E., 39, Corporation-street, Birmingham	,, 11
Elland—Detached Residence		F. F. Beaumont, Architect, Southgate Chambers, Halifax	,, 11
Walsall—School (278 places), Chase Town	Staffordshire Education Committee	Graham Balfour, Director of Education, Stafford	,, 11
Morley—Extensions to Jam Factory, Baker-street	Metcalf and Bradshaw	T. A. Buttery, F.I.A.S., Architect, Queen-street, Morley	,, 11
Dundee—Reconstruction of Glebelands School	School Board	J. H. Langlands, Architect, 31, Murraygate, Dundee	,, 11
Brynmawr—Extending County Schools	Governors	F. R. Bates, Architect, 26, Westgate Chambers, Newport, Mon.	,, 13
Shordley—Two Small Holding Cottages	Flintshire Small Holdings Com.	S. Evans, F.S.I., County Surveyor, Mold	,, 13
Bory St. Edmunds—Two Almshouses, Northgate-street	Guildhall Feoffment Trust	S. Nash, M.S.A., Architect, Bury St. Edmunds	,, 13
Bolton—Special School, Flash-street	Education Committee	F. Wilkinson, Education Offices, Nelson-square, Bolton	,, 13
Warley, Halifax—Detached House		Medley, Hall, & Son, Architects, 1, Harrison-road, Halifax	,, 13
Coventry—Governor House	Gas Committee	Fletcher W. Stevenson, Engineer, Gas-street, Coventry	,, 13
Pembroke—Alterations to Town Hall	Corporation	The Borough Surveyor, Municipal Offices, Pembroke Dock	,, 13
Maesteg—Rebuilding Shop Premises, Commercial-street		W. Beddoe Rees, Architect, 3, Dumfries-place, Cardiff	,, 13
Cockermouth—Pavilion for Cricket Club		J. W. Pooley, Surveyor, Cockermouth	,, 13
Grantown—Villa		J. Gilbert, The Square, Grantown	,, 14
New Tredegar—Reconstructing Bethel Welsh Church		Habershon, Fawckner, & Co., Archts., 41, High-st., Newport, Mon.	,, 14
West Ham—Additions to Tramcar Sheds	Town Council	J. G. Morley, Borough Engineer, Town Hall, West Ham, E.	,, 14
Northfleet—Fire Station	Urban District Council	The District Surveyor, The Hill, Northfleet	,, 14
York—Extensions of Workhouse, Huntington-road	Guardians	J. H. Morton, F.R.I.B.A., N.E. Bank Chambers, South Shields	,, 14
Grimsby—Additional Cells at Police Station	Corporation	H. G. Whyatt, A.M.I.C.E., Boro' Eng., 170, Victoria-st., Grimsby	,, 14
Biggleswade—Power Station	Urban District Council	J. T. Eayrs, M.I.C.E., 39, Corporation-street, Birmingham	,, 15
Notting Hill, W.—Alterations, &c., at Infirmary, Rackham-st.	St. Marylebone Guardians	H. T. Dudman, Clerk, Northumberland-st., Marylebone-road, W.	,, 15
Urlingford—Twenty-Seven Single Labourers' Cottages	No. 1 Rural District Council	James Walsh, Clerk, Urlingford, Ireland	,, 15
Outlane, Huddersfield—Four Houses		J. Berry, Architect, 3, Market-place, Huddersfield	,, 15
Llanelly—Two Childrens' Homes at Swansea-road	Guardians	W. Griffiths, F.S.I., Falcon Chambers, Llanelly	,, 15
Grimsby—Wooden Bandstand at Boulevard, West Marsh	Corporation	H. G. Whyatt, A.M.I.C.E., Boro' Eng., 170, Victoria-st., Grimsby	,, 15
Antwerp—Alterations, &c., to Royal Flemish Theatre	Municipal Authorities	The Burgomaster, Hotel de Ville, Antwerp	,, 16
Prescot—General Stores at Workhouse	Guardians	J. Gandy, Architect, Masonic Buildings, St. Helens, Lancs	,, 16
Morley—Additions to Churwell Grange Homestead	Sewage Purification Committee	W. E. Putman, A.M.I.C.E., Boro' Eng., Town Hall, Morley	,, 16
Handsworth—Extending Rookery-road Junior School	Education Committee	Wood and Kendrick, Architects, High-street, West Bromwich	,, 16
Carlton, Yorks—Additions to Farmhouse	Exors. late G. Stubley	Thorp and Turner, Architects, Goole	,, 16
Belfast—Two Shops, Stores, and House, Donegall-road	Co-operative Society, Ltd.	W. J. Gilliland, F.R.I.B.A., 9, Howard-street, Belfast	,, 16
London, N.—Maintenance of Buildings (Three Years)	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 17
Hull—Reconstructing Madeley-street Baths	Corporation	A. E. White, M.I.C.E., Town Hall, Hull	,, 17
London, S.—Maintenance of Buildings (Three Years)	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 17
Gravesend—Additions to 52, Queen-street	Town Council	H. H. Brown, Town Clerk, 4, Woodville-terrace, Gravesend	,, 17
Boston—Renewing Stonework at two Cemetery Chapels	Burial Board	The Borough Surveyor, Municipal Buildings, Boston, Lincs	,, 17
Andover—Pavilion on Sports Field in London-road	Grammar School Governors	F. Ellen and Son, Andover	,, 17
Merthyr Tydfil—Shops, Nos. 35, and 36, High-street	Merthyr Billiard and Recreation Co.	T. Edmund Rees, Architect, Merthyr Tydfil	,, 18
Ynysddu—School (500 places)	Monmouthshire Education Com.	J. Bain, F.R.I.B.A., Council Offices, Newport, Mon	,, 18
Greetland—Altering Premises into Stabling		C. F. L. Horsfall and Son, Architects, Lord-street, Halifax	,, 18
Tredegar—Extensions to Intermediate School	Monmouthshire Education Com.	J. Bain, F.R.I.B.A., Council Offices, Newport, Mon.	,, 18
Pengam, Mon.—Extensions to School	Monmouthshire Education Com.	J. Bain, F.R.I.B.A., Council Offices, Newport, Mon.	,, 18
Merthyr—House, and Addition to Shop, Merthyr-road		T. E. Rees, Architect, Merthyr Tydfil	,, 18
Trelewis, near Treharris—Twenty Houses	Ffaldeulaeh Building Club	Treharne Jones, Architect, Nelson, via Cardiff	,, 18
Newtown, Montgomery—Drill Hall	Territorial Force Association	R. W. Davies, M.S.A., Architect, Carno	,, 18
Manchester—Chimney (250ft. high), Stuart-street	Electricity Committee	C. S. Allott & Son, Civil Engineers, 16, Brown-street, Manchester	,, 18
Halifax—Barn and Stable at Mixenden Green	Waterworks Committee	R. J. Hartley, C.E., Waterworks Eng., Gibbet-street, Halifax	,, 20
West Ham—Temporary Classrooms at Custom House School	Education Committee	Willam Jacques, A.R.I.B.A., 2, Fen-court, Fenchurch-street, E.C.	,, 20
Burnley—New Buildings, Barrack-road	East Lancashire Association	W. Greenwood, A.R.I.B.A., Architect, Victoria-street, Blackburn	,, 20
Winsford—Cattle Sheds	Urban District Council	James Wilkinson, Surveyor, Market-place, Winsford	,, 20
Selby—Additions to Police Station	West Riding Standing Joint Com.	J. V. Edwards, West Riding Architect, County Hall, Wakefield	,, 20
Milborne Port—Council School	Somerset Education Committee	A. J. Picton, Bruton	,, 20
Keady and Castleblaney—Three Gate Cottages	Gt. Northern (Ireland) Railway Co.	The Chief Engineer's Office, Amiens-street Terminus, Dublin	,, 21
Halifax—Rebuilding Mortuary, Stoney Royd	Health Committee	J. Lord, M.I.C.E., Borough Engineer, Town Hall, Halifax	,, 21
Dunbar—Barrack Block and Troop Stables, Castle Park	War Department	The Director of Army Contracts, War Office, Whitehall, S.W.	,, 22
Stockwell, S.W.—Slating Roof at Council's Depot, Landor-rd.	Lambeth Borough Council	H. Edwards, C.E., Boro' Eng., Town Hall, Brixton Hill, S.W.	,, 23
Antwerp—Warehouse	Municipal Authorities	The Burgomaster, Hotel-de-Ville, Antwerp	,, 23
Ipswich—Disinfecting Chamber, &c., St. John's Home	Guardians	J. A. Scheuermann, Architect, Northgate-street, Ipswich	,, 28
Working—Alterations to Head Post Office	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 28
Bridgend—Twelve Semi-detached Houses, Merthyrmawr-rd.	Glanogwr Building Club	O. P. Bevan, Architect, 26, Park-street, Bridgend	,, 29
Gellifaelog—Schools (1,150 palces)	Merthyr Tydfil Education Com.	J. Li. Smith, M.S.A., Aberdare	,, 31
Maldon, Essex—Elementary School (520 places)	Essex Education Committee	F. H. Bright, Clerk, 63, High-street, Maldon, Essex	April 3
Wimbledon—Additions to Drill Hall, St. George's-road	Territorial Force Association	Jarvis & Richards, Archts., Queen Anne's Gate, Westminster, S.W.	,, 3
Swindon—Enlarging Head Post Office	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 4
Chatham Kent—County School, Chatham Hill (200 places)	Kent Education Committee	W. H. Robinson, M.S.A., Archt., Caxton House, Westminster, S.W.	,, 7
Croydon—Drill Hall, Mitcham-road	Territorial Force Association	Jarvis and Richards, Architects, 10, Queen Anne's-gate, S.W.	,, 8
Irthington—Cloakroom, &c., at Schools	Cumberland Education Committee	J. Forster, Clerk of Works, 13, Earl-street, Carlisle	No date
Kidwelly—New Gasworks		D. Rees Edmunds, Solicitor, 9, Hall-street, Llanelly	do.
Stranraer—Alterations at Academy School		H. and D. Barclay, Architects, 245, St. Vincent-street, Glasgow	do.
Shotton Bridge—House	Rev. E. Feoton	Stephen Wilkinson & Crowley, A.A.R.I.B.A., Newcastle-on-Tyne	do.
Wakefield—Alterations to Crofton School	Sharlston District Education Com.	B. Sheard, Clerk, W.R. Education Offices, Northgate, Wakefield	do.
Macclesfield—Alterations at Infirmary	Governors	H. E. Hanrahan, Secretary, General Infirmary, Macclesfield	do.
Crook—Alterations to Dawson-street P.M. Church		T. W. T. Richardson, M.S.A., 57, High-street, Stockton-on-Tees	do.
Wrexham—Primitive Methodist Church in Poyser-street		E. Wilson, 5, Victoria-road, Wrexham	do.
Sale—Engine House	Urban District Council	Charles Hopkinson, M.I.C.E., 29, Princess-street, Manchester	do.
Llanerfyl—Gardner Memorial Hall		Shayler and Ridge, Architects, Oswestry	do.
Brynerug—House	Rev. T. G. Rees	F. Howarth, Architect, Towyn	do.
Portsmouth—Extending Workhouse Infirmary	Guardians	G. E. Smith, Architect, 115, Victoria-road North, Portsmouth	do.
Ainstable—Improvements to School	Cumberland Education Committee	I. Forster, Clerk of Works, 13, Earl-street, Carlisle	do.
Cardiff—Office Buildings, West Bute-street		Henry Budgen, F.R.I.B.A., 95, St. Mary-street, Cardiff	do.
Carshalton—Post Office	Postmaster General	The G.P.O. Surveyor, 12, St. Andrew's-square, Surbiton, Surrey	do.
Earlestown—Additions to Assembly Hall, Earle-street	Conservative Club Committee	R. Curran and Son, Architects, Cairo-street, Warrington	do.
Cork—Cottages, Blarney-street		H. W. Flanagan, B.E., B.A., Architect, 2, South Mall, Cork	do.
Macclesfield—School Improvements	St. Peter's Church Schools Mangrs.	Jabez Wright, Architect, 27, King Edward-street, Macclesfield	do.
Cleethorpes—Three Houses and Shops, Market-place	J. Moller	E. Huskinson, Architect, 39, Cambridge-street, Cleethorpes	do.

BUILDINGS—*continued.*

[illegible]	[illegible]	Empsall and Clarkson, Architects, 7, Exchange, Bradford	No date
Wakefield—Terraced Houses	West Riding Terr. Force Assoc.	A. E. Kirk, A.R.I.B.A., 63, Albion-street, Leeds	do.
Carlisle—Improvements	Cumberland Education Committee	I. Forster, Clerk of Works, 13, Earl-street, Carlisle	do.
Bingley—Alterations to Stables	Urban District Council	H. Bottomley, Surveyor, Town Hall, Bingley	do.
London, S.W.—Repairs [illegible] Five Years	War Department	The Director of Army Contracts, War Office, Whitehall, S.W.	do.
Norwich—Concrete [illegible] Wharf	Electricity Committee	The City Electrical Engineer, Duke-street, Norwich	do.
Middle—Hope House	Small Holdings Committee	A. P. Ker, County Land Agent, The Moothall, Newcastle-on-Tyne	do.
North Seaton—Institute	Small Holdings Committee	A. P. Ker, County Land Agent, The Moothall, Newcastle-on-Tyne	do.
Newcastle-on-Tyne—Houses and Buildings	Small Holdings Committee	A. P. Ker, County Land Agent, The Moothall, Newcastle-on-Tyne	do.
Newcastle-on-Tyne—Twenty Cottages	Small Holdings Committee	The City Estate Surveyor, Town Hall, Newcastle-on-Tyne	do.
Morley—Pavilion	[illegible]	Howarth & Howarth, Architects, Old Bank Chamber, Cleckheaton	do.
Ipswich—New Lodge, East Stockwell Road, Hospital	[illegible]	J. S. Corder, Architect, Wimbourne House, Ipswich	do.
Cornholme—Master's House at Store	[illegible]	J. Earnshaw, Architect, Town Hall-buildings, Cornholme	do.
Alfreton—Chimney Stack 120ft. high	[illegible]	The Offices, Swanwick Collieries, Alfreton	do.

ELECTRICAL PLANT.

Norwich—Battery	Electricity Committee	F. M. Long, A.M.I.C.E., Corporation Electricity Works, Norwich	Mar. 13
Tecuci, Roumania—Electric Lighting Plant	[illegible]	M. le Maire, Conseil Municipal, Tecuci	,, 14
Melbourne—Wireless Instruments	[illegible]	The Postmaster-General, 51, Spring-street, Melbourne	,, 14
York—Turbo Generator	Corporation	J. W. Hame, City Engineer, Clifford-street, York	,, 14
Kendal—Underground Feeder	Corporation	J. A. T. Barnes, Engineer, Electricity Works, Kendal	,, 14
London, E.C.—Electric Cranes	Bengal and N.W. Railway Co., Ltd.	A. Izat, Man. Director, 237, Gresham House, Old Broad-street, E.C.	,, 14
Belvedere-place, Borough, S.E.—Electrical Installation	London County Council	M. Fitzmaurice, C.M.G., Chief Engr., Spring Gardens, S.W.	,, 15
Beckenham—Electricity Meters	Urban District Council	J. E. Tapper, Electricity Works, Church Fields-rd., Beckenham	,, 20
Eccles—Plant	Corporation	H. W. Angus, Borough Engineer, Cawdor-street, Eccles	,, 20
London, S.W.—Electric Bellhanger's Work	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 21
Reigate—Alternators	Town Council	Hancock and Dykes, Engineers, 1, Victoria-st., Westminster, S.W.	,, 22
Calgary, Canada—Turbo-Generator	[illegible]	The City Commissioners, Calgary, Canada	,, 22
Rotherham—Plant	Corporation	W. J. Board, Town Clerk, Rotherham	,, 23
Sydney, Australia—Telephone Cable (13¾ miles)	Deputy Postmaster-General	The High Commissioner, 72, Victoria-street, S.W.	April 4
Perth, Australia—Switchboard	[illegible]	The Deputy Postmaster-General, Perth, Western Australia	,, 18
Adelaide—Motor Generators, &c.	Deputy Postmaster-General	The High Commissioner, 72, Victoria-street, S.W.	,, 19
Accrington—Tramway Storage Battery	Electrical Engineering Department	Harold Gray, A.M.I.E.E., Engineer, Accrington	No date

ENGINEERING.

Manchester—Motor Fire Pumps	Watch Committee	The Chief Fire Station, London-road, Manchester	Mar. 10
Potenza, Italy—Water Main	Prefecture of Basilicata	Al Signor Prefetto Civile per la Basilicata, Potenza	,, 13
Dublin—Four Steel Underbridges	Gt. Northern (Ireland) Railway Co.	T. Morrisoo, Secretary, Amiens-street Terminus, Dublin	,, 13
St. Bees—Water Works	Whitehaven R.D.C.	G. Boyd, C.E., 33, Queen-street, Whitehaven	,, 13
Edinburgh—Filter at Alnwickhill Water Works	District Water Trustees	W. A. Tait, C.E., 72A, George-street, Edinburgh	,, 13
West Ham—Motor Fire Engine	Town Council	J. G. Morley, Borough Engineer, Town Hall, West Ham, E.	,, 14
Falmouth—Heating and Lighting of Gyllyngdune Pavilion	Town Council	J. S. Walton, Borough Surveyor, Municipal Offices, Falmouth	,, 14
West Ham—Bridge (60ft. span) Cook's-road, Stratford	Town Council	J. G. Morley, Borough Engineer Town Hall, West Ham, E.	,, 14
Sheerness—Settling Tanks	Urban District Council	F. W. S. Stanton, A.M.I.C.E., Trinity-road, Sheerness	,, 15
Adrianople—Electric Tramways	Turkish Ministry of Public Works	Le Ministre du Commerce et des Travaux Publics, Constantinople	,, 15
Strood—Four Tar Boilers and Tarspray Machine	Rural District Council	L. Randerson, District Surveyor, Meopham, Gravesend	,, 15
Liverpool—Widening Bridge at Sandhills	Lancashire & Yorkshire Railway Co.	The Engineer's Office, Hunt's Bank, Manchester	,, 15
Birkenhead—Petrol Motor Fire Engine	Corporation	J. Fearnley, Town Clerk, Town Hall, Birkenhead	,, 15
Donaghadee—Galleries at Well	Urban District Council	D. Walker, Clerk, Donaghadee	,, 16
Hull—Steel Roof Work, Madeley-street Baths	Corporation	A. E. White, M.I.C.E., City Engineer, Town Hall, Hull	,, 17
Paignton—Gas Main	Gas Co.	C. G. Dawson, Engineer, Gasworks, Paignton	,, 18
Camborne—Water Works	Water Co.	W. F. Bickford, Engineer, Camborne	,, 18
Gt. Yarmouth—Ironing Machine and Hydro-Extractor	Guardians	W. J. Carpenter, 15, Southgates-road, Gt. Yarmouth	,, 20
Sutton-in-Ashfield—Four Purifiers	Urban District Council	Corbet, Woollall, & Son, Engs., Palace Chambers, Bridge-st., S.W.	,, 20
Eastwood and Mearns—Additional Water Supply	Renfrew County Council	W. R. Copland and Sons, C.E., 146, West Regent-street, Glasgow	,, 20
Mildmay Park, N.—Reconstructing Railway Bridge	London County Council	M. Fitzmaurice, C.M.G., County Hall, Spring Gardens, S.W.	,, 21
Arezzo, Italy—Dam Works	[illegible]	Ministero dei Lavori Pubblici, Rome	,, 21
Pretoria—Sluice Gates and Turbines	S.A. Department of Irrigation	The Chairman of Tender Board, P.O. Box 376, Pretoria	,, 22

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OUR ILLUSTRATIONS.

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National Gold Medal Drawings. Waterside Sketches, Poole Harbour. By Mr. Leslie M. Ward.

Welsh Church, Willesden-lane, W. Mr. John Murray, F.R.I.B.A., Architect.

House at Kilmaurs, N.B. Mr. James B. Fulton, A.R.I.B.A., Architect.

Royal Institute of British Architects Soane Medallion Competition, 1911. Hon. Mention Design for a Gateway to a Capital City. By Mr. C. Percival Walgate, A.R.C.A.

The Grey Friars, Canterbury. Drawn by Mr. H. G. Webb.

"A Courtyard School"—"Suggested New Type."

OUR LEASEHOLD SYSTEM.

The recent case of Lord Howard de Walden v. Lewis is in itself of no legal importance, as it decided nothing. It began with a libellous hoarding, and ended with the foregone conclusion of a farthing damages, with costs, and the poster withdrawn. All the well-paid actors in the passing drama enjoyed themselves thoroughly, and the reports made interesting columns in the Press. But this quarrel between landowner and lessee has done good by drawing a wide-spread public attention to the existing state of the law as to leasehold property. It shows once more that in our legal methods we greatly rely, by implication, upon the forces of human nature in the modification of binding contracts. Restrictive covenants are common in leases; but where a freeholder finds it to be to his advantage to waive them, he is generally willing enough to do so. Thousands of private houses everywhere have been converted into shops when the character of their locality changed, to the mutual gain of both lessor and lessee, although contrary to the covenants in their leases. The great outstanding point in the recent case is that, where a freeholder will not give way, even though it would be to his own interest, the Courts must enforce the contract, and have no power to modify its stringency. Mr. Lewis said that he had taken the law into his own hands to prove that property has its duties as well as its rights. But this, like many such general propositions, merely confuses the true issue. As between a lessor and a lessee, the rights and duties of each to the other are contained in the legal contract which both have signed. As regards third parties, however, other questions arise. The Common Law, which is not so devoid of great ideas as many people imagine, has always held up the public interest as a thing to be respected. The Courts refuse to enforce contracts which are contrary top public policy, in morals and in trade. If we substitute for the negative notion of what is opposed to the public interest the positive idea of the good of the community, we get to something which, in our modern world, requires, and will receive, full consideration. When, therefore, we weigh our leasehold system in the scales of justice as against the growing industrial and commercial needs of the community, we find that some modification of the old rigid method of construing contracts and covenants has become necessary.

It seems to us idle to say that the granting of leases is an entirely vicious contrivance of landowners that should be abolished for the good of the people. Without our leasehold system the growth of many towns and cities would have been hampered, if not made impossible, and the housing problem, bad as it is, must have become even more difficult of solution. A man who is willing to take a lease of land for building purposes is often quite unable to buy the freehold. The method of paying for the land by a ground-rent spread over a long term, with a reversion to the freeholder, has undoubtedly done good service in the way of encouraging the development of estates. The owner of the land in this way, or the financier behind him, finds capital, and gets it back in ground-rent. He also reckons the value of the reversion at the end of the term as a part of the price he receives. Without this reversion the ground-rent would have to be increased in order to bring about the same result. Yet it is because of this reversion that most of the annoyances and difficulties about leasehold property arise and are continued. The stringent and elaborate covenants to repair, uphold, maintain, etc., are inserted for this reason; while the restrictive covenants as to alterations, or the use of the premises, have a similar object in keeping the place in the same condition as when it was built. If freeholders gave up their right to the reversion, and adopted something like the Scottish system of feus—under which land is granted at a fixed rent in perpetuity, and the feuer is entitled to do what he likes with his holding, and make the best he can of it for himself—we should get rid of the incubus of the reversion. On the other hand, without any restrictive covenants to keep up, as far as is possible, artificially, the residential character of an estate laid out at great cost for dwelling-houses, there would at once be depreciation of values by reason of individual changes in premises. It would, however, be possible to provide some reasonable restrictions for this purpose without requiring the many onerous covenants now inserted for the preservation of the reversion. Nor should landowners nowadays lay too much stress upon this remote right to take back property at the end of a lease. Not only are changes in localities so rapid, unexpected, and impossible to foresee, but many modern buildings are so erected as not to be of great value at the end of ninety-nine years of wear and tear, even when duly repaired. The depreciation of land values in many places has already wiped out the importance of the reversion, while the profit that sometimes accrues to the owner upon land in course of time, must now be reduced by that duty payable to the State upon increment value, which, though it has so far only made a small beginning, is pretty certain to increase considerably. These are, therefore, some of the reasons why our old-fashioned leasehold system is not likely to work so well in the future as it has generally done in the past, and why it now requires careful reconsideration.

The financial question is always at the back of building, and it is upon the fair adjustment of this point that ultimate success must depend. It is, theoretically, far better that the owner or possessor of property should be his own freeholder, even though the necessary financing has to be done by means of mortgages. But the leasehold system of buying the use of land for a long term by payment of a rent which may be regarded as representing an instalment of its building value, with interest, has many advantages for all parties concerned. The capital required to buy freehold land, or the credit needed to be sure of good mortgages, are often wanting to those who, in other ways, are well able to deal with and develop an estate. The method of granting building leases is one we have grown so used to for so long a time, and one in which so many parties are interested, that it is not likely to be superseded yet awhile. Meanwhile, we have to consider the multitude of existing leases, and the defects in the law by which this matter is regulated. An obstinate landowner cannot now legally bar the progress of a railway line over his land, or of a public water supply; nor can he stop a local street-improvement. His rights in his property have been set aside by statute in cases of this kind for the good of the community. We have only to extend the same principle in practice to questions between lessors and lessees. As we have said, in the recent case what the defendant was really contending for was the public interest, as represented in his own person. As a party to the lease, he was bound by the covenants in the contract he had signed. But it would not have been in any way prejudicial to the plaintiff had these old private houses been turned into shops—indeed, it would have been to his present advantage, and to that of his reversion. The adjoining owners and occupiers had no objection, or were favourable, and, in fact, the residential character of the locality which had originally made the covenant necessary was practically at an end. This being so, should the landowner be allowed to enforce his restrictive covenant when to do so may reasonably be

[illegible] Dudley [illegible] to [illegible] and sto[illegible] the [illegible] but the hon[illegible] [illegible] Antwerp (67) by Mr. W[illegible] has merits and perhaps [illegible] M. G. Infestyn's [illegible] (110) Mr. P. T. P[illegible] Egyptian Temple seen by M[illegible] is somewhat ambitiously [illegible] Mr. G. C. Haite's "Moorish Sup[illegible] a satisfactory and well rendered sketch.

The subject pictures and portraits are [illegible] especially the latter as a rule. One of the best is Mr. D. G. Wells's "Cut Finger" (48); but the figures are very wooden. There are some merits in Mr. Joseph Simpson's "A Lyric" (55), a study of a woman; but the treatment suffers by exaggeration. "Sunshine on the City" (171), by Mr. Louis Weirter is a well-executed representation of the well known area bounded by the Bank, the Royal Exchange and the Mansion House. "An Old Town in Bavaria" (201), by Mr. Henry S. Rountwright is quiet and pleasing. "Atalanta's Race" (251), by Mr. John Fytte, has been worse rendered and better.

Of the architectural subjects, there are five by Mr. A. Wallace Rimmington as usual the best of their kind. "Alnwick Church" (290) is good, and so are "Giotto's Campanile at Florence" (354), "St. Stephen's Cathedral, Vienna" (355), "The Walls of Nuremberg" (360) and Morlaix" (397).

The Duke of Devonshire has presented to the Dean and Chapter of Worcester Cathedral a facsimile of the illuminated manuscript of St. Ethelwold's Benedictional of the 10th century, regarded as the finest specimen of its kind extant, the colours and gold used being as bright and beautiful as when they were laid on the parchment a thousand years ago.

It should be noted and borne in mind that the weight of the beam or slab is in every case included, and that the only reason for giving either formulæ or curves for obtaining this is in order that the supporting walls, pillars, or footings may be properly designed, as it will be seen that in Example 2 the beam itself forms more than one-third of the total load—viz., 22 as compared with 52 tons, and it is quite possible that the proportion might be even much higher. For instance, if the superload were only ¼ ton to the foot on a 10ft. span, the weight of the beam would amount to exactly two-thirds of the total.

The costs of materials given are necessarily approximate only, as prices will vary according to district and other circumstances; but they will be found to work out at a very fair average, and quite close enough for comparison with ordinary steel construction when preparing designs and preliminary office estimates for work.

THE ROYAL SOCIETY OF BRITISH ARTISTS

[illegible] pictures at the Exhibition of the Royal Society of British Artists, but the [illegible] spotlights [illegible] to be deplored. They help to fill the catalogue but they worry the visitor.

The landscapes predominate, and a few of them are well above the average. Sir Alfred East, the President, has two large ones (101 and 111), "A Cornish Valley" and "The Edge of the Farm." One of the best, if not the best, in the South West Gallery is Mr. F. Whitehead's "The Dorset Stour" (214). "A September Morning" (301) by Mr. W. H. J. Boot is attractive. There is, perhaps, a little too much of its title about Mr. P. H. Padwick's "Storm" (187), but at any rate beauty is not altogether sacrificed to force. Mr. L. C. Powell's "View on Lake Como" (105) will

REINFORCED CONCRETE DESIGN III.

By Richd. Coulson, Licentiate R.I.B.A., and Richd. Coulson, Jun., Assoc. R.C.Sc.I.

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In the following formulæ and diagrams the safe working or limiting stresses in materials have been fixed at about the points of maximum economy, assuming average 1:2:4 gravel or hard rock concrete and standard commercial steel. If, however, for any reason, higher or lower stresses are desired, their values can be inserted in any of the formulæ, and curves plotted for them.

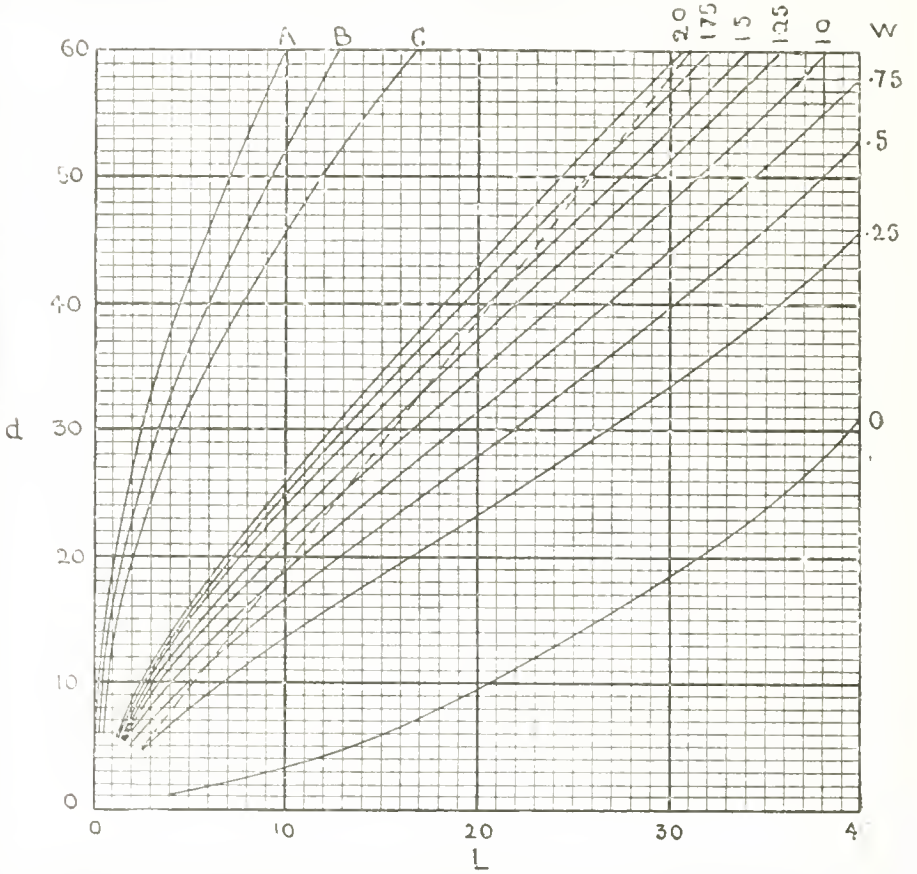


Diagram 3.—Single Reinforced Rectangular Beams with Uniformly Distributed Load. Ends freely supported. $m = 8$. For other values of m, multiply actual span by 2·83, $\div m$, and use as L. Beams to the left of the dotted line require stirrups.

It must help that vast number of professional men and workers who live and can only live by means of land building and its many allied trades. Some changes in the discretionary jurisdiction of our Courts as would enable them to make out those fetters of restrictive covenant, where justice and equity required, would undoubtedly work out well to the advantage of public policy and the good of the industrious community.

REDUCED WORKING FORMULÆ AND DIAGRAM 3, FOR SINGLE REINFORCED RECTANGULAR BEAMS WITH UNIFORMLY DISTRIBUTED LOAD, ENDS FREELY SUPPORTED.

t = ¾ ton per square inch, f = 7½ tons per square inch, c = 60lb. per square inch, s = 5 tons per

square inch, $r = 15$, $k = \frac{1}{2}$, $m = 8$, $w_c = 140$, $w_s = 490$. Approximate cost of concrete, including timber forms, 1s. per cube foot, and of steel, including labour and fixing, £3 per cube foot, or, say, £13 10s. per ton.

$$d^3 - .0177\,d^2\,L^2 - .0437\,d\,L^2 = 81\,W\,L^2$$

or— $$L^2 = \frac{d^3}{81\,(.00022\,d^2 + .00054\,d + W)}$$

the equation from which the curves are plotted, and which includes the weight of the beam

$$h = \tfrac{1}{2}\,d$$
$$D = d + 2\tfrac{1}{2}\text{in.}$$
$$A_s = .0027\,8\,d^2.$$

Stirrups must be used when d exceeds 1.93L.

Weight of beam per lineal foot:—

$$.00022\,d^2 + .00054\,d \text{ tons.}$$

Cost of beam per lineal foot, without stirrups:—

$$.00463\,d^2 + .0087\,d \text{ shillings.}$$

Cost of stirrups for beam:—

$$.00029\,d^2 \text{ shillings.}$$

For any other value of m, substitute $8\,L^2\,m$ for L^2 in the formulæ.

To use Diagram 3, plot the span of beam in feet L on base line, and using any curve W corresponding to the required load in tons per lineal foot, read depth d on left hand. Then, using d, read on base line, from curve A area of steel reinforcement A_s in square inches, from curve B number of 1in. diameter steel rods, and from curve C approximate weight of beam in cwts. per lineal foot, and approximate cost of beam in shillings per lineal foot.

The following examples will make this clear:—

EXAMPLE 1.

Assuming L = 10ft. and W = 2 tons per lineal foot. Then d = 26in., D = 28½in., b = 13in., A_s = 1.9sq.in., number of 1in. dia. rods = 2½, therefore three would be required, or four 15/16in. diameter might be used.

Weight = about 3¼cwt., and cost of beam without stirrups = about 3¼ shillings, or 3s. 3d. per lineal foot.

As this beam comes on left of dotted line, stirrups would be required.

From Diagram 1, page 304, article II., for depth of 26in. and f_s = 7½ tons, diameter of circular section stirrups = 7/16in. and from Diagram 2, on same page, $N\pi$ A_s = 3.1, which multiplied by A, gives $N\pi$ = 6, so that if n = 2, N will be 3. The distance to the first position from centre of beam will be $60\sqrt{1^2 - 3^2} = 34\tfrac{1}{2}$in., to the second position $60\sqrt{2^2 - 3^2} = 49$in., to the third $60\sqrt{3^2 - 3^2} = 60$in., or the spacing can be obtained by the geometrical method shown in Fig. 6 on page 305, when radius of generating curve or semicircle = 34½in.

If desired, stirrups of smaller diameter may be used when the number must be increased, so as to give the same total sectional area; thus, for 5/16in. diameter the value of $N\pi$ will be 24. Or rectangular-section stirrups may be used when their dimensions and number can be obtained by equation (19), page 303, article II.

Cost of stirrups for the whole beam = $.00029 \times 26^3 = 5/1$.

EXAMPLE 2.

Assuming L = 40ft., W = ¾ ton per lineal foot, and m = 12. Then, as the equivalent span $L = 40 \cdot 2.83\sqrt{12} \cdot 12 = 32.64$ft., d = 48in., D = 5 ¼in., b = 24in., A_s = 6.5sq.in., and the number of 1in. diameter rods = 8½, say 9.

Weight = about 11cwt. per lineal foot, and cost of beam = about 11 shillings per lineal foot.

No stirrups are required in this case, as the beam comes on right of dotted line.

REDUCED WORKING FORMULÆ AND DIAGRAM 4, FOR SINGLE REINFORCED RECTANGULAR BEAMS OF FIXED BREADTH WITH UNIFORMLY DISTRIBUTED LOAD. ENDS FREELY SUPPORTED.

f_c = ¼ ton per square inch, f_s = 7½ tons per square inch, s_c = 60lb. per square inch, s_s = 5 tons per square inch, r = 15, m = 8, w_c = 140, w_s = 490. Cost of concrete, including timber forms, 1s. per cube foot; cost of steel £3 per cube foot.

For a beam loaded with W tons per foot per inch of breadth:—

$$d = .009\,L^2 + \sqrt{.00008\,L^4 + L^2\,(10.5\,W + .044)}$$
$$D = d + 2\tfrac{1}{2}\text{in.}$$
$$A_s = .0056\,b\,d.$$

Stirrups must be used when d exceeds 1.93L.

Stirrups must be used when V exceeds $.024\,b\,d$.

Weight of beam per lineal foot:—

$$.00044\,b\,d + .0011\,b \text{ tons.}$$

Cost of beam per lineal foot, without stirrups:—

$$.0093\,b\,d + .0174\,b \text{ shillings.}$$

Cost of stirrups for beam:—

$$.00058\,b\,d^2 \text{ shillings.}$$

The use of Diagrams 4 and 5 is similar to that of Diagram 3, except that for Diagram 5 the bending moment must first be calculated, and that in either the total W or M respectively must be divided by the desired breadth of beam in inches, as illustrated by the two examples below.

The Reinforcement, Weight, and Cost

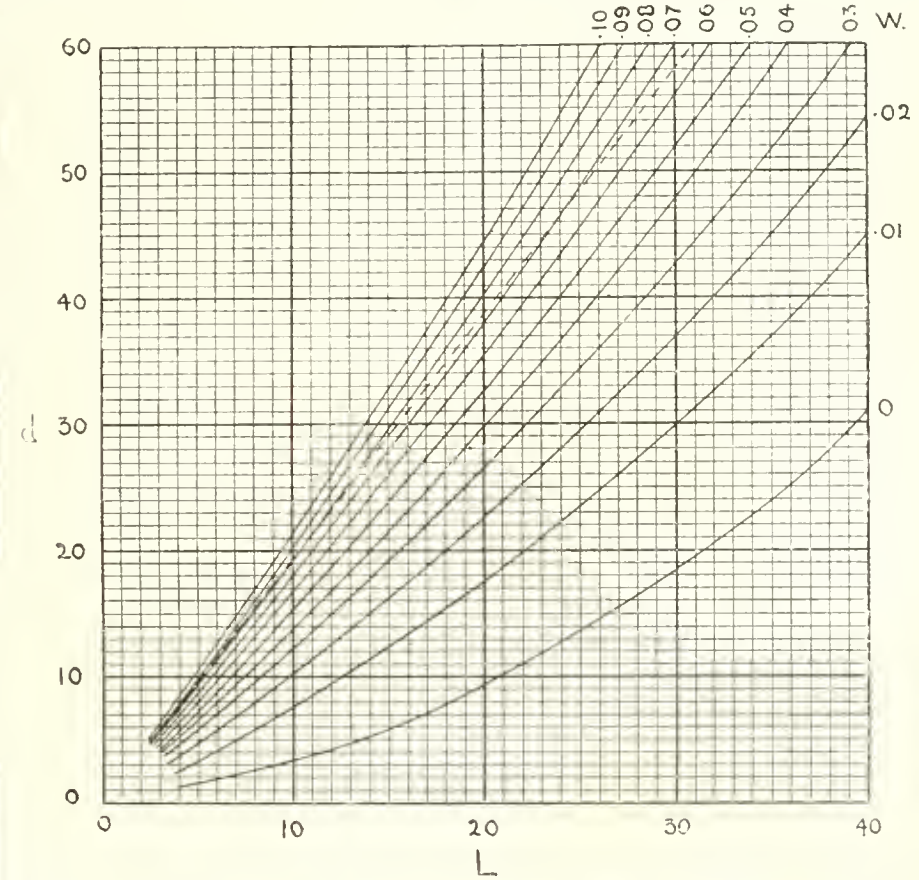


DIAGRAM 4.—Single Reinforced Rectangular Beams of Fixed Breadth with Uniformly Distributed Load. Ends freely supported. $m = 8$. For other values of m multiply actual span by $2.83\sqrt{m}/m$, and use as L. Beams to the left of the dotted line require stirrups.

Weight of beam per lineal foot:—

$$.00044\,b\,d + .0011\,b \text{ tons.}$$

Cost of beam per lineal foot, without stirrups:—

$$.0093\,b\,d + .0174\,b \text{ shillings.}$$

Cost of stirrups for beam:—

$$.00058\,b\,d^2 \text{ shillings.}$$

For any other value of m, substitute $\frac{8\,L^2}{m}$ for L^2 in the formula for d.

REDUCED WORKING FORMULÆ AND DIAGRAM 5, FOR SINGLE REINFORCED RECTANGULAR BEAMS OF FIXED BREADTH WITH IRREGULAR LOADING.

f_c = ¼ ton per square inch, f_s = 7½ tons per square inch, s_c = 60lb. per square inch, s_s = 5 tons per square inch, r = 15, w_c = 140, w_s = 490. Cost of concrete, including timber forms, 1s. per cube foot. Cost of steel £3 per cube foot.

For a beam with maximum bending moment of M tons-inches per inch of breadth:—

$$d = .009\,L^2 + \sqrt{.00008\,L^4 + .0437\,L^2 + 27\,M}$$
$$D = d + 2\tfrac{1}{2}\text{in.}$$
$$A_s = .0056\,b\,d$$

curves are, for clearness, omitted from these two diagrams, but the values can be readily obtained by the formulæ accompanying them.

EXAMPLE 3.

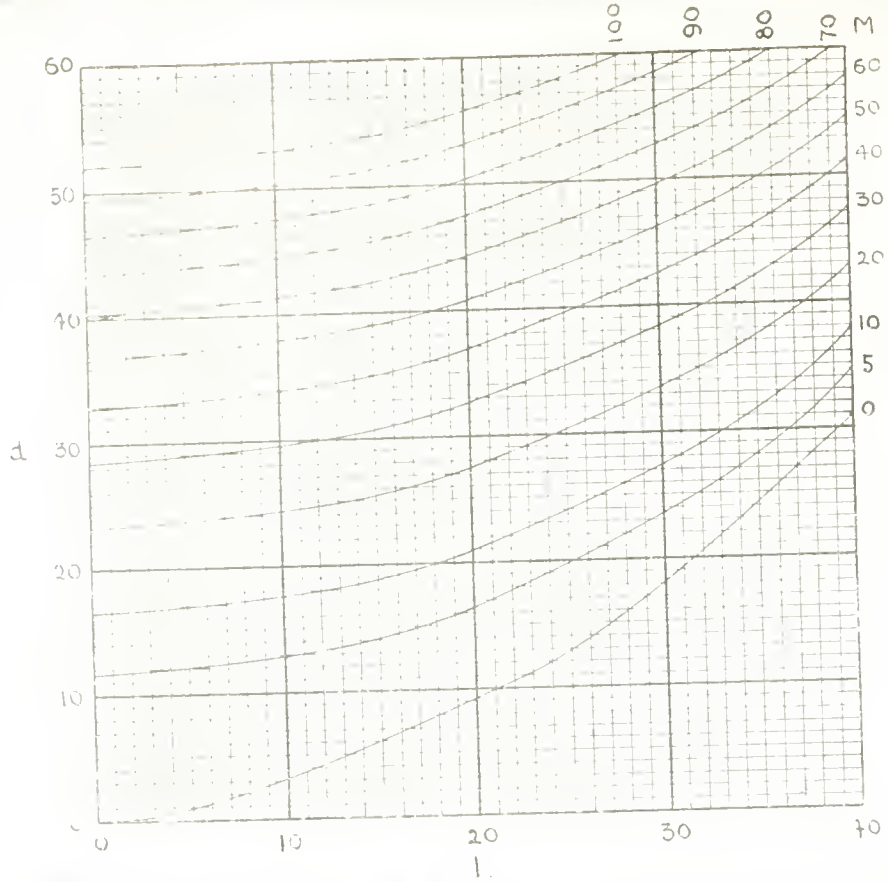
A bressummer for a shop-front has a span of 20ft. and a superload of 25 tons, due to an 18in. wall, carrying floors and roof over. Its breadth will be fixed by the thickness of wall, so that, dividing the load by 20 and by 18, we get .07 tons per lineal foot per inch of breadth. Therefore L = 20 and W = .07. Applying these to Diagram 4, d = 38in., and, by formulæ given above, A_s = 3.83sq in., weight = about .32 tons or 6.4cwt., and cost = about 6.67 shillings, or 6/8 per lineal foot.

No stirrups would be required, as it comes just on right of dotted line.

EXAMPLE 4.

A beam of 30ft. span is required to support a pillar 10ft. from one end, transmitting a live or super. load of, say, 15 tons. The maximum bending moment due to this concentrated load is

$$\frac{15 \times 10 \times (30 - 10) \times 12}{30} = 1{,}200 \text{ tons-inches}$$



Reinforced Rectangular Beams of Fixed Breadth with Irregular Loading.

[illegible] be used assuming the beam [illegible] with M = 40 t. ins. inches per square inch.

[illegible] and the equations [illegible] 12 in. D = 15in. [illegible] weight about 594 tons, [illegible] 1228 bolts.

[illegible] 1024 bolts suppose a [illegible] but they are frequently [illegible] a reasonable factor [illegible]

[illegible]

ROYAL INSTITUTE OF BRITISH ARCHITECTS

[illegible] meeting of the Royal Institute [illegible] Architect was held on Monday [illegible] Council, Mr. W. [illegible] The death [illegible] Mr. Alfred Bee Cotton [illegible] Associate, on the President [illegible] Associateship and but the Students [illegible] death through [illegible] Mervyn Cotton [illegible] being and Associate [illegible] accepted [illegible] Associate [illegible] Associate [illegible] Associate [illegible] Mr. [illegible] Associate [illegible] Associate [illegible] Associate

and, perhaps, a corresponding little deducted from that of Inigo Jones. In speaking of the architects in the reign of George II., Horace Walpole says: "It was in this reign that architecture resumed all her rights. Noble publications of Palladio, Jones, and the antique recalled her to true principles and correct taste." Many of the drawings for those noble publications are in the Institute collection, for it was the well known Lord Burlington who, directly or indirectly, produced the publications, and the drawings—which were, on the whole, carefully preserved, have now found a resting-place within these walls. The works of Jones to which Walpole refers were, no doubt, those comprised in the two volumes of William Kent, published in 1727. The first volume contains seventy-three plates, of which the first fifty-two are devoted to the great palace at Whitehall; the next ten to windows, doorways, gate-piers, and a design for Temple Bar. All these are credited to Jones. The remaining eleven plates are devoted to designs by Kent himself, for chimney-pieces and internal decorations, and to Lord Burlington's designs for his villa at Chiswick. Of the designs attributed to Jones, the Institute possesses no originals of any of the Whitehall series; of the other ten plates we have the drawing of Temple Bar, and perhaps of one doorway. In regard to Temple Bar, we have the careful drawing used by the engraver, P. Fourdrinier, and also a preliminary sketch which, if not entirely the work of Jones, was almost certainly endowed by him with its panels of sculpture. On the back of the finished drawing are further sketches for the sculptured panels. There is yet a third drawing, intrinsically less interesting than the other two, inasmuch as it merely shows the construction of the brick core of the building, but yet of much interest as being signed by Inigo Jones beneath the following note, "Purfill [profile] of the Arch tempell barr how the brickwork is to bee within, 1638." The finished drawing may be by Webb, and the panels on the back by Jones. The second volume of Kent is of more interest to us, inasmuch as we have the originals of nearly all the plates. There are sixty-three plates, of which the first fifty are of houses and palaces attributed to Jones. Then follow three of Lord Burlington's work, and three of the west front of St. Paul's. The last seven are of a church attributed to Palladio. The plates representing Jones's work are inscribed at the foot, in the left-hand corner, "I. Jones, architectus"; in the middle, "H. Fliteroft, delin"; and in the right-hand corner, "H. Hulsbergh, sculp." Hulsbergh, therefore, engraved them about the year 1727 from drawings made by Fliteroft. But where did Fliteroft get his particulars from? Jones had been dead seventy-five years. Did Fliteroft, or Kent, or someone on their behalf, go about the country and make measured drawings of buildings known to have been designed by Jones? If not, whence did they get their material? Fortunately, we are able to answer this question, for we have not only Fliteroft's carefully-finished drawings, but also, in nearly every case, the original drawings which he transcribed. These original drawings, then, you will say, must be the work of Inigo Jones. In them we shall see the ideas of the master more or less roughly conveyed—ideas which Fliteroft put into neat and careful form for the engraver. Here comes the interesting point. None of the drawings are signed; many have no writing upon them. A few, however, have notes—dimensions, calculations, notes as to the proportions of the rooms and of the columns; one or two have the names of the rooms written on the plan; one has the name of the man for whom the house was built; another has a name in a later handwriting. There are corrections and alterations on some of the plans. The general impression conveyed by the drawings is that they were being designed by the draughtsman as he worked. So far as the evidence of the writing and drawing goes, the draughtsman was not Inigo Jones, but John Webb. Except one house (with plan and elevation), there is nothing among these drawings to suggest that Jones inspired Webb in any sort of way. A much more obvious source of inspiration is Palladio's "Architecture," wherein are many plans and elevations; and the general similarity between these and the designs prepared by Webb is obvious to anyone turning over the pages of Palladio. We now come to the question of King Charles's block at Greenwich, upon which the Burlington-Devonshire drawings throw much interesting light. The main buildings of the great hospital at Greenwich comprise five principal blocks. There are, first, two blocks (called after King Charles and Queen Anne), end-on to the river front, with a vast court between them. Beyond these are two other blocks with colonnades, each having a dome at one angle. Beyond these, again, on the main axial line, but at some distance, is the fifth block, called the Queen's House. This house was the first part to be built, and it has always been attributed, no doubt correctly, to Inigo Jones. It was finished in 1635 for Queen Henrietta Maria, wife of Charles I. Among those Institute drawings which may safely be attributed to Jones are several chimney-pieces for this house, bearing either the actual name or the cipher of the Queen, and dated, in some instances, 1636, 1637. There is no evidence that any complete scheme for a large new palace was prepared by Jones or anyone else during his life-time, although some writers have assumed that there was such a scheme. At the time of the outbreak of the Civil War, therefore, the palace of Greenwich consisted of the old building near the river, and the new Queen's house at some distance from it. Nothing more was done during the life of Charles I.; nothing was done during the Commonwealth. But shortly after the Restoration, and ten years after Inigo Jones's death, Charles II. built the first [or eastern] half of the present block called by his name. The plans and elevations of the building itself and drawings of chimney pieces, doorways, and ceilings to embellish it are in the Institute collection, and they are all drawn by Webb. There is nothing connected with this block that can be assigned to Jones. It is, however, a curious fact that the design of this building has always been attributed to Jones, although it was said that Webb carried it out from his master's designs. If we accept the ordinary rules of evidence and judge by what we see, and exclude hearsay, the credit for the design of King Charles's block at Greenwich must be transferred from Jones to Webb, unless, indeed, we feel ultimately compelled to retransfer it to Palladio. For on plate 12 of the second book of Palladio's "Architecture" is the detailed elevation of a house at Vicenza, built by the Counts Valmarana, to which Webb's elevation of the end blocks of his building bears a striking resemblance. Webb himself bears, incidentally, in his "Vindication" (1664) some testimony in relation to this matter, for among the buildings which he cites as being of Jones's design, he mentions the Queen's house at Greenwich, but gives no hint of anything else there; and expressly states that Jones was prevented by death from "doing His now Sacred Majesty any actual service." Mention has been made of certain drawings of chimney-pieces, ceilings, and doorways drawn by Webb for Greenwich. Many of indicate for what rooms they were intended, and the sizes of the rooms are given, thus enabling us to identify all the principal rooms of the main floor. From the way in which these drawings are interdependent, we are led to the same conclusion—that Webb was actually the designer of the building. When an examination of these drawings and those of the sister collection at Worcester College has rendered one familiar with them, it is not difficult to distinguish between the draughtsmanship and writing of Jones and those of Webb, and the conclusion forced upon the mind is that even in the present day much that is really Webb's has been attributed to Jones. It may, of course, be replied that the hand is the hand of Webb, but the inspiration is that of Jones. To which I respectfully answer, Produce the evidence. It is by no means my desire to decry Inigo Jones, or to start a crusade against his reputation. There is no wish to suggest, for instance, that John Webb was the first and greatest of architectural ghosts, and was exploited by his famous master. But it is only right that the evidence of these drawings should be carefully weighed, and one result, I cannot help thinking, will be the conclusion that John Webb was not merely a pale shadow of Jones, but that he was a man of remarkable independent ability. Wren, too, it would seem, may have to share some of his fame with his less celebrated predecessor. Careful study of these drawings renders necessary the rewriting of the history of the earlier buildings at Greenwich.

Mr. John D. Crace, in proposing a vote of thanks to Mr. Goteh, said if anything would add to the unmitigated satisfaction with which he looked back on the obtaining of the gift of trust of these drawings for the Institute, it would be the charming paper to which they had just listened, one which threw much light on the drawings and the history of English architecture in the 17th century. He thought that Mr. Goteh had proved his points, and had established the right of John Webb to a higher place as an architect than had previously been recognised. He should like to know whether, if Webb's plan for Greenwich had been carried out in its entirety, how affected the arrangement of the buildings would have been, and especially the present axial line through the vast courtyard. It seemed that all the great works of the earlier half of the 17th century were attributed to Inigo Jones, just as the jokes of the first half of the 19th century were fathered upon Sydney Smith; but, as a matter of fact, the fame of Inigo Jones needed no bolstering up with the credit of buildings later than his own day. Mr Crace added that he was surprised to hear that some foundations of the older block of buildings—in which Queens Elizabeth and Mary were born, and in which Edward VI died—still existed in the cellars of Queen Anne's building at Greenwich, for he had an early and intimate acquaintance with the Palace, inasmuch as his grandfather was for fifty years associated with the building.

Mr. Lawrence Weaver, F.S.A., seconded the vote of thanks. The argument that the authorship of some of the buildings at Greenwich must be attributed to Webb because the handwriting on the plans and elevations resembled his should be a warning to present-day architects not to allow their assistants to add notes, or even lettering, to drawings, lest in subsequent years the credit of the design should be claimed for them. In the accounts of Charles II.'s time there ought to be found some reference to John Webb, if he was really employed as architect at Greenwich. In the absence or sparsity of contemporary documents, he thought, however, we should attach some weight to oral tradition, which ascribed the work to Inigo Jones. Taken as a whole, 17th century architectural drawings were somewhat unreliable, and rarely did justice to the buildings they portrayed.

Mr. Ryland Adkins, M.P., speaking as a mere man in the street, thought it at least plausible that, in accordance with the general tendency of the early years of the 17th century, a great scholar like Inigo Jones would take more delight in his free-hand drawings of figures and statuary than in the formal and technical designs for his buildings. It seemed that many of his drawings were executed about 1629 to 1641, when it was notorious that Charles I. found it impossible to obtain resources to carry out his ambitious projects, and it was probable that after the Restoration there was a great desire to carry out the schemes devised in the times of the previous monarch. Indeed, in the days of Charles II., there was a strong disposition to extol as superior the architects of his father's days. This consideration supported the arguments advanced by Mr. Goteh, and suggested the possibility that there was a willingness to attribute the works of Webb to his gifted uncle, Inigo Jones.

Mr. J. P. Main, the librarian at Chatsworth, said Inigo Jones's freehand drawings were, as Mr. Goteh had suggested, infinitely better than his more formal efforts at technical draughtsmanship. He had at Chatsworth the sketchbook used by Jones during his journey to Italy. It contained pen and ink sketches of details of buildings

or portions of noteworthy paintings jotted down as they struck his fancy. His own designs were drawn in pencil with far less vigour and power, and had been subsequently inked over. Dr. [illegible] Ashby had pointed out that there seemed to be at least two hands at work on the drawings in this sketchbook. Was it possible that some were by John Webb? He would suggest that the water marks on the paper, the paleography, and, above all, the ink, would be valuable clues as to the date of the first title drawings.

Mr. C. R. Peers remarked that the period when Inigo Jones flourished was a critical one in English architecture; we had broken with the old traditional modes of buildings, and a superficial knowledge of Italian art, to be presently superseded by German influences, was affecting our architecture. Jones did not give us a vernacular style, but he evolved order out of confusion. His design for Whitehall was an extraordinary inspiration. Webb was an ordinary English architect, influenced by his employer's work, but not of the same calibre of mind. When one began to attack the reputation of a noted architect, it seemed difficult to know where to stop. This much must be conceded, that both Inigo Jones and Wren were able to train a school of men who carried on successfully the traditions of this work.

Mr. Gerald Horsley supported the vote of thanks.

Mr. Maurice B. Adams said he had been familiar with drawings of this class, such as the Devonshire-Burlington collection of drawings, for many years. A well-known architect remarked to him, when looking at some drawings by Inigo Jones, that if they had been turned out by a man in his office, he should have pointed out to him that he had missed his vocation in life. Such criticism missed the real spirit and value of the whole thing. As shown to-night on the lantern-screen, the drawings were necessarily so magnified as to appear unduly coarse, and when they had the opportunity to examine them at leisure in the Institute Transactions, they would find them so reduced in scale as to be made thin and sparse. The fact was, these drawings had a great interest and value, as they were made simply as a means to an end, the mere drawing being of secondary importance, while the artist strove to feel his way to designs as he expressed himself, and strove to also express the texture as well as the forms which he was delineating.

The President, in putting the vote of thanks, remarked that if Mr. Gotch's extremely plausible theory was correct, John Webb is the nearest approach to an architectural ghost of which he had any knowledge, for his work seemed to have been carried out after the death of Inigo Jones, to whom the merit of the buildings had hitherto been credited.

In his reply, Mr. Gotch said the axial line of the blocks at Greenwich was older than Webb's time, and had been maintained in all the subsequent work. It had been suggested that the curious perspective of the ceiling at Wilton, as viewed from below, was Jones's, and not Webb's; but plenty of examples of similar draughtsmanship were to be found in the works of Palladio. He admitted that oral tradition was very powerful; but, as Mr. Crace had suggested, there was a tendency to ascribe to well-known men some of the credit due to others. As to Whitehall, the banqueting hall was not originally a part of a still larger design, but additions were subsequently devised to be added to this hall. If they examined the drawings of Palladio, they would see that his work has the source and inspiration of many of the sketches and plans preserved in this collection.

A Select Committee of the House of Lords passed on Tuesday the preamble of a Bill promoted by the London, Tilbury, and Southend Railway Company for the erection of two electricity generating stations, one at Tilbury and the other at Thames Haven. When Parliamentary sanction was given nine years ago to the company to electrify their lines, only some portions of the system were electrified, and it is now proposed to electrify the remaining parts, under the superintendence and from the plans of Mr. Robert Hammond.

WHERE SHALL WE LIVE, AND WHY?

Architects—especially those consulted by Londoners and the toilers in other large towns are often puzzled what to say when the above question is put to them. It is as easy, and practically as futile, to tell a client who has bought a site in some localities the absolutely necessary and most desirable requirements for health and comfort, as for the doctor to recommend the Riviera to a pauper consumptive!

There are districts round London which were always either hideous or unhealthy, or have been made so, where the man who is compelled to live there should be seriously warned that he must regard himself as the tenant of a veritable "Castle Perilous," outside of which disease and discomfort can only be kept at bay by the care of the builder and the wise and punctual observance of the strict rules of health and sanitation by the dweller therein.

There are others where the wise man would gladly seek his abode, and where his architect would joyfully hail the natural advantages which insure the healthful and the picturesque, but which are, or have been practically inaccessible. One of these, till comparatively lately, was "The Beautiful North West," stretching from Wembley through Harrow and Rickmansworth, and Amersham, and Wendover to Aylesbury in the north, and by Ruislip and Gerrard's Cross, Beaconsfield, and Wycombe to Princes Risboro' in the south.

How many of us, tramping it, or driving through some of the lovely surroundings of these favoured spots, have dreamed of the home we should like to build or seek there; but woke disappointedly to the impossibility of reaching town for the day's stint of the breadwinner?

Thanks to the Great Central Railway, that is no longer the case. Thanks still more, the district has been made accessible without ruining it. Londoners have found that out, and, among the welcome signs of revival in the building industry are the demands being made for dwelling-houses for all classes, from the mansion of the well to do citizen, who motors a mile or more to the station in the morning, to the cottage of the clerk, who finds health for himself and his family, and studies economy in the most practical fashion by moving from the "suburb" which has become a smoky and over-built desolation, into the real "country," which there is now some reason to hope, thanks to the Town-Planning Act, will not be sacrificed to the greed and ignorance of mere speculators. There are not many environs of London, unfortunately, about which so much can be said as the district which is bounded by the two routes of the Great Central just mentioned.

There are none where the primal requisites of a wholesome, beautiful home abound in such frequency and in variety to suit all tastes and needs. None where occasion awaits more impatiently the wisdom to take it by the hand and make *real* "garden cities"—not piecemeal make believes which sadly disenchant some of us who have been called on to admire their box-like kitchens and narrow stairs. None where the man who, after all, desires his own "home" may hope to build and enjoy it without the horrible discovery in a year or two's time that the "Knackers' Catsmeat Company" has bought the adjoining old mansion and grounds for a new butchery, or that the enterprising neighbouring town is about to erect a huge block of workmen's dwellings on the field opposite.

That is why the advice of many of us is being sought, thanks to the enterprise of the Great Central. To our clients individually we shall, of course, give advice to the best of our ability, in accordance with their several needs. To the many who have already made up their minds to go site hunting and house seeking in the healthy localities served by the Great Central routes we offer a few reminders, which, trite as they may seem to those we more usually address, are for the most part ignored by the mass of home finders.

First as to soil. Best of all is gravel, or gravel on chalk, if above the water level. Probably nowhere along so comparatively limited a line of route near London can this be found as at many points the Great Central touches. They are indicated elsewhere in the useful local data which precede the description of each place. But it is quite possible in certain situations—as at Harrow, for instance—to build satisfactorily on the clay, if proper precautions are taken, and such a house will be far drier and healthier than a house built on gravel or chalk where bad foundations and low situation favour the permeation of moisture up through the basement when winter fires are lit. Next comes aspect. A house with windows on the east and west is best because the early morning and late evening sun is thus caught, and the intense heat of midday avoided. Only, as a rule, in comparatively unbuilt on neighbourhoods can the buyer choose his aspect, and nowhere with greater facility than in the "Beautiful North-West" which the Great Central serves.

Other things being equal, altitude is desirable. The air is purer and more exhilarating. From 250ft. to 1,000ft. one or the other of the localities herein described rises, affording every intervening situation to suit various tastes and temperaments.

Sewerage and drainage are "necessary evils" everywhere. In few districts can they be secured so innocuously as in those which are here set forth. Good cheap water can be had everywhere. Light—electricity or gas—is mostly available at moderate rates, and cheap coal—that indispensable necessity to the householder, and especially to the well-to-do man, who in isolated situations finds it pay him better to make his own gas or electricity—is always to be had.

Lastly, there is the burning question of the day—Rates! They are nearly everywhere low by comparison, and one may well count on their remaining so. The local authorities, as a rule, are unshackled by big debts contracted in the past to pay for extravagant schemes and useless projects. Let the man who is induced by the new facilities afforded by the Great Central make up his mind to help keep them so by taking his part as a citizen in the local life of the place in which he builds or selects his home. Let him help to steer the middle course between the niggardliness which shortsightedly hesitates to make the most and best every way of a rising neighbourhood and so attract solid and satisfactory residents, and the ignorant or self-seeking folly that squanders huge sums on futile fads, burdening the inhabitants with high rates in perpetuity and driving away all who can migrate to towns where a more businesslike régime prevails. Then, indeed, as the facilities of the Town-Planning Act are properly understood and utilised, we may hope to see these favoured sites covered with towns and villages, growing year by year more beautiful, and adding new features of interest and attraction to the historic memories that enrich so many of them.

THE ARCHITECTURAL ASSOCIATION SKETCHBOOK.

The volume for 1910 of this useful Sketchbook, issued in four parts, has just been published, and the character of the drawings, as well as the subjects chosen for illustration, are well maintained under the editorship of Messrs. Gerald Horsley, Theodore Fyfe, and W. Curtis Green. The title-page is occupied by a large sketch of a famous German 15th-century goblet, with a highly-elaborate architectural cover, drawn by Mr. William T. Benslyn. There is little attempt to produce a regulation frontispiece, and perhaps, after the more recent endeavours in that direction, it may be as well for once, to make this departure. Of the seventy-two plates, forty-one are devoted to English work, headed by a very complete monograph by Mr. F. H. Swindells, of Borwick Hall, Lancashire (1560—1650), an interesting Tudor style house, with typical detail, a gate-house, and terraces all excellently drawn in a workmanlike way. The current fancy for washing in studies with colour hampers their reproduction, and confuses them in detail. Mr. Hepworth's drawings of Bury St. Edmund's Abbey gateway illustrates this difficulty, giving the carving rather a woolly appearance. Trinity College Library, Cam-

rbridge, shown by Mr. C. D. Carus Wilson, is better adapted to a monochrome study, while the architectural lines lend themselves to tint, and though the shadows on the glass in the upper stages may be correct, they hardly look so. The pencil studies by Mr. F. L. Griggs, from Ely and Cambridge, are from the "Highways and Byways" of that part of England, lent by Messrs. Macmillan. If a trifle overwrought, they are both feelingly and correctly delineated in a capably artistic manner. Mr. Frank Lishman's water-colours we have previously noticed, and his N. transept of Canterbury Cathedral, "where Beckett fell," is a good example of his handling. Claypole Church, Lincs, by Mr. J. L. Berry, the noble tower of St. Peter's, Howden, Yorks, by Mr. J. B. F. Cowper, who also contributes the measured drawings of the Chapel of St. Leonard, Kirkstead, Lincs, and the rood screen, Kenton Church, S. Devonshire, by Mr. William T. Benslyn, are all exceedingly good, and merit much praise. The steeple of St. Bride's, Fleet-street, is nicely drawn by Mr. Walter L. Clarke, but the Wellington Monument in St. Paul's does not show to good effect in the reproductions of Mr. J. M. Whitelaw's pains-taking coloured studies, though his four plates of details and mouldings are quite satisfactory, and most certainly all well worth having. The west portico of St. Paul's Cathedral makes a capital subject for a well-worked-out series of drawings by Mr. A. F. E. Poley, forming a feature in "the studentship part." Peterstone Church, by Mr. W. Arthur Rutter, and the Saxon tower and Early Church at Sompting, Sussex, by Mr. F. A. Crouch, though so different, add much to the interest of this volume. St. John's House, Warwick, may also be named for its individual charm, as a small example; but the elevation by Mr. A. E. Maxwell was not adapted to photolithography. The foreign examples are varied and well chosen, with not a few specially good contributions, such as Mr. Cyril A. Farey's plates of the Hotel Carnavalet, built by Mausart, about 1661, in Paris, Mr. Hepworth's Rouen Cathedral studies. Mr. A. E. Martin's Manoir D'Ango Pigeon-House. Also we praise Mr. C. Gascoyne's beautiful studies of ceilings at Genoa. St. Sophia, Constantinople, drawn so fully and well by Mr. J. B. Fulton, would alone make any volume valuable.

TOWN-PLANNING EXHIBITION IN EDINBURGH.

Under the supervision of Professor Geddes and his assistant, Mr. F. C. Mears, an exhibition of town planning has been brought together in the Galleries of the Royal Scottish Academy at Edinburgh, and was formally opened on Monday by the Lord Provost. It is to remain open for three weeks, and conferences are being held in connection with it.

In the entrance-hall are prints showing the growth of primitive towns, in their pastoral and agricultural stages, including pictures of Grecian, Roman, and Eastern cities.

In the North Octagon is displayed a fine collection of coloured prints, of which a "find" of about 100 was made recently in a shop in Edinburgh, chiefly of Mediæval Continental walled towns, in which the usual features of the public life of the times are suggested in the Castle, the Cathedral, and the houses of the craftsmen and common people. Over this group is a large frieze picture by Mr. Eric Robinson, artist, showing Mediæval Edinburgh, with the Castle on the rock, the houses on the saddle extending as far as the Netherbow Port, with an unbuilt space between that point and the Holyrood Abbey, with the little village of Canongate under its sheltering protection. In prints of Saffron-Walden, Essex, and of Winchester in feudal times, the same arrangement of Royal Castle, Cathedral Church or Abbey, and dwelling houses curiously resembles that of the capital of Scotland. Not far off are a set of designs showing that the arrangement of houses on the rectangular or "gridiron" system, so common now in American cities, and partly observable in the New Town of Edinburgh, is of ancient origin—the views shown including Jerusalem, Babylon, and Batavia. There are county maps exhibited, dating from the Reform Bill of 1832, which tell the tale that after the extension of burgh boundaries, without municipal supervision such as is now desired, suburbs grew up in a haphazard manner.

Another series of plans illustrate two different methods which have been followed in different parts of the world in improving old cities by clearing away old property and constructing new streets. The first is the radiation plan, where a great number of streets converge on a large central square or circle, or have for axis some important public building. Many examples of this are to be seen in Paris, conspicuous among them being the Arc de Triomphe, forming the centre of an "Etoile" of many rays. The other method is illustrated by such plans as those of Boston and Philadelphia, where geometric symmetry has not been followed, but where it has been sought to conserve all the natural beauties of the contour of the ground. Maps of Paris of the Revolutionary period, and later plans showing the laying-out of modern Paris by Baron Haussmann, are also on the walls. Plans of London which were prepared, but never executed, after the Great Fire of 1666 for the rebuilding of the destroyed area on well-designed lines, are exhibited.

By plans hung in the Second Octagon, the scheme of operations connected with the extension of the London Docks, at a cost of some fourteen millions sterling, are thrown into sharp contrast with what is being done in the construction of docks at Frankfort-on-the-Maine. A large model is displayed of the lands of Rosyth, now owned by the Admiralty, showing their relation to the docks and to the Forth Bridge. In the "hinterland," however, there is as yet no sign of the promised "garden city." Another model is that of a scheme of cottage dwellings, by Mr. W. D. Telfer, in connection with the development at Buckhaven and Methil of the Cameron estate 40 acres or so in extent; and there are plans of improved dwellings at Wemyss; of the garden suburb of Gourock, which is being carried out by private enterprise; and of schemes of town planning at Dundee, Troon, and Pollokshaws. The method in which a town-planning scheme should be set about is also illustrated.

The Inner Gallery is wholly devoted to pictures and plans illustrating the growth of the capital of Scotland from the earliest times.

UNDERGROUND WATER RIGHTS.

At the Surveyors' Institution on Monday a paper was read and discussed on "Judicial and Parliamentary Decisions with Regard to Rights in Underground Water since 1907." The authors were Messrs. W. Vaux Graham, M.Inst.C.E., A.S.I., and Harold F. Bidder, A.S.I., barrister-at-law. Four years ago they read a paper before the Institution upon underground water, and in this they attempted to show that the law upon the subject, particularly in relation to the pumping of water in large quantities by distributing bodies, was very unsatisfactory, and had its origin in a state of things wholly different from the present, that in old days a virtual disregard of the injury that might be caused by the abstraction of underground water might have worked well enough as a compromise between the conflicting claims of adjoining landowners, the population being comparatively scattered, and powerful pumps not having been brought into use; but that now, with our enormous centres of population requiring water, the increased need of water even in country districts, and the use of machinery capable of extracting immense quantities, the law had completely broken down. It was also suggested that public opinion was moving in the direction of a change as the result of which some right in underground water other than the flowing in a defined and known channel would be recognised.

The last four years had seen a very considerable development of this movement, and the main purport of last Monday's paper was to examine this development in the light, first, of the decisions of the courts affecting the subject; next, in the action of Parliament in dealing with water Bills; and, finally, in Lord Desborough's Water Supplies Protection Bill of 1910. While this latter measure no doubt required modification, the authors still regarded it as a plucky attempt at constructive advance. The Select Committee which reported on the Bill, and secured its rejection, laid great stress in their report upon the necessity of creating an organisation empowered to inquire into the whole question of surface and underground water supplies from a comprehensive standpoint, to supervise the future allocation of supplies, and to serve as an authoritative adviser to Parliament in the consideration of particular schemes. They accordingly recommended the appointment of a central authority to collect information as to the water needs and water supplies of various parts of the country, and the division of the country into watershed areas with local representative boards under the central authority, who should prosecute systematic and continuous inquiries into the water supply of their jurisdiction, take all necessary steps to husband such supplies, both surface and subsoil, secure their preservation from pollution, and advise on their allocation for sanitary, industrial, and other purposes.

With such recommendations the authors heartily agreed. But the establishment of such bodies was still an ideal of the future, and, in the meantime, all parties appeared to be agreed on the necessity for careful inquiry before large water schemes involving extensive pumping were carried out. It was to the ensuring of such inquiry that legislation should now be directed.

RUSTING OF STEEL INSIDE CONCRETE.

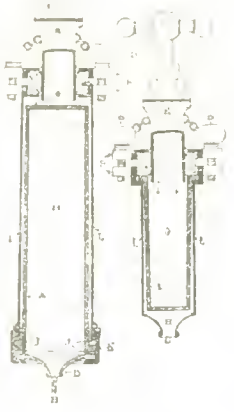
A circular letter was issued at the beginning of 1909 by the Concrete Institute, asking for the results of experience and examination on the question of whether rusting of steel takes place when covered by concrete. The letter was sent to 1,000 engineers and others engaged in concrete construction, and 111 replies were received. Forty seven contained results of definite observations. In these the writers gave 26 cases of rusting which had come under their notice, and 43 cases where no rusting had been found. An abstract of the replies giving definite observations is given.

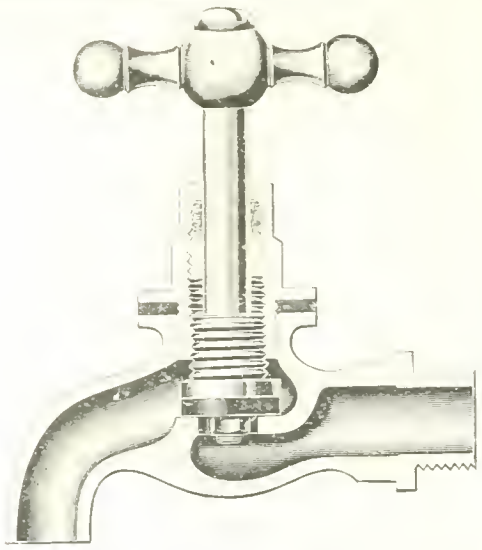
As a result of these observations and investigations, the committee have drawn the following conclusions. Reinforced concrete will last as long as plain concrete in any situation, provided that certain special precautions are taken during its construction. The precautions to be taken are as follows:—

Concrete.—The materials (cement, sand, and stone) must be of good quality. They must be most carefully and thoroughly mixed and scientifically proportioned, so as to be practically water-proof and air proof. The mixture must be fairly wet, and must be well punned into position, so as to minimise voids. The aggregate should be as non-porous as possible, and any aggregate which is known to have a chemical action on steel should be avoided. The aggregate should all pass through a ½in. mesh. The concrete covering should in no case be less than ½in., and it is suggested that if round or square bars be used, the covering should not be less than the diameter of the bar. In structures exposed to the action of water or damp air the thickness of covering should be increased at least 50 per cent., or the size of the aggregate should be reduced so as to insure a dense skin. In the case of structures exposed to very severe conditions, the concrete might be covered with some impervious coating as an extra precaution.

Steel.—The reinforcement should be so arranged that there shall be sufficient space between one piece and its neighbour, to allow the concrete to pass and to completely surround every part of the steel. All steel should be firmly supported during the ramming of the concrete, so as to avoid displacement. It should not be oiled or painted, and thick rust should be scraped and brushed off before placing.

General.—The scantling of the various members of the structure should be sufficient to prevent excessive deflection. If electric mains are laid down, very great care must be





by the Shipwright Company in connection with their hose business obviates this trouble in a most efficient manner. It consists of a rubber washer between two brass plates, which are drawn together by the two screws. The grip of this ingenious device is so marvellous as to render it practically immovable under any amount of physical force until the screws are again loosened. As there is no possibility of leakage it may reasonably be considered as perfect a union as it is humanly possible to produce, and the company have achieved a crowning triumph in so arranging their process of production that the "patented" article is *actually* the cheapest on the market.

The second illustration shows the parts attached to a pressure filter, the lettered parts being the following: A, porous porcelain cone; B, glazed porcelain mouthpiece; C, compressible rubber washer; D, brass screws for adjusting washer; E, tap; F, patent adjustable union; G, unfiltered water; H, filtered water; J, rubber packing; K, fixing screw; L, burn shod metal case.

It will be seen that the filters are made in two sizes, and the essential advantage of the apparatus consists in the simple application of the efficient porcelain cones to any ordinary tap; and regarded as a pressure filter it possesses the very important advantage of being easily removed for cleansing and sterilisation, and when used on a tap employed for other purposes its frequent removal automatically ensures aeration. Should filtered water at any time stored become stagnant, the company draw special attention to the slow-rate of filtration, from one to four pints in ten minutes. This is a point of great importance having regard to the fact that such filtration can only be secured by the use of cones of microscopical separation of the pores.

The third illustration shows the Blandford sold by this company. Its unique feature is that it possesses no packing screw, and thereby obviates the leakage which so often occurs when this is employed. Each time the tap is turned the lower screw forces the filter cone or washer into contact with the upper screw, and keeps packing it tightly against the upper end of the [illegible]. The cone, in consequence, [illegible] with the [illegible]

SANITARY GOODS AND BUILDERS' GENERAL REQUISITES

[illegible] goods and [illegible] or [illegible] and speedily [illegible] the waste-pipes of sinks. It is a pity [illegible] that the exceptions that reach [illegible] become carefully preserved [illegible] the next column is due, and do save [illegible] much time [illegible]

He [illegible] has indexed a volume to hand from Messrs. Nicholls and Clarke, 6, 7, and 8, Hollywood Street, Birmingham, E., as one of their. What we mean is that it shows at a glance, and readily and accurately, all styles of the various articles, so that the architect or builder can decide at once what it is he wants, or appreciate directly something better, that it brings to his notice than what he thought he wanted. Take, for instance, the closets shown in the first part of the book. They are figured complete, with prices attached, and then we have the closet pans shown separately in all varieties as regards design and peculiarity of outlet, to suit all positions. The same with lavatory stands, baths, sinks, etc. This principle is adhered to throughout, with incalculable advantage.

The plumbing section is very complete and useful; the rain water heads shown on page 390 have been designed specially for this catalogue. Snow's patent rain water pipe, on page 389, should be particularly useful for repairs of large stacks of rain water pipe. The iron drain pipe section shows a very great variety of fittings, such as bends, junctions, inspection chambers, gullies, manholes, etc. We have also a window glass selection, illustrating the best fancy glasses, with special mention of the firm's "Repoussine," on page 423, which has recently been put on the market, and is already specified largely by architects, its chief features being its cleanliness and brilliancy.

The decorator's section includes all that a painter requires, the chief feature being Messrs. Nicholls and Clarke's genuine lead, ready mixed paint, which has no rival. Altogether, the catalogue is a veritable encyclopædia of builders' requisites, and the firm is capable of such a selection, and its [illegible] exposition in this admirable guide book positively falls little short of genius.

Competitive designs [illegible] by the Newcastle-on-Tyne Education Committee for new schools for 400 children to be built in Bath Lane.

Mr. Charles Denson, principal of the firm of G. and G. H. Crowther, civil engineers and land agents, of Huddersfield, died on Friday, at the age of 77 years.

Mr. R. W. Jarvis, surveyor to the Tenbury Rural District Council, has been appointed sanitary inspector and surveyor to the Burford Rural District Council.

Mr. E. P. Sherwood, principal assistant engineer of the Trent Canal, Peterborough, has been appointed principal assistant engineer in the Department of Railways and Canals, Ottawa.

At Wednesday's meeting of the Royal Commission on Metalliferous Mines and Quarries a number of Scotch witnesses gave evidence as to the objection of the freestone quarrymasters of Scotland to open freestone quarries being classified as mines or metalliferous quarries.

A conference of members of the Metropolitan Water Board and representatives of local authorities interested in the Thames and its amenities was held on Wednesday in London. As an outcome, two important concessions were made by the Water Board. They agreed to withdraw from their Bill the proposal for a reservoir at Shepperton, and to diminish the size of the two reservoirs near Bell Weir, Wraysbury, and keep them at a distance of 600ft. from the river.

CURRENTE CALAMO.

Has Mr. Gotch, in his paper at the Institute on Monday night, started another controversy of the Pugin v. Barry sort, and shall we have Mr. J. D. Crace presently interviewing us with the indignant fervour the late Mr. John R. Herbert, R.A., boiled over with, if a shadow of doubt were hazarded about the claims of Pugin? Probably not. Few of us seem capable of much "fervour" as partisans nowadays. But Mr. Gotch's points, as Mr. Crace said, were certainly well put, and some of us have always had doubts whether *all* the great buildings of the earlier half of the 17th century could have really been the work of one architect, though as prolific as Inigo Jones, even with the aid of his "pale shadow."

"Who, would you say, are the 'fifty leading architects of London'?" demanded a correspondent last week, to whom we replied that we would see him in—heaven, before we would say anything of the sort. However, he retorts: "Acting on your recommendation on p. 332, I bought a copy of Messrs. J. Whitaker Co.'s 'Green Book,' which I find useful; but I see, on p. 467, there is given a list of fifty-three 'leading architects of London.' Am I right in concluding, from the 'acknowledgments to contributors,' on p. vii., that Mr. R. Phené Spiers (the name is spelt "Speirs") is responsible for the selection? I see his own name is included. Do you think that it is fair to the general body of London architects to pick out any fifty-three of them, and thus, in a work of popular reference, set them, so to speak, in a class by themselves?"

There are matters we prefer to leave to the judgment of our readers. On no consideration will *we* publish such a list; for, during the present epidemic of libel actions against newspapers, it might very well happen that some gentleman who succeeded in persuading a jury that he was a "leading architect" of London might recover heavy damages from us for the omission of his name therefrom; and but that architects generally are the most modest and retiring of men, we can quite conceive the possibility of the publishers of the excellent "Green Book" being bombarded by demands from isolated but indignant architects to be included at once, and threatening consequences otherwise.

It will probably be some time yet before we get a really scientific arrangement of the pictures at the National Gallery, if one may judge by the outcome of the opportunities afforded by the addition of the five new north-west galleries and the three rooms downstairs. Our opinion matters little, and is necessarily given a fortnight later, though certain favoured people evidently had the opportunity of recording theirs a week earlier than the "private view" last Friday, and that was heralded the day before by some of the daily papers whose admiration is doubtless more grateful to all concerned than any observations we might have made. But we confess it is difficult to understand why some of the pictures find such lavish space in the new rooms, while others apparently have to be crowded together, as in Room XXIV., with little claim to kinship or propinquity.

The best-arranged room is No. XXI., at the end, which is, most satisfactorily, entirely occupied by British 18th-century artists—Reynolds, Gainsborough, Wilson, Romney, Raeburn, Crome, and others. The general arrangement here is good, and the commanding position given to Reynolds's "Three Graces" well deserved. Room XXIV. is badly crowded with a more or less heterogeneous assortment of pictures by Gruze, Vigée, Le Brun, Mauve, Lancret, Georges Michel, Vallin, and others; more worthy inclusions being Rosa Bonheur's "Horse Fair," and Josef Israels' "Shipwrecked Fisherman." Room XXIII. is given up to the 17th-century French painters, Rigaud, Philippe de Champaigne, and others. The other rooms are principally filled with examples of the Ferrarese and Bolognese schools, including Correggio's "Ecce Homo," or "Christ Presented by *Pilot* to the People," as it used to figure in the official guides. Whether it does now or not we do not know, as nothing in the shape of a catalogue was vouchsafed last Friday. Somebody is evidently loth to part with our old friends, Guido Reni's "Lot and His Daughters," and "Susannah and the Elders"! However, they have got next to the doors leading to Room XXIII., which is, perhaps, equivalent to notice to quit. The three rooms below are only arranged "provisionally"—very much so. The rooms have been added by H.M. Office of Works, the architect being the late Mr. H. N. Hawks, acting under Sir Henry Tanner. We fully described and illustrated their construction in our issue of May 20 last year.

The data and tentative proposals offered by Mr. Edward M. Gibbs, F.R.I.B.A., in his lecture to the Sheffield Society of Architects and Surveyors yesterday week, as a basis for the preparation of a town-planning scheme, are very valuable. They are, of course, purely local, and, with the plans, would occupy far too much space in these columns; but no doubt they will be accessible in the published folio Mr. Gibbs has kindly sent, and they will be worth the careful study of all architects

Sheffield furnishes one of the most deplorable instances of bad town extension in the kingdom. There, at the present time, houses are being erected, thirty or forty to the acre, with the smallest gardens or forecourts, or none at all, and this in suburbs where there is plenty of land available, still let for agricultural purposes at £3 per acre or less. The town council has, in some measure, awoke to this, and a town-planning committee is preparing schemes for two of the suburbs where building is most in progress. If these two suburbs alone are dealt with, we all know what the result will be!

Building operations will be checked there, and the sinners against overcrowding will scuttle off—in some cases, only just across the street—to another district, where they will be free from restrictions. The evil will not be cured, the locality of its occurrence will simply have been changed. Moreover, it is manifestly unjust to shackle landowners in one district with restrictions which simply put a premium on land in another where they do not prevail. It is manifest that *all* the suburbs should be dealt with simultaneously, if only because no one can tell which of them is likely to extend most rapidly.

We trust this may be done, and we are certain the people of Sheffield owe a debt of gratitude to Mr. Gibbs for his suggestions. They seem to us—we speak necessarily with imperfect local knowledge—practical and well conceived. They are certainly carefully thought out, and merit the "freest criticism and fullest consideration" Mr. Gibbs invites. Nothing is more gratifying to us, or more creditable to architects, than the fruit the Institute Town-Planning Conference is bearing in the initiative of schemes like this and that of Mr. Mawson, at Bolton, to which we referred last week.

With no mountains here to spare to carve into statues, why not try reinforced concrete? On the "high bluff"—significant location!—overlooking the Rock River, near Oregon, Illinois, a statue of the late Black Hawk, a chieftain of the Fox and Sac tribe, pensively contemplates the frivolous tourists who gaze up at his 48ft. of height, set on a base 18ft high, and on the "bluff" aforesaid, rising altogether some 300ft. above the level. Black Hawk was cast on the spot, and weighed 536,770lb., including the steel rods that reinforce him. His wind-pressure, we are told, has been calculated to an ounce, and he is expected to last for ever, "a magnificent example of mechanical genius and engineering skill." His creator is Mr. Lorado Taft, "one of the greatest of the latter-day school of sculptors." May we hope to see a model at the coming Royal Academy Exhibition, we wonder? We *should* so like presently to see some of our own celebrities done in reinforced concrete!

Judging from the replies to inquiries at the annual meeting on Wednesday, the extension of the Manchester Royal Exchange still seems to hang fire. This extension depends on the co-operation of the directors with the municipal authorities, and though we are told that the directors have carried on "continuous friendly negotiations with the corporation," it seems as if nobody is in a hurry to bring these to a conclusion. The directors are waiting for a reply to their proposal, having in the meantime rejected a counter-proposal of the City Council Improvement Committee, and we agree with the *Manchester Guardian* that it is more than time that this reply was received. Perhaps the directors will now consider it not too exigeant to ask for it?

The foundation-stone has been laid of new Sunday-schools in connection with St. Matthew's Church, Douglas, Isle of Man, to be erected at a cost of £2,200. Mr. Frank L. Pearson, F.R.I.B.A., of Morningfield-street, W., is the architect.

The new sewage-disposal works for the Darfield Urban District, which have been erected at an expenditure of some £1,700—this sum including the cost of a former scheme, which proved a failure—was formally declared open on the 9th inst. Mr. D. Balfour was the engineer, and Mr. J. Waring the contractor.

At Monday's meeting of the Art Gallery Committee of Aberdeen the proposed extension was considered of the gallery, with special reference to improvements to be carried out in the locality in connection with the Technical College and the erection of the King's statue. Mr. A. Marshall Mackenzie, A.R.S.A., the architect, was requested to draw up a detailed plan for consideration. The additions will be made to the west side of the gallery. Additional rooms will be constructed adjoining the Celtic Court, while upstairs there will be a lecture-hall and gallery to accommodate 700 people. There will also be a room for arts and crafts, and for exhibits from South Kensington. The estimated cost of the new buildings is £9,000, exclusive of the cost of the site.

OBITUARY

The death occurred at his residence Broomfield, Gracedy Hill, Erdington, on Tuesday morning, of Mr. Alfred Victor Ingall, architect, at the comparatively early age of forty nine years. Deceased gentleman was a son of the late Mr. George Ingall, a well known architect, of Birmingham. Mr. V. V. Ingall was for a time in the office of Messrs. Ingall and Sons, architects, of Temple-row, Birmingham. He had been for several years a member of the Erdington Urban District Council, and was chairman of the housing and buildings committee.

The death occurred at his residence, 9 Strathearn-road, Edinburgh, on the 5th inst., of Mr. James Masser, who until recently occupied the position of burgh engineer in the city. Mr. Masser had not been in good health for some time. Mr. Masser's connection with corporation work in Edinburgh extended over a long period. Entering the service of the city about thirty-five years ago, he rose in time to the position of assistant engineer under the late Mr. Couper, and on his death in 1901 was appointed burgh engineer. He fulfilled the duties of the office with success for about seven years, at the end of which time he retired. Deceased was seventy-two years of age, and a widower. He leaves two sons.

Colonel John Pennycuick, C.S.I., late R.E., for many years a distinguished engineer in Madras, rising to the headship of the Public Works Department, and afterwards President of Coopers Hill College, died on Thursday in last week at Camberley, aged 70 years. He moved to the Public Works Department early in 1862, reaching the grade of executive engineer in 1865. He became Superintending Engineer in 1881, Deputy Chief Engineer and Under-Secretary to Government in 1883, and Secretary seven years later. Col. Pennycuick had the chief responsibility for the construction of the huge masonry dam across the upper waters of the river Periyar, in Travancore territory, forming a lake, and for taking the water of this lake through a tunnel in the Western Ghats across to the eastern slope of that range, to supply the areas of the Madura district. By this operation a great river which formerly ran down one side of a mountain range was compelled to turn back and flow down the other side of it. The total cost of the undertaking exceeded £600,000. Colonel Pennycuick was at the head of the Madras Public Works Department for five and a half years, and served simultaneously as a member of the local Legislature. He was also Dean of the Engineering Faculty of the University of Madras. He retired in January, 1896, having been created a C.S.I. a few months previously. In 1900 he went out to Queensland to advise the Government upon the prevention of damages by floods in the Brisbane river.

A new school for St. John's parish is about to be built at Radcliffe Lanes, from plans by Messrs. Sellers and Orrell. The estimated cost is £3,500.

It is proposed to spend £250,000 in widening the eastern end of Leadenhall-street, a proposal which has long been promised by the City Corporation.

Mr. James Mackison, civil engineer, Dundee, has been appointed engineer of the port of Bombay at a salary of £1,200 rising to £1,600, and a retiring allowance after fifteen years' service.

In accordance with a request from the Shanghai Society of Engineers and Architects, the municipal council have agreed to contribute £125 towards the cost of carrying out tests on reinforced concrete under local conditions.

The two huge pastel drawings by Sir Edward Burne-Jones of "The Nativity" and "The Crucifixion" which were in Mrs. Murray Guthrie's sale at Messrs. Christie's on Saturday last have been transferred to the Victoria and Albert Museum, by Sir Philip Burne-Jones. They each measure about 19ft. by 7½ft., and were the designs for the stained glass windows in St. Philip's Church, Birmingham. They were acquired by Mrs. Murray Guthrie at the artist's sale in 1898, and were at one time on view at South Kensington.

Building Intelligence.

JARROW.—New baths at Jarrow were opened on the 8th inst. The building has a frontage to Walter-street of 84ft., and comprises a plunge bath, slipper baths, and shower baths for men and women, tepid spray wash baths for children, with dressing rooms adjoining, superintendent's house, boiler house, and establishment laundry. The swimming pond is 75ft. long. The slipper baths have white glazed brick walls, and the divisions between the baths are white glazed fireclay slabs—a new departure. All the baths are white glazed fireclay. The children's wash baths are quite a novel feature in this part of the country, and are placed downstairs, consisting of twenty one warm spray baths, which are separated by low white glazed slab divisions. In designing the building the construction of the interior walls, etc., has been confined, as far as possible, to materials which can be easily washed down. The frontage in Walter-street is of a Classical treatment, and is built of brick work with stone dressings; the entrances, office, and caretaker's house above form a central feature, and are three stories in height, whilst the wings containing the slipper baths, children's baths, establishment laundry, etc., are at each side at a lower level. The architect is Mr. J. H. Morton, F.R.I.B.A. Messrs. S. Sheriff and Sons are the contractors. Mr. Anderson, of Jarrow, officiated as clerk of works.

LIVERPOOL.—Some interesting gifts for the new Liverpool Cathedral are announced. The Liverpool Ladies' Embroidery Association have offered to provide all the embroideries for the cathedral requirements, and this will represent a gift of at least £4,000, in addition to the ornaments for the Holy Table. Mrs. Marke Wood has promised to present the reredos, which has been designed by Mr. Gilbert Scott, the architect. This, which is to be carved in stone, measuring some 48ft. in height and 43ft. in width, will contain panels illustrative of the life of Christ, in addition to the figures of the Apostles and Evangelists. One of the large windows in the choir will be filled with stained glass as a memorial to the late Sir Alfred Jones, while a donation of £1,000 has been received from Mrs. Morrison to provide a marble floor for the choir in memory of her late husband, Colonel Morrison.

NORTH RIDING.—The Education Committee of the North Riding County Council are engaged in erecting or in preparing for the erection of secondary schools at Easingwold, Saltburn, and Whitby. The schools have been designed by different architects, and are from premiated designs submitted in public competition. Mr. Wm. Birch, of York, has the contract for the erection of the new secondary school at Easingwold. It is built to house both sexes, although the boys and girls will each have practically a separate school, while both are under the same roof. There is only one floor throughout. The central block has two gables on the main elevation, and the walls are broken up by four pilasters. The entrances are in the north and south wings respectively, and in these extensions the boys and girls have separate changing rooms, cloakrooms, and lavatories. At each end there is a teachers' room. The entrances give access to a 7ft.-wide corridor, which runs from end to end of the school, and leads not only to the classrooms, but to the central hall, which is situated in an extension at right angles to the main building, and measures 43ft. by 19ft., with a 14ft. ceiling. By opening a glass sliding door of one of the classrooms the central hall can be extended to over 60ft. in length. The central hall annexe also contains two classrooms, 17ft. square. In the main block, besides two classroom, there is a large laboratory 31ft. 9in. by 19ft. The architects are Messrs. Thomson and Bristow, A.R.I.B.A., 13, Westminster Chambers, Victoria-street, London. The design submitted by Messrs. Russell and Cooper, architects, 11, Gray's Inn square, London, for the new girls' high school in Marske road, Saltburn, was the one selected. The school consists of a main central building with wings projecting at each side. The chief entrance is by the doorway in the centre of the central block, in front of which is a low flat-roofed projection containing on either side cloakrooms flanked by gabled extensions. The walls are to be of brick with dressed stonework, and the roof is to be slated. The new secondary school for Whitby is simple Jacobean in style. The main building will have two floors with single floor extensions on either side. The centre portion of the main block projects beyond the line of the front, and contains the entrance, which is constructed in dressed stonework. Over the doorway is a balcony surmounted by a circular-headed window, above which is an entablature. There is a cornice in stone along the top of the main wall, and keystones are introduced in the brickwork over the windows.

ST. ALBAN'S.—The branch premises for the London City and Midland Banking Co., in Chequer street, St. Alban's, were opened last week. The site was previously occupied by the Lamb Inn and adjoining shop, and the new buildings have a frontage of 61ft. to Chequer street, with a return frontage to Lamb alley of 41ft. The plans have been prepared by Mr. T. B. Whinney, of Old Jewry, architect to the Banking Co. The façades are carried out in white Portland stone, with circular-headed windows set in rusticated stonework, divided by circular columns with Corinthian capitals, and above, reaching to a height of 24ft., is a stone balustrade. The main entrance is at the angle of the two thoroughfares, and is surmounted by a circular tower of stone, culminating in a ribbed dome covered with lead. The fittings are of American walnut, inlaid, the tops of the desk being of teak. In the basement are a strong-room 16ft. by 11ft., and storage accommodation. Built in conjunction with the bank, but approached quite independently, is a suite of offices consisting of two ground floor rooms and three on the first floor. These are constructed of local grey brick, with Portland stone dressings. The builders were Messrs. Miskin and Son, of St. Alban's.

SEACOMBE.—Mr. Haldane will visit Seacombe to-morrow (Saturday), to open a new drill-hall and headquarters of Nos. 5 and 6 (the Cheshire) Companies of the Lancashire and Cheshire Royal Garrison Artillery in River View-road (opposite the public baths). The buildings have been designed and erected under the superintendence of Messrs. John H. Davies and Sons, architects, of Chester, at a cost of a little over £2,000. The hall is 80ft. by 60ft., with a main entrance from River View-road. The officers' room, orderly room, and quartermaster's store are at the southerly end of the building, and each have a separate entrance from the hall, the officers' and orderly rooms having a private entrance from River View-road. A sergeant-instructor's house is provided.

TRURO.—The city council have decided to invite tenders for the erection of seventeen artisans' dwellings on a site at Waterloo. Each house will consist of living room, 11ft. 6in. by 11ft. 9in., and scullery, 7ft. 4½in. by 8ft. 4in., on the ground floor, and three bedrooms, 11ft. 7½in. by 8ft. 6in., 10ft. 8in. by 8ft. 6in., and 7ft. 6in. by 5ft. 11in. The plans have been prepared by the city surveyor, Mr. Frederick A. Barnes, A.M.I.C.E.

The Edinburgh and District Water Trustees, at a special meeting, have resolved to delay the question of the appointment of engineer and superintendent for a period of six months, and have agreed that for that period Mr. W. A. Tait be continued in office to act in the capacity of engineer. Indications were given that additional works are contemplated by the Trust.

The dedication service of the new parish church of Kildalton, Islay, took place on Sunday. The new church has been built by Mr. Iain Ramsay, of Kildalton, in memory of his mother, and entirely at his own expense, and the workmen on the estate carried out the whole construction of the building. The estimated expenditure has been over £2,000. The unique tripod bell, on an eminence overlooking the church, is to remain, and was used on Sunday to call the congregation together as from time immemorial.

PROFESSIONAL AND TRADE SOCIETIES.

AN ANCIENT LANCASHIRE CHURCH.—At the last meeting of the Historic Society of Lancashire and Cheshire, held in the Royal Institution, Liverpool, Mr. J. Paul Rylands, F.S.A., presiding, a paper on "The Church of St. Mary, Eccleston," was read by Mr. F. H. Cheetham. The church is one of the many parish churches of Lancashire dedicated to the Virgin Mary. The chancel, nave, and tower are apparently of fourteenth-century date. Very few of the original architectural details remain, all the windows of the chancel and nave being new. The belfry windows are original, but the top of the tower was rebuilt in 1733. The aisles are apparently additions of late fifteenth or early sixteenth-century date, that to the chancel being, in all probability, the chantry founded by the Earl of Derby and William Ware, the latter of whom was rector from 1493 to 1511. On one of the roof beams of the nave is the date 1534. Great alterations were carried out in the fabric during the first half of the eighteenth century. The result is pretty much what remains to the present day, though the interior has been reseated and new windows inserted in the chancel and nave. Recently part of the arm of a cross, with interlaced ornamentation, was found in the ditch bordering the churchyard. The churchwardens' accounts, which commence in 1712, also show in detail the course of the eighteenth-century restoration of the building.

THE ABANDONMENT OF THE ROMAN WALL.—A meeting of the Royal Archæological Institute was held at Burlington House, on Wednesday week, when Mr. H. H. E. Craster read a paper on "The Abandonment of the Roman Wall." The president, Sir Henry Howorth, was in the chair. Mr. Craster said that many problematical views existed with respect to Hadrian's Wall, which crossed from Wallsend-on-Tyne to Bowness on the Solway. He described the recent excavations at Corstopitum, the modern Corbridge, situated on the line of the wall, which, he said, showed three distinct periods of occupation, in the last of which wholesale use had been made of the architectural fragments of an earlier date. On a recent September morning, a workman engaged in clearing a narrow space between two walls struck an object with his pick, and found it to be a mass of lead foil, containing a gold ring and 48 gold coins in first-rate condition. They had been hurriedly deposited in their hiding-place, and their date might be taken as proof that the wall was occupied towards the close of the 4th century. He thought the outposts of the wall may have been given up about the middle of the 3rd century; there was an outbreak on the frontier in 360, the wall was captured eight years later, and the island laid waste. The final abandonment, he thought, took place under Maximus. Thanking the lecturer, the president said that under other forms the Roman administration continued much more completely in certain parts of the north-west than had been dreamed of. Both Picts and Scots were foreigners to this island, the Piet being just as much an Irishman as the Scot was.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.—Mr. Selwyn Image, Slade Professor of Oxford, was on Friday night the guest of the members of the Birmingham Architectural Association. He went down to Birmingham "to address a few words to artists about the seriousness of their calling, and how to commend art to the community," and appealed to them all to do what they could in that direction. What, he asked, could artists do to encourage art as a living thing, as distinct from merely the connoisseurs' and collectors' business? Everyone needed to take a very serious view of his own calling. With regard to the public, they must recognise the fact that there were too many calls upon them, and many things excited them, so that artists must have patience, and could not expect to bring about all that they wanted in a year or two. With regard to pupils or other young people over whom they had any power, the great thing was to exert a steadying influence, and one very profitable way would be to get them as much as possible to fall back upon the English traditions of art, which were some of the very finest the world had seen.

GUILD OF ARCHITECTS' ASSISTANTS.—A meeting was held at Prince Henry's Room, 17, Fleet-street, on March 7, when Mr. T. H. B. Scott took the chair. The hon. sec. read a paper, entitled "The Town-Planning Agitation." Some of the practical issues were, he alleged, as unpalatable to the profession as they were to the landlord and property owner. The question of advertisement affected the architect and his client in a way only susceptible of regulation by some such legal means as Mr. Paul Waterhouse had devised. The lecturer believed that if commercial sucess were the primary motive animating a town planning scheme, it was doomed to failure—commercially, on account of the slow rate at which sites would be taken up, the various architectural restrictions, and consequent increased capital expenditure, and the loss of interest due to lapse of time before the scheme was sufficiently developed. It might also be a failure architecturally on account of the abandonment of restrictions in respect thereto as a result of ensuing panic.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—At the last meeting of this society, held on the 9th inst., Mr. W. H. Ward, M.A., of London, read a paper on "Renaissance Church Architecture of the Sixteenth Century in France." France, he said, at that period offered the picture of the union of two architectures, so different in their aims and in their forms as to seem irreconcilable. Yet, as was often the case in a marriage between persons of strongly diverse characters, the union was not unhappy in its results, each party to it supplying elements which were lacking in the other. The largest and completest church of the 16th century in France was St. Eustache, Paris, begun in 1532, which, although practically identical with Notre Dame in plan, was designed as a whole from the first as a Renaissance building, the Mediæval features being clothed with detail inspired from Italian sources. The design and detail of St. Eustache were broadly analysed and compared with those of other examples of the same period, and by means of an excellent series of slides the lecturer illustrated the gradual spread of Renaissance ideas over the ecclesiastical architecture of France.

MANCHESTER SOCIETY OF ARCHITECTS.—At the meeting held on Wednesday last, the 8th inst., Mr. J. H. Sellers read a paper on "The Architect's Use of a Library." Mr. Sellers said it is doubtful if the old architects understood the history of art as we understand it to-day. If Wren could have studied the folios of Greek work, we might have seen St. Stephen's, Walbrook, with the mouldings as refined and the ornament as delicate as Greek work. Knowledge of history impresses upon us the fact that great styles are based on reason and logical construction, that buildings must fulfil their purpose. To know the history of architecture well, we must know the history of the people, their religion, their commerce; we must trace out the intermingling of tribes and nations. Wide reading would bring us to this knowledge, and would aid us in the formation of an artistic character and a power of æsthetic reasoning. Too many books are written on taste, "What is Art?" and so forth. They were unprofitable and wearisome, and often the work of amateurs who do not practise, and are unable to put themselves into the position of the worker, and who read into buildings motives and causes which seldom had any existence.

MEDIÆVAL ENGLISH SCULPTURE.—At the Birmingham and Midland Institute on Monday night Mr. Edward S. Prior, F.S.A., F.R.I.B.A., London, delivered a lecture on "The Unknown Art of Mediæval English Sculpture." Mr. Prior took a long range, commencing with symbolic sculpture from 600 to 1200 A.D., and coming down to later times. His illustrations included those of the sculpture of old crosses, panels, statues of saints, and the statuary at Westminster, Lincoln, and other cathedrals. He explained the symbolic, intellectual, romantic, anecdotal, or religious significance of the carvings. Pointing to one view, he explained that it appeared to represent the Old Dispensation and the New, another was intended to show the intensity of religious mysticism. He explained the reason for the sculpture of each, referring to the popular building sculpture with "angels," "devils," and "monsters," mentioning in this category Norfolk "angels" and Somerset "devils." Other points explained by the lecturer, with illustrations, included "Faith and Dogma" in sculpture at Westminster and Lincoln, the 14th-century effigies in bronze, stone, and wood, representing Westminster "Queen," Gloucester "Knight," Westminster "Knight," and Aldworth "Lady."

SHEFFIELD SOCIETY OF ARCHITECTS.—Mr. E. M. Gibbs, F.R.I.B.A., of Sheffield, has propounded, in a lecture read before the Sheffield Society of Architects and Surveyors on Friday, a comprehensive town-planning scheme for the whole of the suburbs of the city. He proposes a ring road encircling the whole of Sheffield, which would be surrounded with suburbs laid out on model lines. It being essential that the main thoroughfares should be as easy in gradient as is consistent with directness of communication, the whole of the roads, to some extent, follow the contour lines, and are necessarily in curved lines, and in some places have decided bends. The proposed new road connecting the suburbs, he said, was so irregular in plan as to scarcely deserve the name of a ring road, though it would answer the purpose of one. Starting at Owlerton, the first portion would be across the Valley of the Don and up the wooded valley of Old Park Wood, through Norwood to the bottom of Barnsley-road, to Brightside, Attercliffe-road, Broughton-lane, Darnall, Intake, Gleadless, Hemsworth, Woodseats, Millhouses, Bannerdale, Banner Cross, Nether Green, Sandygate, Hillsborough, and back to Owlerton. Part of an outer ring was suggested from Woodseats via Abbey-lane, Peanchief, Whirlow, Ringinglow, Redmires, and the new road through Wyming Brook to Hollow Meadows. The new parks should be on the lines of Endcliffe Park, taking the strips of low lying ground along the streams with their wooded banks. Such ground was not healthy for buildings, and was somewhat difficult to build upon, and was therefore to be had at a low price. Its natural beauty was such as to require the minimum of expenditure in laying-out, and its natural variety added to the charm of a long walk through it. Its extended form also brought it within reach of houses in the districts on both sides. The extent of new parks, as shown in the plan, within the city boundaries, would be 928 acres, being at the rate of nearly 6 per cent. to the parts of the city not yet developed, as comparing with 6½ per cent. of existing parks to the area of the city now developed. The parks outside the city or near the boundary were 613 acres. In the course of the brief discussion which followed the reading of the paper, tribute was ungrudgingly paid to the care and labour bestowed upon the preparation of so comprehensive and detailed treatment of the subject, and the lecturer was heartily thanked on the proposition of the president (Mr. W. J. Hale, F.R.I.B.A.), seconded by the vice-president (Mr. J. B. Mitchell-Withers, A.R.I.B.A.), and supported by Mr. F. Fowler, F.S.I.

TOWN PLANNING IN EDINBURGH.—A lecture was delivered on Thursday night in last week to the Edinburgh Sanitary Society by Mr. James A. Williamson, A.R.I.B.A., city architect, entitled "A Past Episode in Town Planning in Edinburgh." Mr. Williamson gave an account of the planning and development of the city from the building of the first part of the New Town in 1767 till the end of the second decade of the nineteenth century. This was illustrated by a series of lantern views showing some of the ancient plans of the city dating from 1742 to 1777, the original plans by Craig, and those for laying out the eastern parts of the city. In the opinion of the lecturer, the plan of the New Town reflected the architectural taste of the time. In England the Classical revival had become influenced by

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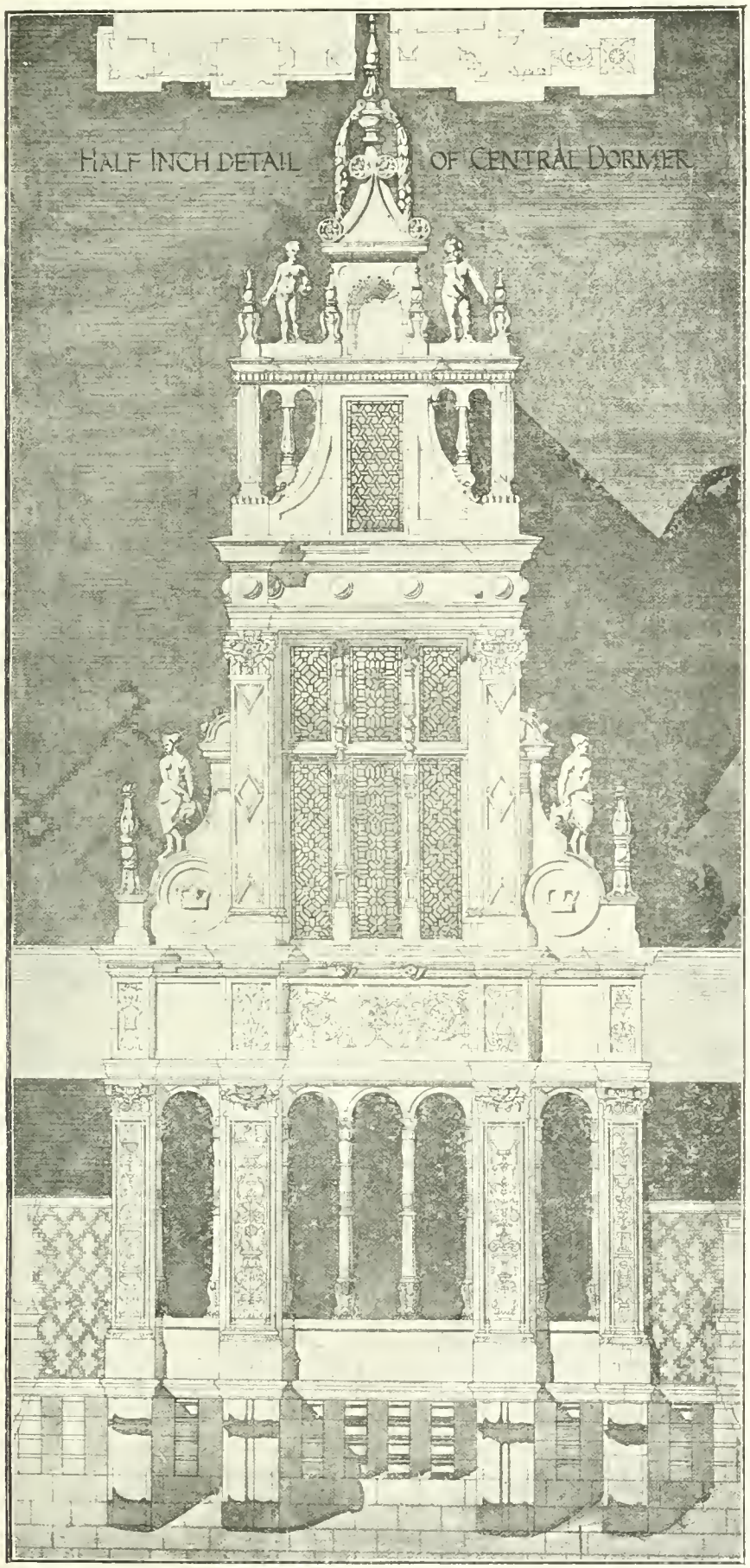


R.I.B.A. SOANE MEDALLION HON. MENTION DESIGN FOR A GATEWAY TO A CAPITAL CITY.—By C. Percival Walgate, A.R.C.A.

the elevation of the gatehouse from the city side. The second drawing is a reduction of the half-inch scale detail of the central dormer on the other façade towards the river.

THE GREY FRIARS, CANTERBURY.—The building known as the "Grey Friars," at Canterbury, is a picturesque remnant of the monastery of the Franciscans, or Begging Friars, so called from their professing voluntary poverty. It stands upon a branch of the Stour, off St. Peter's street, at the western end of the city, being built in a very unusual manner on two arches in the bed of the river. The building has undoubtedly gone through many vicissitudes, and has been altered and patched in several places with brickwork. The sketch given was contributed by Mr. Henry G. Webb, of Shepherd's Bush.

WATER SUPPLY AND SANITARY MATTERS.

DISS, NORFOLK.—At the last meeting of the urban district council the waterworks committee reported that they had considered a scheme formulated by Mr. Booth, the council's engineer, for a public water supply. The depth of boring is 400ft., 370ft. being through chalk, and the yield of water per day, as ascertained by continuous pumping, was from 144,000 to 156,000 gallons. It was proposed to carry the mains practically all over the town, the total length of mains being 9,294 yards. The pumps would be worked by gas-engines, and all the machinery would be in duplicate. A tank capable of holding 30,000 gallons would be provided, and the tank and tower were to be suitable for being doubled to 60,000 gallons. The water has been analysed and declared to be free from pollution by sewage or surface impurities, and practically devoid of organic matter. The estimated total cost was £6,500. The council approved the scheme, and instructed the clerk to take steps to obtain the sanction of the Local Government Board, and also permission to borrow the money required.

ST. AUSTELL WATER SUPPLY.—The St. Austell Rural District Council have again increased their water supply. On the advice of Mr. Darlington, their surveyor, land at Penwithick was purchased for a new reservoir. The contract for the work has been carried out by Mr. W. E. Bennett, of Bodmin. The new reservoir will hold 600,000 gallons of water, and has cost £1,200. The bed is on the solid granite, with a foot of concrete, and the walls are of granite, a yard thick, lined with concrete. The opening of the new reservoir took place on Thursday in last week.

The borough engineer of Harrogate, Mr. F. Bagshaw, has tendered his resignation to the town council. He has been a quarter of a century in this department, and eleven years at its head.

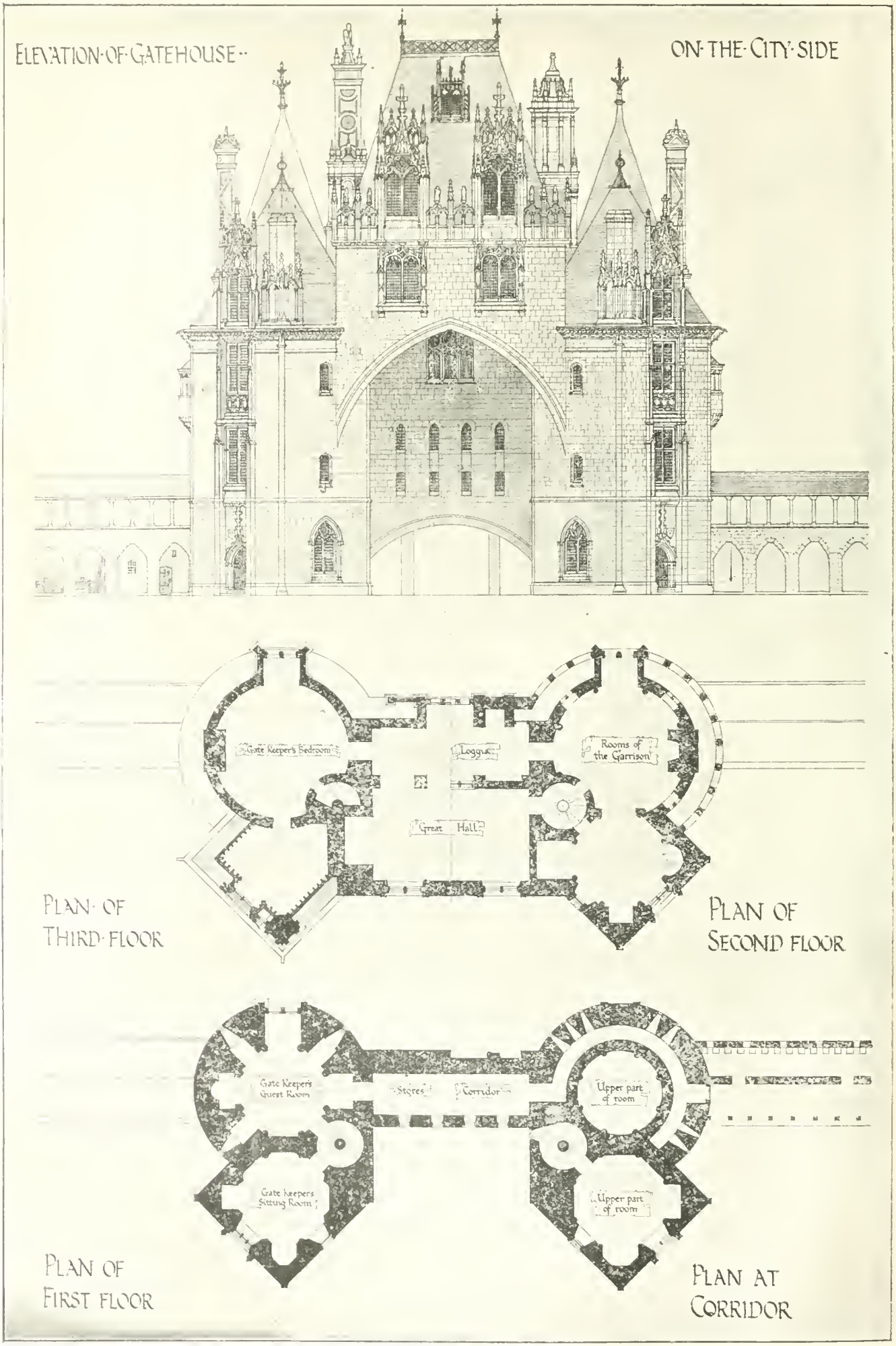
The five-story works of the Hoffman Manufacturing Company, Ltd., of Chelmsford, are being doubled in length. Diesel engines are being installed, and the power plant is being altered from steam to producer-gas. The building is to be served by a 30cwt. Waygood electric lift.

On Sunday a two-light window, erected as a memorial to the late Mr. and Mrs. William Ray, of Whalley Range, was dedicated at Hoddlesden Parish Church. The window contains the figures of St. James the Great and St. John the Divine. It is the work of Messrs. Heaton, Butler, and Bayne, of London.

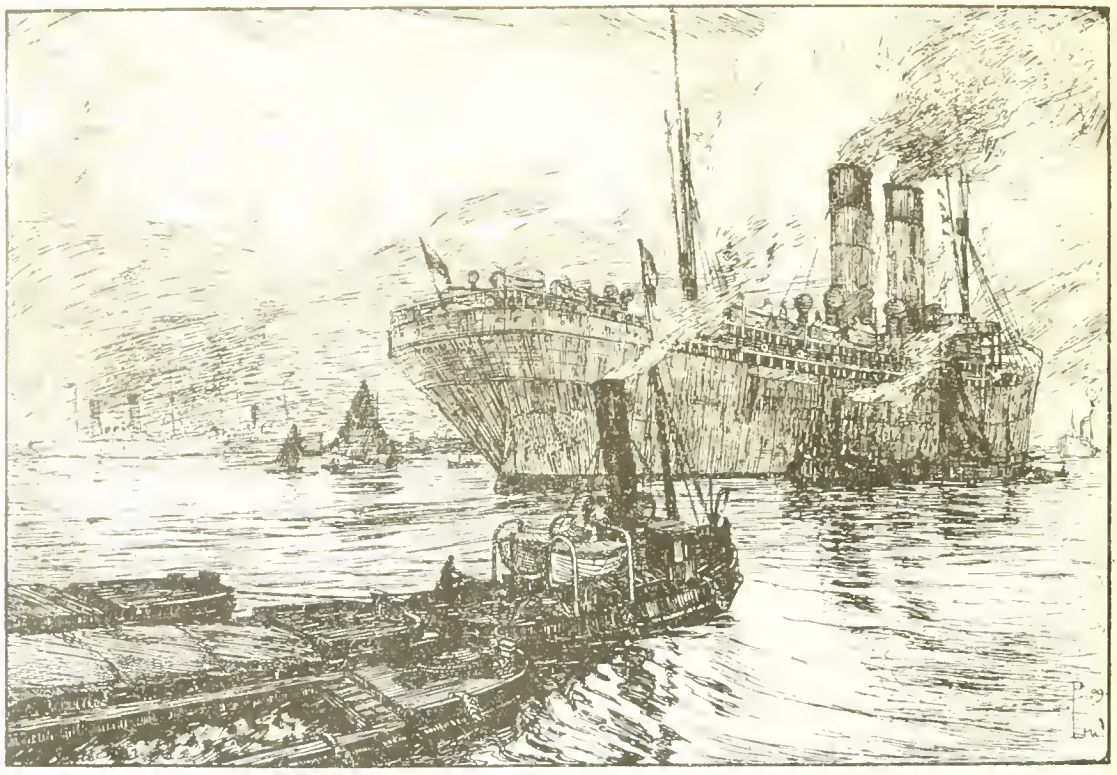
Mr. R. H. Bicknell, M.I.C.E., an inspector of the Local Government Board, has held, at the council offices, Eastleigh, an inquiry into three applications by the urban council to borrow money for public works viz., £150 for road-improvement in Dew-lane, £620 for similar works in Stoneham-lane, £1,000 for the extension of the cemetery, and £350 for the provision of allotments.

The *Handelsvrichten* (The Hague) of March 2 notifies, on the authority of the Netherlands Consul at Oporto, that, under the name of the "Junta Autonoma das Obras da Cidade do Porto," a corporation has been formed, with the sanction of the Oporto City authorities, for the purpose of carrying out important public works, including the building of new streets, municipal buildings, harbour improvements (comprising the installation of cranes and other loading and unloading appliances), the construction of a city tramway, etc.

The reconstructed portion of the north pier at Tynemouth has now been taken over from the contractors, Sir John Jackson, Ltd. The work has cost nearly £500,000. The outer portion of the old pier and the old lighthouse have been demolished down to low-water level. The channel of the Tyne from the sea to the Northumberland Dock, a distance of 3¼ miles, is being dredged to a depth of about 30ft. at low water, and from Northumberland Dock to Scotswood, a distance of 11 miles, to a depth of about 25ft. at low water.



R.I.B.A. SOANE MEDALLION HON. MENTION DESIGN FOR A GATEWAY TO A CAPITAL CITY.
By C. Percival Walgate, A.R.C.A.



A·UNION-CASTLE·LINER·IN·SOUTHAMPTON·WATER.

THE·WHITE·WAREHOUSE·POOLE.

TIMBER·WHARVES·POOLE

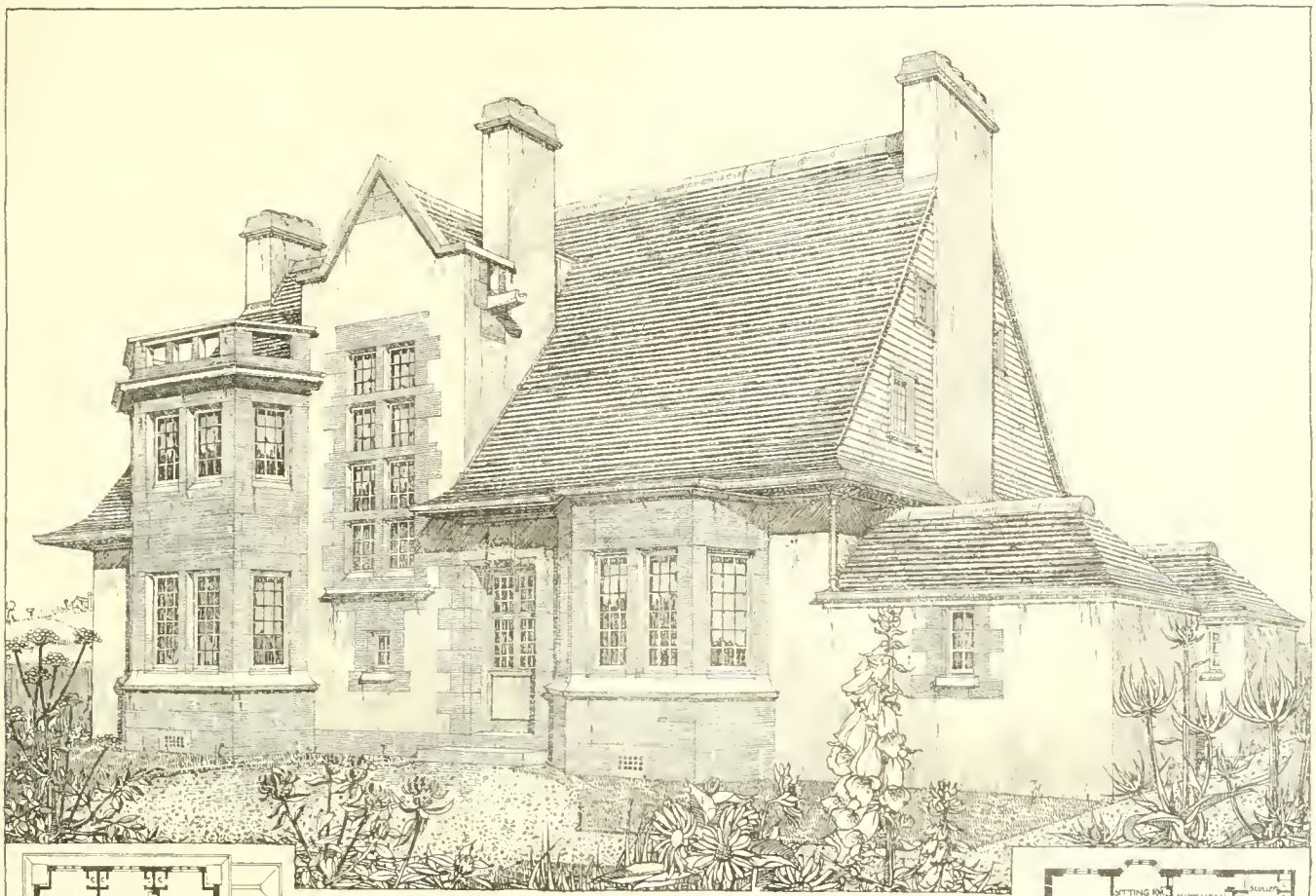
A·POOLE·TIMBER·SHED·NOON.

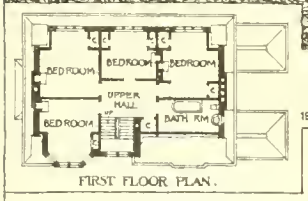
NATIONAL GOLD MEDAL DRAWINGS
WATERSIDE SKETCHES POOLE HARBOUR BY LESLIE M WARD.

WITH·WIND·AND·TIDE·POOLE·HARBOUR.

Photo-Lithographed & Printed by James Akerman 6 Queen Square W.C.

WELSH CHURCH,
WILLESDEN LANE N.W.



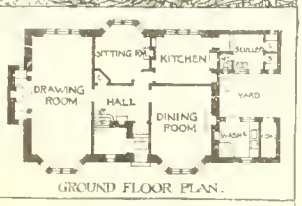


FIRST FLOOR PLAN.

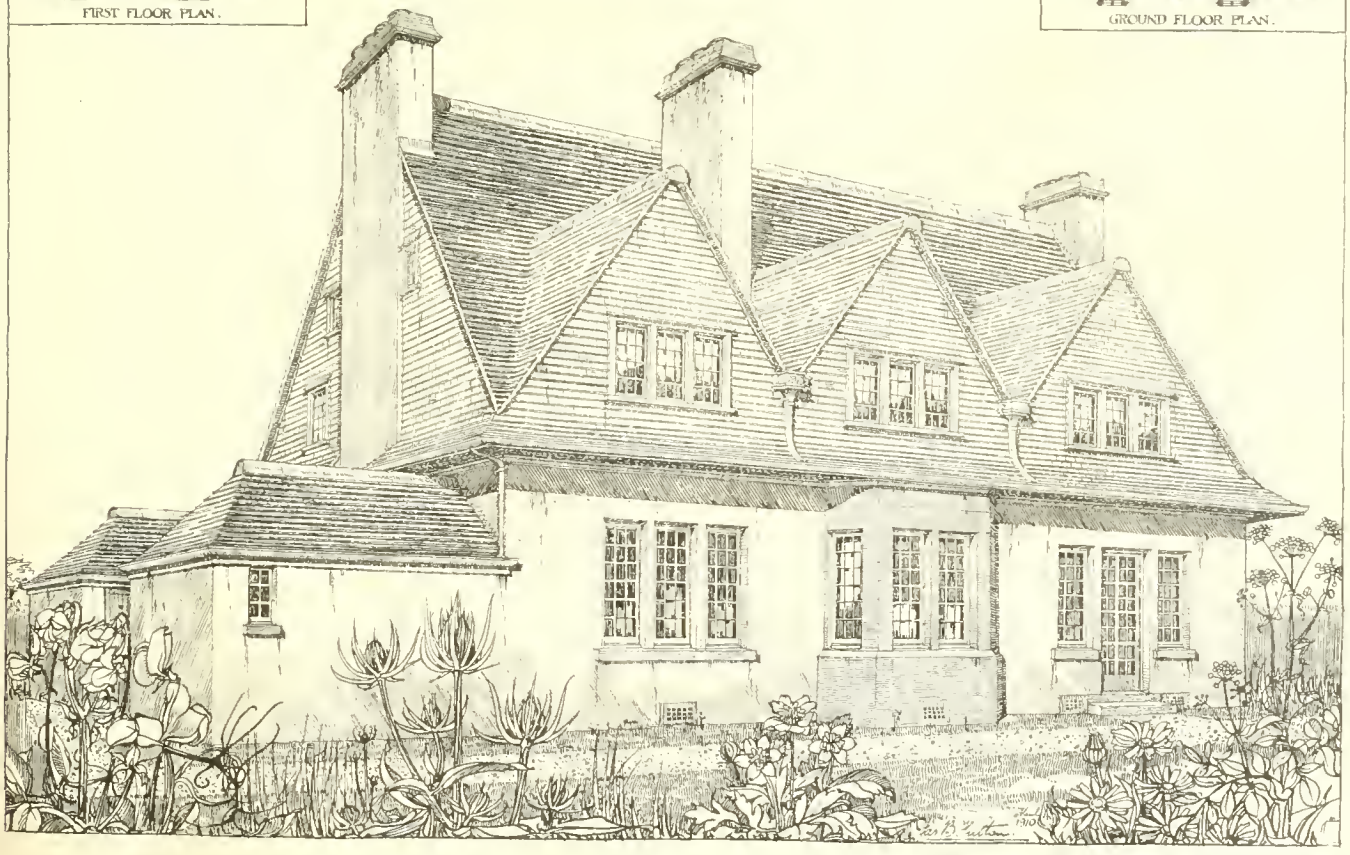
HOUSE AT KILMAURS, N.B. FOR MRS. I. M. BOYD.

JAS. B. FULTON A.R.I.B.A. ARCHITECT.
14, BEDFORD ROW, LONDON, W.C.

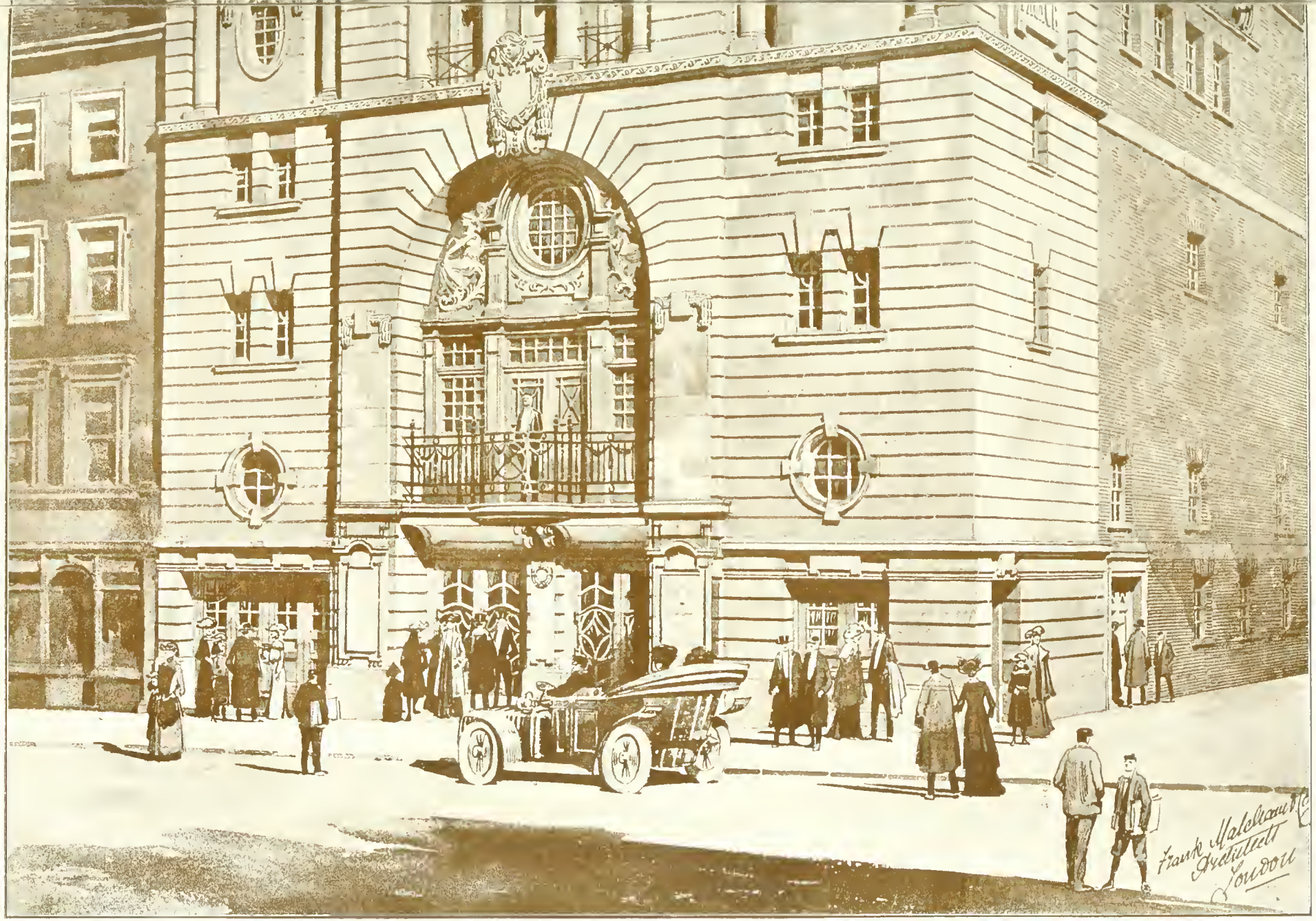
1909 - 1910.



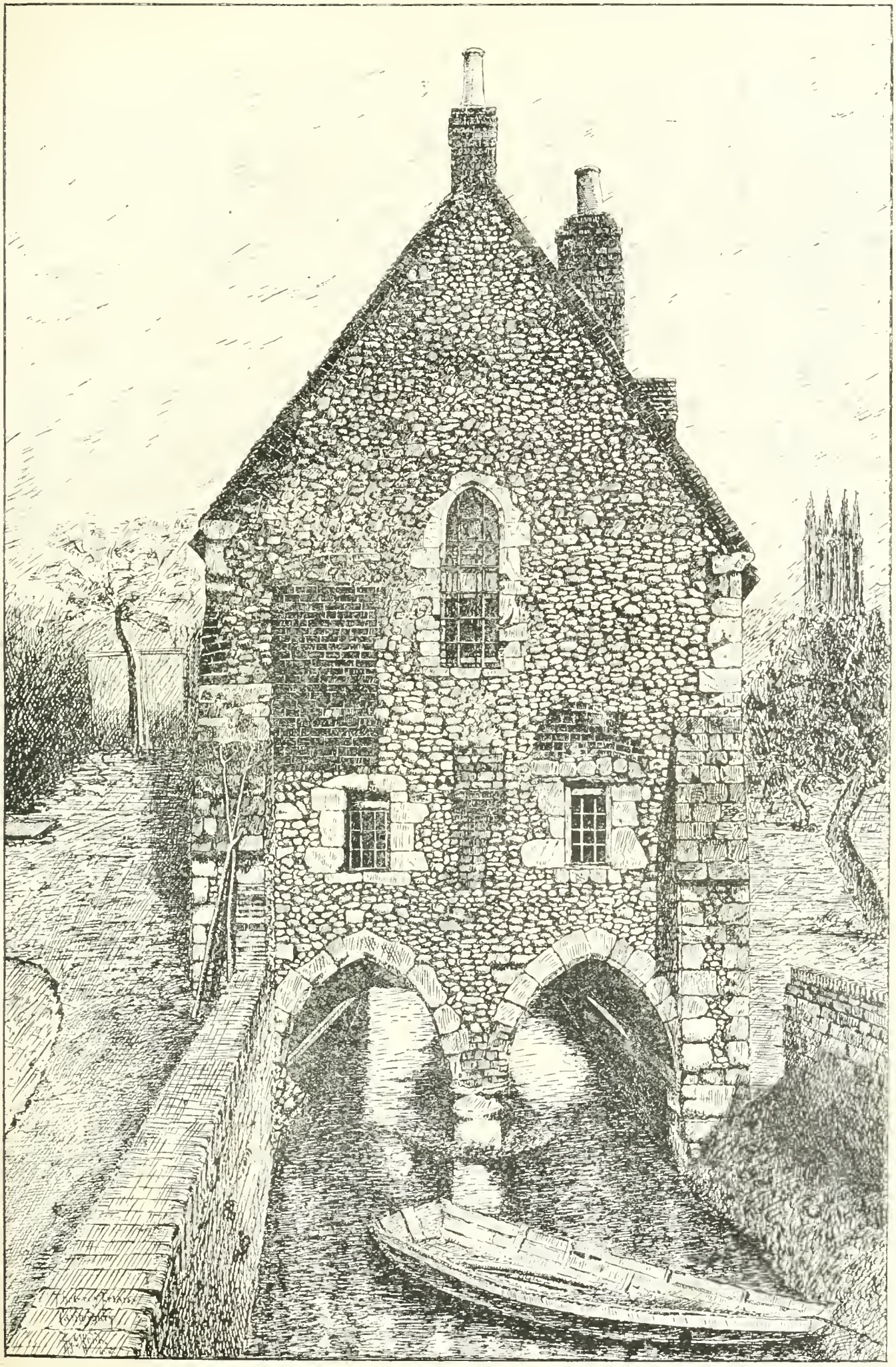
GROUND FLOOR PLAN.



VICTORIA
PALACE



THE VICTORIA PALACE, WESTMINSTER, S.W. Messrs. FRANK MATCHAM & Co., Architects.
Front carried out by Mr. ALFRED WHITEHEAD, of Leeds, in conjunction with Messrs. GIBBS & CANNING, of Tamworth, in Pentelica and Keramo Glazed Terra Cotta.



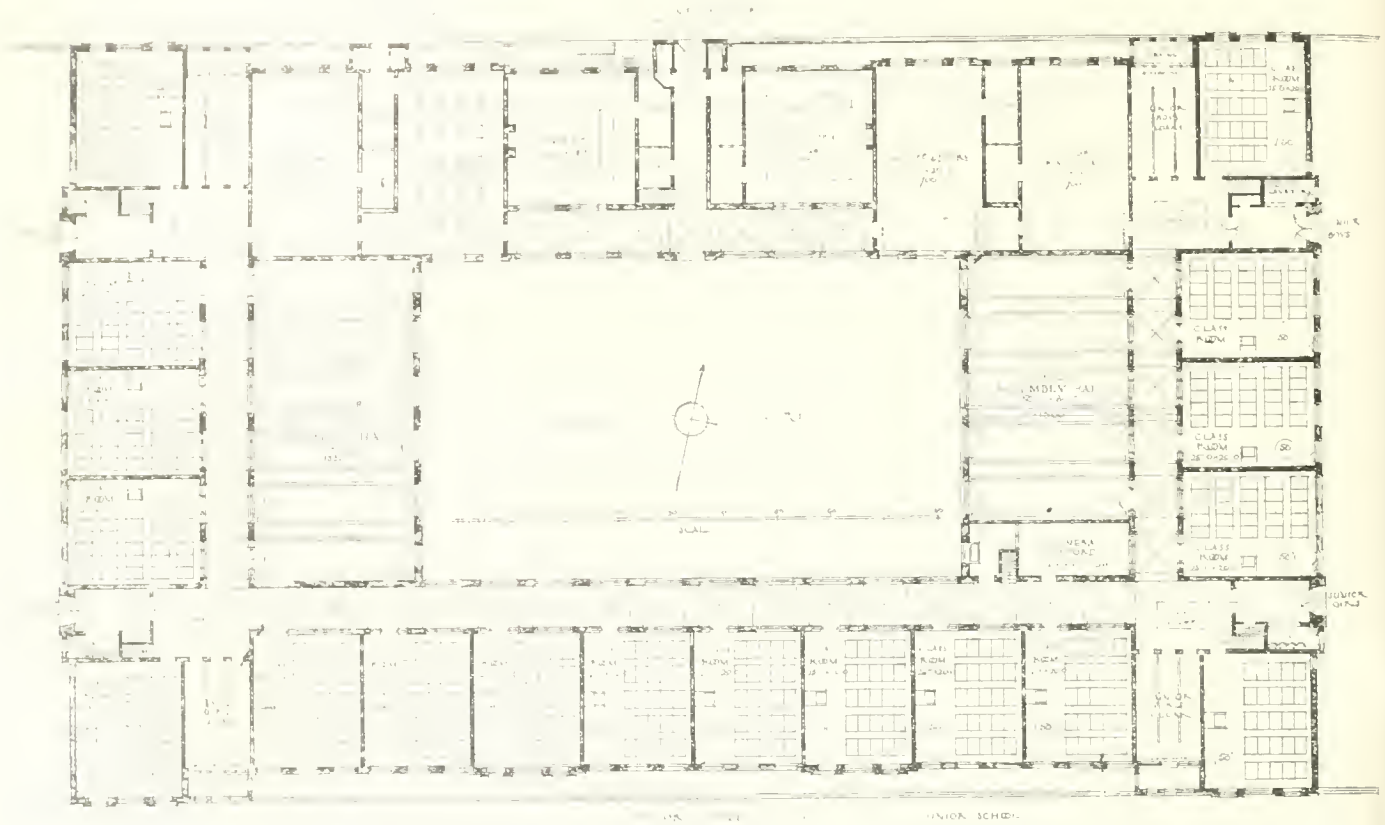
THE GREY FRIARS, CANTERBURY.—Drawn by Hy. G. Webb.

Correspondence.

A COURTYARD SCHOOL SUGGESTED NEW [illegible]

To the Editors of The Building News.

Sir,—In your issue of May 10 you illustrate a plan [illegible]



[illegible] type, but probably it will be discovered that this will be found another case coming under the head of "There is nothing new under the sun." In any case, it may be interesting to your readers to see a plan we submitted in competition for a new elementary school at Stockport, and for which we were awarded the third premium three months ago. This, though of a larger and somewhat more complicated character, appears to contain the essentials aimed at in the design illustrated by Mr. Paul H. Sloan.

The points to be noticed are the following:—

1. The hall, in each case, is open on one side.

2. Through ventilation is obtained by clerestory windows on corridor side, and by windows from 3ft. sill level to the ceiling line on the courtyard side.

3. The halls in each case are isolated from the classrooms on three sides.

4. The classrooms are approached, in all cases, without disturbing the work which may be in progress in the central hall.

5. By keeping the corridors sufficiently low and covered with a flat, through ventilation is obtained not only to the central halls, but also to the classrooms.

In our report the following suggestions were made, and explanations of our ideas were given: "It is suggested that the corridors might be fitted with either double-hinged screens opening outward into drill yard, or the screens might be of the movable type, and removed entirely in summer weather. This would make possible a modification of a form of planning which is becoming popular in some districts, and known as the 'Staffordshire' type of school; but instead of the open corridor, which some consider too rigorous for this climate, it would be under control, and only put into operation in suitable weather."

We suggested that the open quadrangle should be used as a drill yard, the advantages for this purpose being as follows: (1) Being surrounded only by one-story buildings, it would be quite sunny and airy. (2) Its seclusion. (3) Its central position. (4) The opportunity it would give of drilling the whole school together.

In conclusion, it may be pointed out that the land was a long and narrow "island" site, the school buildings on the north and south coming up to the road boundary, the playgrounds being arranged east and west of the school buildings.—We are, etc.,

Crouch, Butler, and Savage.

39, Newhall-street, Birmingham.

OUR NOBLE PROFESSION.

Sir,—I have previously called attention to various great opportunities offered to members of the architectural profession. The latest prize, I gather from your last issue, is offered in Cornwall:—"Seventeen architects practising in Cornwall have been invited to send in competition plans for a hospital to cost £2,500, and an assessor has been appointed."

It seems mean to keep so great a chance to themselves in one county; still, the rest of the professional world can look on at seventeen men competing for a prize of £125.

And to such a state have we come that such a proposal excites no comment, and appears to be thought quite reasonable.—I am, etc.,

London, W.C. A.R.I.B.A.

The Bill of the Great Northern Railway Company came before the Committee of the House of Commons on Wednesday, when the London County Council sought to secure the widening to 60ft. of a portion of York road, King's Cross. The company have purchased from the Gas Light and Coke Company, at a cost of £55,300, five and a half acres of land in the immediate neighbourhood of King's Cross Station. The land has a frontage of 210ft. to York-road, and the proposal of the County Council was that the company should be put under an obligation to throw a strip of the land into the roadway so as to widen it to 60ft. The committee passed the preamble of the Bill, but placed on the railway company the obligation to transfer sufficient land to widen York-road at this place to 60ft., the cost of the widening to be paid by the London County Council on arbitration terms without any additional sum for compulsory acquisition.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

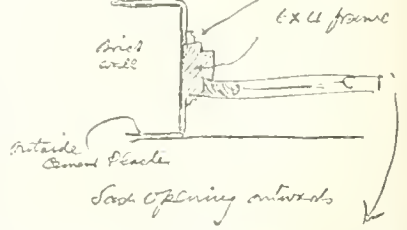
All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. E. P. Shelbourn, Melton Mowbray.

QUESTIONS.

[13021.]—REINFORCED-CONCRETE DOOR AND WINDOW FRAMES.—These are desired for casement windows and doors in a large workshop. Can



a correspondent suggest suitable sections? Of course, sections similar to wood sections might not be suitable, as the new material is so much stronger. Sashes are 1¼in. thick, 2ft. wide, and 4ft. 6in. high.—Colonial Architect, Colombo.

[13022.]—FLOOR COVERINGS.—Which is the best floor covering? Now that, apparently, we are legally responsible for dry-rot any time after our buildings are finished and occupied, I confess I hesitate to advise clients who ask me. I am very doubtful about most of the linoleums, after one or

two experiences, and clients will not have naked floors always, or, indeed, often. Is there any material which actual experience warrants against harbourage of damp, and of which equal wear may be expected?—K.

[13023.]—PARTY-WALLS.—The by-law relating to party-walls, requiring that parapets should be carried up 9in. in thickness, and at least 15in. high above the roof, flat, or gutter of the highest building adjoining thereto, appears to be superseded in most urban districts nowadays by a requirement that party-walls should be carried up at least as high as the underside of the slates, or other covering of the roof, which covering is to be solidly bedded in mortar or cement on the top of the wall, and no lath, timber, or woodwork of any description shall extend upon or across any part of such wall. Everyone must welcome the disappearance of the ugly parapet, and with it the difficulty, to a large extent, of excluding driving rain and snow from the roof where it adjoins the party-wall; but a difficulty presents itself to me which I shall be obliged if any of your readers will clear up for me. In the case of a terrace of houses roofed with ridge running from back to front, or with adjoining flat roofs, covered with lead, how are the lead guttera or flats adjoining the party-wall to be separated effectually without a parapet? and how can the lead be laid without boarding under? In the case of a fire, the lead would melt, and any asphalte laid as a flat would boil, and spread destruction.—Constant Reader.

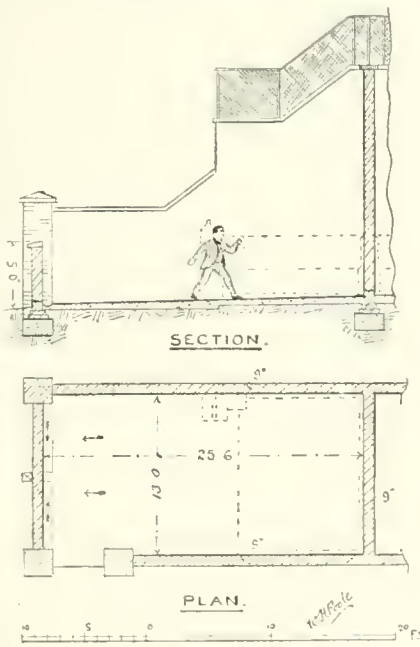
[13024.]—FLOW OF OIL IN PIPES.—I shall be obliged if one of your engineering readers can give information as to (1) formulæ for the calculation of the flow of oil in pipes and channels, and for the pressure on sides of same. (2) Whether tables of the viscosities of oils of various kinds can be obtained, and, if so, where?—W. G. Watkins.

REPLIES.

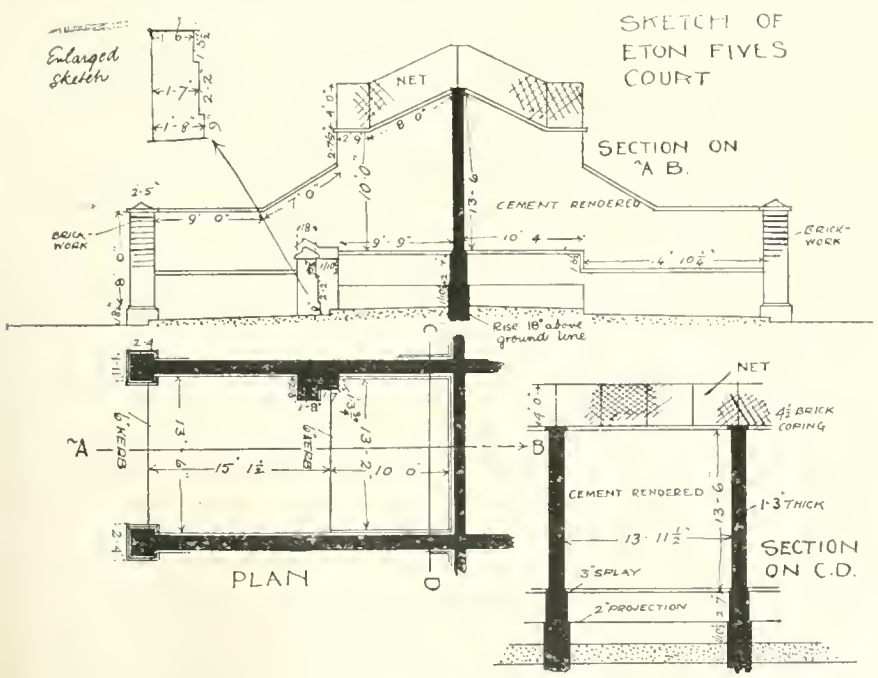
[13018.]—DAMP WALLS.—From results obtained the writer can recommend the following varnish: Dissolve 6lb. of pale or colourless resin in one gallon of shale naphtha, and add 2oz. of raw guttapercha dissolved in one pint of bisulphide of carbon; strain, and well mix with two gallons of raw linseed-oil. The carbon bisulphide is a colourless, volatile, heavy liquid, giving off an extremely offensive and inflammable vapour, but is an excellent solvent, dissolving guttapercha, and so forming a vulcanisable solution. These vapours, however, soon pass off when in use. Two coats will be sufficient, applied with a heavy varnish brush. The reveals to the windows, including part of the surrounding work, whether of brick or stone, should also be treated with the varnish, which, for this part of the work, will be more effective if rendered more fluid by the addition of shale naphtha for the first coat, so as to allow for complete penetration into the work by absorption. Remove any impurities that may rise to the surface before applying the second coat. The work is slightly darkened by this varnish, but eventually tones down, and the difference in colour is scarcely observable. The moisture in the walls, sills, frames, etc., must be allowed to dry out as much as possible, the surface freed from all foreign matters, and properly stopped with putty, where necessary, before varnishing.—Chas. A. Longley, Denmark Park, London.

[13019.]—FIVES COURTS.—Fives, like football, is played in several quite distinct ways, the two best-known and most generally recognised games being the Eton and the Rugby. The Eton court is a somewhat elaborate structure, and the adjoining sketch gives the regulation dimensions, according to the main, but is devoid of all steps, splays, and buttresses. Instead of pillars, the walls are usually finished with a bullnosed jamb, and a similar finish generally supersedes the coping on the wings, etc., These latter are frequently ramped down in one sweep. A back wall, from 3ft. 6in. to 4ft. high, is often added, with the entrance in the centre. Covered courts are becoming more and more popular, and the Rugby type is nowadays the more common.—E. P. Shelbourn, Melton Mowbray.

[13019.]—FIVES COURTS.—In reply to "A Twenty-five Years' Subscriber," fives courts are usually constructed to a standard size recognised by public schools, and vary according to whether the "Eton" or "Rugby" game is to be played. It is said that the game was originally played on the old Chapel steps at Eton, and a buttress and plinth,



etc., as indicated by the dotted lines on the accompanying sketch, are sometimes made a feature of the court, being intended to represent the actual surroundings of the original Eton game. To construct a serviceable court, excavate the trenches to the foundations to the lengths and depths shown. Put lime concrete foundations 15in. thick, and projecting 5in. on either side of the bottom course of footings standing thereon, composed of one part ground grey stone lime, five parts hard broken brick or gravel to pass through 1in. mesh, and one part clean sharp sand. Level out the floor of court and well consolidate, and lay cement concrete 6in. thick, and surfaced to fall about 9in. in the whole length of the court, with shallow gutter and outlet through end wall to gully, as shown. Finish the surface of



the court with good face of Portland cement and clean sharp sand in equal parts 1in. thick (or Val de Travers asphalte, 1in. thick). Put a course of stout building slates 6in. above the ground line round all the walls, as damp-course, with the course of brick above and below same laid in cement. Build up the walls 9in. thick in good hard, well-burnt stocks, and fix on the centre, or playing wall, a well-seasoned deal board, the whole width of the court 6in. deep, and the bottom thereof to be 22in. from the floor of the court. The face of the board to be level with the finished cement face of the wall, and painted black. Cope the walls with York stone or cast cement coping 3in. deep, weathered slightly outwards, and projecting 2in. on the outside, and flush inside, the coping on the centre wall to be flush on both sides, the whole well secured and bedded in cement. Build the brick piers in red facing bricks, as shown. Fix on the top of the coping, where indicated, 1in. round wrot-iron standards running through the coping, and well leaded, and put half-round wrot-iron top rail; fill in the railing so formed with galvanised wire tied lattice-work about No. 12 B.W.G. and 1in. diagonal mesh, p.c. 1s. 2d. per foot super. Rake out the joints of the inner faces of the walls, well wet, and render in Portland cement and clean sharp sand gauged 1 and 3, float and set with Portland cement trowelled fair to a good smooth face, the whole ½in. thick. This work will require to be done very carefully, to insure a smooth hard face without cracks. Twice white all the inside walls. An alternative plan to that shown on the accompanying sketch is to leave the ends of the courts quite open, with a brick pier only at the end of each side wall, instead of entering by the side openings shown on the plan.—W. H. Poole, Licentiate R.I.B.A., 25, Charles-street, Maidstone.

[13019.]—FIVES COURTS.—Full-scale plans and sections were given in Vol. XCIV. of the "B.N.," p. 138, Intercommunication Column, answer 12420, date, January, 1908.—Frank Wilson, 225, Nottingham-street, Sheffield.

[13020.]—RED CEMENT.—Why not colour the cement work when dry with distemper of the tint required? The firm manufacturing same will give all particulars, so as to get a good job. The following recipe for a red tint, in which the colouring matter is incorporated with the cement before same is put on, should give a satisfactory job:—Metallic oxide, 14lb.; green copperas, 5lb.; lampblack, 4lb. An addition of 10 per cent. of alum solution will give permanency and brilliancy to the work. These quantities are for 100yd. super.—J. W. Thorpe, 5, Woodville-terrace, Lytham.

The officers and men of the Chatham Port Division of the Royal Navy have placed in St. George's Chapel at the Royal Naval Barracks, as a memorial of King Edward, three stained-glass windows, the central window portraying the Crucifixion, and the others the Virgin Mary and St. John standing by the Cross. The unveiling was carried out on Wednesday.

A Local Government Board inquiry was held on Tuesday at King's Heath Institute, by Mr. Edgar Dudley, into the application made by the King's Norton and Northfield Urban District Council to borrow £4,445 for purposes connected with Cotteridge Park, King's Heath Park, Selly Oak Park, and Selly Park Recreation Ground; also for the widening and improvement of Moor Green-lane, Moseley, and the construction of a surface-water sewer in Broad Meadow-lane, King's Norton.

Foundation-stones were laid on Wednesday of a new Congregational chapel at Lutton, near Ivybridge. The contractor is Mr. Ambrose Andrews, of Plymouth. The building will be 50ft. by 30ft., with two transepts, rostrum, and two vestries at the end, and will accommodate 220. The design is Gothic, and the main walls and buttresses are built with patent concrete hollow blocks. The door and window quoins will be built with buff bricks. The floor of the passages will be wood block paving, and tiled lobby and porch, and the seating will be made of red pine and varnished. The estimated cost is £950.

The new police buildings at Renfrew were formally opened on Monday. The buildings are in the Scottish Baronial style, and have been designed to form the first part of a scheme which, when completed towards the east, will also comprise a fire-brigade station and housing accommodation for the brigade and police. The present arrangement provides accommodation for charge-room, chief-constable's room, muster room, gymnasium, and nine cells, airing ward, and other police requirements, while on the upper floor is situated a court-room, with magistrate's room, clerk's room, and witness's room. The cost has been £6,000.

At the meeting on Tuesday of the West Riding County Council, the general purposes committee submitted a scheme and plans for the extension of the county hall at Wakefield, in view of the large increase of staff. At the time the hall was opened, in 1898, the staff consisted of 92. It has grown to 327, of whom 227 are housed in the county hall and 100 in other buildings in the vicinity. The scheme provides for the erection of a new wing occupying the Burton-street frontage, giving accommodation for a staff of 150. The estimated cost of the new buildings is £32,000. The plans were adopted, and the General Purposes Committee was instructed to obtain tenders, and to proceed with the extension of the works at a sum not exceeding £32,000. At the same meeting it was decided, after some discussion and a division, to raise the salary of Mr. F. G. Carpenter, the county surveyor, from £600 to £650.

"Badminton Library." The walls are built of brickwork of the heights and thicknesses shown, and the wings and middle wall are finished with a smooth coating of cement. The floor is composed of cement concrete, also finished smooth. A wire net on iron standards surmounts the walls, as shown. The Rugby court is of similar dimensions in the

LEGAL INTELLIGENCE.

IN RE H. BAILEY. [illegible]

[illegible] BUILDERS [illegible] ROYAL ACADEMICIANS AND [illegible] WINDOWS. In the Chancery Division [illegible] Mr. Justice Warrington tried [illegible] Mr. Hilton Austin Wallis, the Royal [illegible] and [illegible] Chelsea [illegible] Mr. Alan Mault [illegible] that at Sir Ivo Court [illegible] to restrain the defendant [illegible] the Lower Chelsea Section [illegible] erecting the cottage to be [illegible] the plaintiff's freehold [illegible] and the defendants predecessor [illegible] Mr. Stewart Smith, K.C. who with [illegible] appeared for the plaintiff, and the [illegible] Chelsea. There [illegible] attached to the house, in [illegible] privacy [illegible] to the [illegible] premises [illegible] Sir Ivo Court, and [illegible] and occupiers [illegible] and she, in breach [illegible] opened the window [illegible] to the [illegible] was of importance [illegible] window [illegible] bound by the [illegible] the window of the other [illegible] defendant was entitled to [illegible] the other tenant would [illegible] are the privacy [illegible] Mr. Abbey [illegible] Bucknill, the owner of [illegible] and Mr. Howard Sutton, by [illegible] the flat was previously [illegible] Sir Ivo Court. It was pulled [illegible] and [illegible] into a [illegible] Mr. [illegible] upon the [illegible] this particular [illegible] it, and it would [illegible] that the wall containing [illegible] was about eight feet [illegible] the adjacent Chelsea [illegible] to be projected, the [illegible] that the owners of Chelsea [illegible] a little way in front of the [illegible] looked the [illegible] and [illegible] upon Mr. Bucknill and [illegible] Lawrence [illegible] on account which was [illegible] May 13, 1898 [illegible] the [illegible] that [illegible] Court [illegible] Mr. Justice Warrington [illegible] that [illegible] Chelsea [illegible] the [illegible] Court [illegible] the [illegible] Court [illegible] the [illegible] Court

sweeping away of the existing refuge and lavatory facing the District Railway station. The Hammersmith Borough Council have just approved of plans, prepared by their surveyor, Mr. H. Mair, M.Inst.C.E., which provide for new underground lavatories in the Broadway. The cost of this work is estimated at £6,200, the County Council's contribution to which will be £2,500.

Dr. S. J. Lewis has submitted to the Southwark Borough Council a scheme for a new thoroughfare to connect the Elephant and Castle with the proposed St. Paul's Bridge. In the Bill now before Parliament the southern approach, curving east, follows Great Guildford-street to Southwark-street. Instead of this, Dr. Lewis would bring the continuation of the approach to the middle of Skipton-street, near the Elephant and Castle, crossing Southwark-street and Lavington-street. A large circus would be formed from the end of Ontario-street, in London-road, across Skipton-street and Newington-causeway, along Tarn-street, across New Kent-road, along the west of the railway, and across Walworth-road to Draper-street. Through this street the circle would cross Newington Butts, and continue through St. Gabriel's-street, Oswin-street, and Princes-street, which leads back to London-road and completes the circus. Commenting on the scheme, the town clerk and the borough engineer say it is very much in accord with the suggestions of the Traffic Commission, but an attempt to push it forward just now might delay the Bill for the new bridge and the widening of Southwark Bridge.

The final lecture of the much-appreciated series of lectures given by Mr. A. Wallace Rimington, A.R.E., at Queen's College, Harley-street, on art subjects, will be delivered at 3 p.m. on Friday next, the 24th instant. The subject is, "The Educational Value of Pictures."

When publishing his book, "Reinforced Concrete, Theory and Practice" (Batsford, Holborn, W.C.), Mr. Frederick Rings designed a small reckoner for slabs, which is supplied with that book. The favourable reception the ready reckoner met with encouraged him to design a complete set of reckoners dealing with floor, etc., slabs, beams, and ribbed ceilings, and considerably improving at the same time the original ready reckoner for slabs. The four reckoners (two sets), together with the booklet mentioned, are obtainable from Mr. F. Rings, Bank Chambers, 92, Tooley-street, London Bridge, S.E.

TRADE NOTES.

The Boyle system of ventilation (natural), embracing the latest patent "Air-pump" ventilators and air-inlets, has been applied to Goring Church, Goring-on-Thames.

The Infectious Diseases Hospital, St. Albans, is being supplied with Shorland's warm-air ventilating patent Manchester grates, by Messrs. E. H. Shorland and Brother, Ltd., of Failsworth, Manchester.

Messrs. Wm. Moore and Co., 1, Lauderdale Buildings, Aldersgate-street, London, E.C., send us their new price list for dust-sheets, tarpaulins, and cleaning requisites. The prices are reasonable, and the goods reliable, as may be tested by a single sheet, which may be had as sample.

Messrs. S. W. Francis and Co., Ltd., 64, 66, 68, and 70, Gray's Inn-road, W.C., have issued a revised illustrated catalogue and list of their well-known revolving shutters and brass shop-fronts. They especially call attention to their new patent No. 4 steel-hinged self-acting wood shutter, which for style and quality, combined with the simplicity of its working, should alone command popularity. This shutter is manufactured from the best pine, in uniform convex laths, connected with patent steel hinges. They are attached to stout barrel-cases, and charged with steel spiral springs of the best possible manufacture, and possess this striking feature, which ought alone to recommend itself—i.e., they are the only springs that run throughout the entire breadth of shutter and bearing, thereby insuring against the deflection from unevenly-distributed weight. As the leading manufacturers of these specialities, the long experience of the firm guarantees the best results obtainable by architects and builders in the specialities they offer.

MEETINGS FOR THE ENSUING WEEK.

Friday (To-day).—Royal Sanitary Institute's Meeting at Bristol. Assemble in the Civil Court, Guildhall, 10.45 a.m. Visit Reservoir of Bristol Waterworks Co. 2.30 p.m.
Glasgow Architectural Craftsmen's Society. Discussion on the Fixing of Tiles. 8 p.m.
Leicester and Leicestershire Society of Architects. "The Influence of the Classic Revival in Leicester," by Arthur Wakerley, F.R.I.B.A.
Institution of Civil Engineers. "The Production of Water-gas," by Alwyne Meade, Stud.Inst.C.E. 8 p.m.
Royal Institution. "Water Supply," by J. H. Balfour-Browne. 9 p.m.

Saturday (To-morrow).—Architectural Association. Visit to Offices of General Accident Fire and Life Assurance Office, Aldwych (facing St. Clement Danes Church). 2 p.m.

Monday.—Victoria and Albert Museum. "German Gothic Architecture" (Lantern Illustrations), by Banister F. Fletcher, F.R.I.B.A. 5 p.m.
Architectural Association. "The Legal Authority of the Architect as Agent," by A. M. Brice. 7.30 p.m.
Royal Institute of British Architects. Special Business Meeting. 8 p.m.
Royal Society of Arts. "Applications of Electric Heating" (Cantor Lecture No. 3), by Prof. J. A. Fleming, Ds.C., F.R.S. 8 p.m.

Tuesday.—British Museum. "Byzantine Architecture." (Lantern Illustrations), by Banister F. Fletcher, F.R.I.B.A. 4.30 p.m.
Institute of Sanitary Engineers. "Ventilation of Dwellings and Public Buildings," by John Lawrence. 7 p.m.
Institution of Civil Engineers. Discussion on the "Electrification of a Portion of the Suburban System of the London, Brighton, and South Coast Railway." 8 p.m.

Wednesday.—Institution of Civil Engineers. Students' Visit to the Chingford Reservoir under Construction for the Metropolitan Water Board.
Carpenters' Hall Lecture. "Intarsia and Wood Inlay," by F. Hamilton Jackson, R.I.B.A. 7.45 p.m.
Royal Society of Arts. "The Manufacture of Portland Cement," by Arthur C. Davis, F.C.S. 8 p.m.
Edinburgh Architectural Association. "Architecture and Decorative Work in Germany," by Dr. Otto Schlapp. 8 p.m.
Northern Architectural Association. Annual Meeting. 7.30 p.m.

Thursday.—Carpenters' Hall Lecture. "Woodland Industries," by M. C. Duchesne. 8 p.m.

Friday (March 24).—Architectural Association. Members' Smoking Meeting, 18, Tufton-street, S.W. 8 p.m.
Institution of Civil Engineers. "The Uses of Chemistry in Engineering," by James Swinburne, F.R.S., M.Inst.C.E. 8 p.m.
Birmingham Architectural Association. "The B.A.A. Excursion to Holland," by A. E. MacKewan.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the Building News, Effingham House, 1, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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Telephone, Gerrard 1291.

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Caution.—Yes.

V. V.—Please send.

N. J.—Badly expressed, but will do.

Parson.—Designs for a ferro-concrete church appeared on p. 940, last vol.

R. H. K.—We might if very brief, with a few sketches that we could reduce to column width.

P. T.—We know nothing of the people. They are neither in our advt. columns nor in our "Directory" pages.

L. M.—We fear not. We have taken some pains to indicate what might be done, in our leading article this week.

F. H. H.—We cannot say! It is just possible that the long-suffering advertiser has found out that daily papers with "largest circulations"—of their sort, are not very remunerative to the manufacturers of building and engineering material.

Maya.—Thanks, we are not sufficiently interested. See p. 885 last vol. A little and not very often about the past civilisation of Yucatan contents us!

G. D.—(1) Briefly, we think an architect ought to design his own reinforced concrete work, and not to trust to "systems." (2) That is a legal question we hesitate to answer. We see some risky work being done; and now that architects are being held responsible for dry-rot and other things, it may be no sufficient answer one of these days if a "reinforced concrete" building collapses, for the architect to say "Oh! I am not responsible. That part of the work was 'designed' by the So-and-so company!"

W. L. B. L.—For illustrations of the incomparable Chapter-house at Southwell see our issues of Dec. 23, 1881, and Jan. 13, 1882 (working drawings for restoration, by the late Ewan Christian); March 5, 1882 (18th century engravings of exterior); Oct. 19, 1883 (sketch of exterior from north-east, by H. Harrington); Jan. 22, 1909 (Pugin drawing of exterior, by A. J. Margetson); Dec. 8 and 15, 1905 (National silver medal drawings of doorway, by Robert Atkinson), and April 2, 1909 (Pugin drawing of doorway, by S. H. Miller).

Trade News.

WAGES MOVEMENTS.

LABOUR MARKET IN FEBRUARY.—The monthly report of the Labour Department states that employment generally improved in February, and was much better than a year ago. The engineering industries continued to improve, and are now well employed. The brick, building, woodworking, and furnishing trades showed an improvement which was partly seasonal.

PILKINGTON & CO.

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TENDERS.

. Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender; it adds to the value of the information.

Aberystwith.—For the erection of the first section of the National Library of Wales:—

Willcock, H., and Co., Wolverhampton (accepted) ...	...over £50,000 0 0

Beckenham.—For the erection of a lavatory block at public baths, for the urban district council. Mr. J. A. Angell, Beckenham, surveyor:—

Axell, P. A., Elm-road, Purley	£212 0 0
Syme and Duncan, Blakeney-road, Beckenham	180 0 0
Jones & Andrews, Crescent Works	145 0 0
Heathfield, H., Reddons-road* ...	135 10 0

* Accepted.

Bethersden, East Kent.—For the sewerage of the village of Bethersden, for the West Ashford Rural District Council:—

Doney, T., Plymouth	£3,773 18 3
Ellis Bros., New Romney	3,440 0 0
G. P. Trentham, Handsworth ...	3,234 0 0
Woodham, H. and Son, Catford ...	3,127 10 0
Howland, C. J., Aldington	3,020 16 9
Southhorn, F. W., & Co., Leicester	3,003 8 9
Paterson, D. W., Ltd., London ...	2,925 10 0
Hopper, F., Bedford	2,892 17 8
Tonge, R., Sevenoaks	2,880 0 0
Wheeler, W. H., and Co., Ltd., Southwark	2,861 17 0
Woodhall, J. W. & Son, Ramsgate	2,844 10 0
Bell, G. and Sons, Ltd., Tottenham	2,843 0 0
Wood, T., and Son, Swanley ...	2,729 14 9
Nicholls, C. J., Cheriton	2,722 2 4½
Elliott, H., and Co., Ealing ...	2,703 3 0
Parker, T., Jarvis Brook	2,685 13 3
Bowles, E. J., Ashford	2,652 10 0
Browning, G., Canterbury	2,474 18 0
Paramors, Ltd., Margate	2,456 19 5
Wilson, W., Ramsgate (accepted)	2,421 16 8

Bedlington.—For erecting school (568 places), for the Northumberland Education Committee. Mr. C. Williams, Moothall, Newcastle-on-Tyne, architect:—
Haswell and Waugh, Gateshead £4,976 0 0
(Twenty-seven tenders received.)

East Denton.—For the erection of twenty-five cottages on the Small Holdings Estate at East Denton, for the corporation of Newcastle-on-Tyne:—
Davidson, J., of Bayston Hill ...
(Twenty-seven tenders received.)

Edinburgh.—For the erection of a new clear-stow roof at Dewar place power station, for the town council:—
Motherwell Bridge Co., accepted at £18,000.
(Lowest of nine tenders received.)

Eltham, S.E.—For the erection of examination and art room at the L.C.C. Residential and Day Training College, Avery-hill, and the formation of a pathway from the main building to the lecture rooms, for the London Education Committee:—

Nightingale, B. E., Watling-street	£2,299 19 3
Newell and Linsty, Wilson-street, Poplar	2,116 19 3½
Pollock, W., West Park, Eltham	2,090 0 0
Proctor, E., and Sons, High-street, Plumstead	2,059 8 6
Thorne, F. and T., Isle of Dogs	2,049 0 0
Kirk and Randall, Woolwich	2,048 0 0
Lawrance, E. and Sons, Ltd., Wharf road, City-road	2,046 0 0
Patrick, J. and M., Wandsworth	2,013 0 0
South, J. and Sons, Ltd., South Norwood	1,974 0 0
Bowyer, J. and C., Ltd., Upper Norwood	1,965 0 0
Lowe, R. A., and Co., Chislehurst	1,963 0 0
Lole and Co., Trafalgar-square, Chelsea	1,925 0 0
Roberts, C. P. and Co., St. Paul's-road, Highbury	1,908 0 0
Gathercole Bros., London-road, Norbury	1,783 15 0
Webster, F. and Son, Grove-vale Works, East Dulwich	1,778 18 7
Cook, R. and Sons, Crawley, Sussex*	1,736 17 6

(Architect's estimate, £2,118.)
* Recommended for acceptance.

Forest Hill, S.E.—For the erection of a lecture hall and library at the Horniman Museum, for the London County Council:—

Higgs & Hill, Ltd., Crown Works, South Lambeth-road, S.E.	£5,935 0 0
Holloway Bros. (London), Ltd., Belvedere-road, S.E.	5,870 0 0
Higgs, F. and H. F., Hinton-road, Herne-hill, S.E.	5,849 0 0
Lawrance, E., and Sons, Wharf-road, City-road, N.	5,688 0 0
Johnson, W. and Co., Ltd., Wandsworth-common, S.W.	5,638 0 0
Holloway, H. L., Union Works, Deptford, S.E.	5,600 0 0
Bowyer, J. and C., Ltd., Upper Norwood	5,425 0 0
Downs, W., Hampton street, Walworth-road, S.E.	5,260 0 0
Gathercole Bros., High-road, Norbury*	5,130 0 0

* Recommended for acceptance, as amended in accordance with revised plan, £4,889 10s.

Gosport.—For enlargement of Grove-road school, for the education committee:—

Jones, H., and Son	£1,069 0 0
Tanner, J.	1,051 0 0
Wicks and Son, Norwich	998 0 0
Lane, F. A., Gosport	957 0 0
Dash, C. M., Gosport	938 0 0
Hunt, J., Gosport	915 0 0
Spalding and Co., Norwich	890 0 0
Lear, C. J. (accepted)	844 0 0

Grimsby.—For annual supply of highways materials:—Mr. H. G. Whyatt, borough engineer and surveyor. Accepted tenders —
Chalk:—
Mitchell and Co., Haven Side Grimsby.
Columnar basalt macadam —
Jackson, M., and Son, Louth.
Artificial flags —
Dawber, Townsley, and Co., Ltd., River Head, Grimsby.
Yorks flags —
Marshall, S., and Sons, Ltd., Southowram, Halifax.
Granite setts, kerbs, and channel —
Sommerfeld and Mead, Ltd., 3, Princes Dock Chambers, Hull.
Yorks kerbs, &c. —
Farrars, Ltd., Brighouse, Yorks, and Moulsons and Millers, Ltd., Otley-road, Bradford.
Slag —
Contracts and Works Supply Co., 16, Savile-street, Sheffield; and Cloke's Extension, Ltd., 14, Park-row, Leeds.
Drainage pipes, &c. —
Dawber, Townsley, & Co., Ltd., River Head, Grimsby.
Tar, coal gas —
Great Grimsby Gas Co., Sheepfold-street, Grimsby.
Dog kennel lime —
Blow, N., and Co., River Head, Grimsby.
Pitch
Kempson and Co., Ltd., Pye Bridge, near Alfreton.
Portland cement —
Earle, G. and T., Ltd., Wilmington, Hull.

Immingham.—For the equipment of a new granary at Immingham Docks, with 150-ton travelling ship elevating gantries, cleaning machinery, and band conveyors, for the Humber Commercial Railway and Dock Co. —
Simon, H., and Co., Ltd., Manchester (accepted)

Leith.—For the extension of the electrical installation at the docks, for the commissioners:—
Chloride Electric Co. £2,032 0 0
(Recommended for acceptance.)

London. For the supply of four additional petrol-motor fire-engines, for the fire brigade committee of the London County Council —
Dennis Bros., Ltd. £3,740 0 0
(Recommended for acceptance.)

Middlesbrough. For erecting new wing at the Linthorpe Industrial School, for the education committee. Mr. S. E. Burgess, M.I.C.E., Municipal Buildings, Middlesbrough, borough engineer:—

Doughty, D., & Sons, Newport-rd.	£4,884 0 0
Robson, J. G., & Sons, Portman-st.	3,8 2 0 7
Vinter and Davison, Queen's-road, Linthorpe	3,797 0 0
Crisp, B., & Sons, Glenholme-ter.	3,757 6 6
Allison Bros., Marsh-road	3,715 0 3
Duchars and Bowers, Angle-street	3,725 6 4
Sheriff, S., & Sons, South Shields	3,670 0 0
Coates, S., Ltd., North Ormesby	3,668 10 8
McNaughton, H., Snowdon-road	3,625 12 9
Nicholson, W., & Son, Ltd., Leeds	3,584 0 0
Radge, G., Normanby	3,577 19 9
Hudson Bros., Fidler-street	3,500 0 0
Rhodes, P., Leeds	3,407 15 0
King, W. A., & Sons, Ltd., King's-road, North Ormesby (accepted)	3,280 0 0

Rest of Middlesbrough.

St. Bees.—For carrying out works of water supply, for the Whitehaven Rural District Council. Mr. G. Boyd, C.E., 33, Queen-street, Whitehaven, engineer. Accepted tenders:—

Staveley Coal & Iron Co., Chesterfield	£319 8 3
Donoughan, H. J., Clentor Moor	159 12 2

Stoke-on-Trent.—For carrying out structural alterations at St. Peter's Chambers, for the town council:—
Meiklejohn and Son, Stoke (accepted) £217 16 3

Stoke-on-Trent.—For structural alterations to the old portion of Stoke Town Hall, for the town council:—
Thomas, W., and Son, Hanley (accepted) £567 0 0

Stratford, E.—For alterations to Nos. 66, 68, and 70, The Broadway, for Messrs. Boardmans. Messrs. George Baines and Son, 5, Clement's Inn, Strand, W.C., architects:—
Battley, Sons, and Holness, 21, Old Kent-road, S.E. (accepted) £497 10 0

St. Austell.—For alterations to the board room, for the guardians. Mr. Andrew, architect:—
Jacob (accepted as revised) £120 0 0

Tottenham, N.—For the erection of a further instalment of 85 cottages on the Tower-gardens section of the White Hart-lane estate, Tottenham, for the London County Council:—

Roberts, A. and Co., Ltd., Earl's Court-road, S.W.	£20,128 0 0
Downs, W., Walworth-road, S.E.	18,197 0 0
Coxhead, F. J., Leytonstone	17,900 0 0
Lawrence, W., and Son, Finsbury-circus, E.C.	17,278 0 0
Nicholls and Son, Finchley	16,543 0 0
Rowley Bros., Tottenham	16,510 0 0
Monk, A., Lower Edmonton*	16,160 0 0

(Architect's estimate, £17,678.)
* Recommended for acceptance.
(The proposed cottages comprise one of five rooms, 48, of four rooms, and 36 of three rooms, each cottage in addition containing a scullery and offices.)

Ventnor.—For constructing high-level landing-stage to Royal Victoria Pier, for the urban district council. Mr. H. Hughes Oakes, Town Hall, Ventnor, I.W., engineer:—

Gradwell, W., and Co., Barrow-in-Furness	£8,300 0 0
Fasey, A., and Son, Leytonstone	7,344 11 0
Griffiths, W., and Co., London	6,956 0 0
Thorne, A., and Sons, Westminster	6,497 0 0
Cooper, T. B., and Co., Bristol*	5,949 0 0
Brebner, R. C., & Co., Edinburgh†	5,538 10 6

* Accepted. † Withdrawn.

West Ham.—For additions to tram-car sheds, for the town council. Mr. J. G. Morley, Town Hall, West Ham, E., borough engineer:—

Brown, C., Grays	£8,069 0 0
Myall and Upson, Ilford	7,824 0 0
Dawson, E. W., Hornsey, N.	7,740 0 0
Nightingale, B. E., Albert Embankment, S.E.	7,677 0 0
Strong and Co., Marble Arch	7,599 0 0
Fryd, A. H., Southend-on-Sea	7,268 0 0
Wall, C., Ltd., Lloyd's-avenue	7,220 0 0
Patrick, J. and M., Wandsworth	7,110 0 0
Luton, J. T., Stratford	6,977 0 0
Coxhead, F. J., Leytonstone	6,904 0 0
Leslie and Co., Ltd., Kensington-square, W.	6,889 0 0
Kirk and Randall, Woolwich	6,779 0 0
Moss, S.E., Southend-on-Sea	6,770 0 0
Webster, F., & Son, East Dulwich	6,697 0 0
Roberts, C. P., and Co., Highbury	6,594 0 0
Carter, H. J., Ltd., Grays	6,571 0 0
Warner, Lown, and Co., Holloway	6,486 0 0
Pattinson and Sons, Ltd., Parliament-street, S.W.	6,126 0 0
Jerram, J.W., East Ham	6,169 0 0
Woollaston, R., & Co., Limehouse	6,160 0 0
Symes, A. E., Stratford	5,944 0 0
Horswill, H. C., Forest Gate*	5,855 0 0
Brickell, H., Beckton-road, E.	—
Butler, J., and Co., Ltd., Stanningley, near Leeds	—
Findlay, A., & Co., Ltd., Victoria-street, S.W.	—
Hill & Smith, Ltd., Brierley Hill, Staffs.	—

Accepted.

Westminster, W.C.—For alterations to Caxton Hall, for the city council:—

Coulthard, T., Eaton-terrace	£218 0 0
Love and Co., Exeter-street	158 0 0
Wright and Son, Wild-street	150 0 0
Eyre, W., Great Chappel-street	146 0 0
Sims, J. R., 69, Horseferry-road*	141 0 0

* Recommended for acceptance.

LATEST PRICES.

IRON.

Steel Joists, Belgian and German (ex steamer, London) Per ton	£5	12	6	to	£5	17	6
Steel Joists, English	6	10	0	,,	6	15	0
Wrought-Iron Girder Plates	7	0	0	,,	7	5	0
Steel Girder Plates	7	2	6	,,	8	2	6
Bar Iron, good Staffs	6	5	0	,,	6	10	0
Do., Lowmoor, Flat, Round, or Square	20	0	0	,,	20	0	0
Do., Welsh	5	15	0	,,	5	17	0
Boiler Plates, Iron—							
South Staffs	8	0	0	,,	8	15	0
Best Snedshill	9	0	0	,,	9	10	0

Angles 10s., Tees 20s. per ton extra.
Builders' Hoop Iron, for bonding, &c., £8 15s. to £9.
Builders' Hoop Iron, galvanised, £14 to £15 10s. per ton
Galvanised Corrugated Sheet Iron—

	No. 18 to 20. Per ton.				No. 22 to 24. Per ton.		
6ft. to 8ft. long, inclusive gange	£13	0	0	...	£13	10	0
Best ditto	13	0	0	...	14	0	0

Wire Nails (Points de Paris)—

3 to 7	8	9	10	11	12	13	14	15	B.W.G.
8/3	8/9	9/3	9/9	10/3	11/-	11/9	12/6	13/6	per cwt.

	Per ton.				Per ton.		
Cast-Iron Columns	£6	10	0	to	£8	10	0
Cast-Iron Stanchions	6	10	0	,,	8	10	0
Rolled-Iron Fencing Wire	6	5	0	,,	8	10	0
Rolled-Steel Fencing Wire	6	5	0	,,	8	10	0
,, ,, ,, Galvanised	7	15	0	,,	8	5	0
Cast-Iron Sash Weights	5	0	0	,,	5	5	0
Cut Floor Brads	9	15	0	,,	—		
Corrugated Iron, 24 gauge	16	0	0	,,	—		
Galvanised Wire Strand, 7 ply, 14 B.W.G.	14	5	0	,,	—		

B.B. Drawn Telegraph Wire, Galvanised—

0 to 8	9	10	11	12	B.W.G.
£10 5 0	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.

Cast-Iron Socket Pipes—

3in. diameter	£6	2	6	to	£6	7	0
4in. to 6in.	6	0	0	,,	6	5	0
7in. to 24in. (all sizes)	5	7	6	,,	6	0	0

[Coated with composition, 5s. 0d. per ton extra; turned and bored joints, 5s. 0d. per ton extra.]

Pig Iron—	Per ton.						
Cold Blast, Lilleshall	110s.	0d.	to	117s.	6d.		
Hot Blast, ditto	70s.	0d.	,,	75s.	0d.		

Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.):—

Gas-Tubes	75	p.c.
Water-Tubes	72½	,,
Steam-Tubes	67½	,,
Galvanised Gas-Tubes	65	,,
Galvanised Water-Tubes	62½	,,
Galvanised Steam-Tubes	57½	,,

OTHER METALS.

Spelter, Silesian Per ton	£22	17	6	to	£23	0	0
Lead Water Pipe, Town	17	0	0	,,	—		
,, ,, ,, Country	17	15	0	,,	—		
Lead Barrel Pipe, Town	18	0	0	,,	—		
,, ,, ,, Country	18	15	0	,,	—		
Lead Pipe, Tinned inside, Town	19	0	0	,,	—		
,, ,, ,, ,, Country	19	15	0	,,	—		
Lead Pipe, Tinned inside and outside Town	21	10	0	,,	—		
,, ,, ,, ,, Country	22	5	0	,,	—		
Composition Gas-Pipe, Town	20	0	0	,,	—		
,, ,, Country.	20	15	0	,,	—		
Lead Soil-pipe (up to 4½in.) Town	20	0	0	,,	—		
,, ,, Country [Over 4½in. £1 per ton extra.]	20	15	0	,,	—		
Lead Shot, in 28lb. bags	24	15	0	,,	—		
Copper Sheets, sheathing & rods	70	0	0	,,	70	10	0
Copper, British Cake and Ingot	58	0	0	,,	58	10	0
Tin, Straits	180	0	0	,,	180	10	0
Do., English Ingots	194	0	0	,,	194	10	0
Do., Australian	183	10	0	,,	184	0	0
Do., Bars	195	0	0	,,	196	0	0
Pig Lead, in 1cwt. pigs	14	7	6	,,	—		
Sheet Lead, Town	16	10	0	,,	—		
,, ,, Country	17	5	0	,,	—		
Genuine White Lead	21	0	0	,,	—		
Refined Red Lead	19	0	0	,,	—		
Sheet Zinc	32	5	0	,,	29	15	0
Old Lead, against account	12	5	0	,,	—		
Tin per cwt.	11	0	0	,,	—		
Cut Nails (per cwt. basis, ordinary brand)	0	10	6	,,	—		

TIMBER.

CONSTRUCTIONAL.

Per St. Petersburg Standard (100—12ft. by 11in. by 11in.)							
Yellow Pine Deals, Quebec, 1st quality	£34	0	0	to	£42	0	0
,, ,, ,, 2nd ,,	24	0	0	,,	26	0	0
,, ,, ,, 3rd ,,	15	10	0	,,	18	0	0
Spruce Deals: St. Johns	6	0	0	,,	11	0	0
,, ,, Miramichi	7	5	0	,,	6	10	0
,, ,, Boards: Swag	7	0	0	,,	8	0	0
Red Deals: Archangel 1st quality	20	10	0	,,	21	10	0
,, ,, ,, 2nd ,,	15	0	0	,,	17	0	0
,, ,, ,, 3rd ,,	11	0	0	,,	12	0	0
,, ,, St. Petersburg—							
,, ,, 1st quality	16	0	0	,,	17	0	0
,, ,, 2nd ,,	13	0	0	,,	14	10	0
,, ,, Wyburg & Ulcaborg	10	0	0	,,	12	0	0
,, ,, Gefle, Gothenburg, and Stockholm	10	0	0	,,	17	0	0
White Deals: Crown	10	0	0	,,	12	0	0
,, ,, Seconds	9	10	0	,,	10	0	0
Flooring: White and Planed—							
1st and 2nd quality mixed	9	0	0	,,	9	5	0
1st, 2nd, and 3rd quality mixed	8	5	0	,,	6	10	0
Red Planed, 1st quality	11	5	0	,,	11	10	0
Pitch Pine: Prime Deals and Boards	17	0	0	,,	20	0	0
Lignum Vitæ	5	10	0	,,	12	0	0

Per foot super, as 1in.							
Yellow Pine Logs (waney board)	0	2	9	,,	0	4	3
Pitch Pine Logs	0	1	6	,,	0	1	10
Birch: Quebec Logs	0	2	0	,,	0	2	6
Oak: Austrian Wainscot	0	7	0	,,	0	8	0
Mahogany: Gaboon	0	6	1½	,,	0	6	2

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (50c.ft.)	£20	0	0	to	£21	10	0
„ Java „ „	15	0	0	„	18	0	0
	Per cubic foot.						
Oak Planks: U.S.A., imported..	0	1	9	to	0	2	6
„ Boards „ „ Prm.	0	2	4	„	0	2	9
„ „ „ „ Mdm.	0	1	10	„	0	2	2
Sequoia (Californian Redwood)	0	3	0	„	0	3	6
Birch: Quebec logs	0	1	8	„	0	2	2
„ „ sawn planks	0	1	0	„	0	1	2
Oak: Austrian Wainscot	0	6	0	„	0	7	0
Walnut: Prime boards & planks	0	5	0	„	0	6	0
„ Mdm. „ „	0	3	4	„	0	3	6
Greenheart: Hewn logs	0	3	6	„	0	4	6
Cedar: Cigar box	0	3	6	„	0	4	6
Satin Walnut: Imp. sawn boards, prime	0	2	3	„	0	2	6
Orham: Imp. sawn boards, prime	0	1	10	„	0	2	2
Mahogany: St. Domingo, Cuba, and Honduras	Per foot of lin. 0	0	5½	to	0	0	6
„ African, Assinee, &c.	0	0	4½	„	0	0	9
„ Lagos and Benin	0	0	3½	„	0	0	4½
„ Sekondi and Cape Lopez	0	0	2½	„	0	0	3½
„ Gaboon	0	0	1½	„	0	0	0
Satinwood: West Indian	0	0	10	„	0	2	2
Rosewood Per ton	7	0	0	„	12	0	0
Lignum Vitæ „	4	0	0	„	11	10	6

STONE.*

Red Mansfield, in blocks per foot cube	£0	2	4
Darley Dale, ditto „ ...	0	2	3
Red Corsehill, ditto „ ...	0	2	2
Closeburn Red Freestone, ditto „ ...	0	2	0
Ancaster, ditto „ ...	0	1	10
Greenshill, ditto „ ...	0	1	10
Chilmark, ditto (in truck at Nine Elms) „ ...	0	1	9
Beer, ditto „ ...	0	1	6
Hard York, ditto „ ...	0	2	10
Ditto ditto 6in. sawn both sides, landings, random sizes per foot sup.	0	2	8
Ditto ditto 3in. slab sawn two sides, random sizes „ ...	0	1	3

* All F.O.R. London.

Bath Stone, delivered on rail at quarry stations per foot cube	0	1	0
Delivered on road waggons, Paddington Depot „ ...	0	1	6½
Ditto ditto, Nine Elms Depot „ ...	0	1	6½
Beer Stone, delivered on rail at Seaton Station „ ...	0	1	0
Ditto, delivered at Nine Elms Station „ ...	0	1	6

Portland Stone, in random blocks of 20ft. average:—

	Brown Whit Bed.	White Base Bed.
Delivered to railway depot at the quarry per foot cube	£0 1 5¾	£0 1 7½
Delivered on road waggons at Paddington Depot ... Ditto, Nine Elms Depot ... Ditto, Pimlico Wharf ...	„ ... 0 2 1	... 0 2 2½

BRICKS.

(All prices net.)

Hard Stocks	£1	6	6	per 1,000 alongside, in river
Rough Stocks and Grizzles	1	6	0	„ „ „
Picked Stocks for Facings	2	10	0	„ delivered at railway station.
Flettons	1	6	0	„ „ „
Pressed Wire Cuts	1	16	0	„ „ „
Red Wire Cuts	1	14	0	„ „ „
Best Fareham Red	3	12	0	„ „ „
Best Red Pressed Raaboo Facing	5	0	0	„ „ „
Best Blue Pressed Staffordshire	3	15	0	„ „ „
Ditto Bullnose	4	0	0	„ „ „
Best Stourbridge Fire Bricks	3	14	0	„ „ „
2½in. Best Red Accrington Plastic Facing Bricks	4	13	0	„ Net, delivered in full truck loads in London.

GLAZED BRICKS.*

HARD GLAZES. (PER 1,000.)

White, Ivory, and Salt Glazed. Best.	Best. Seconds.	Buff and Cream.	Other Coloure.	Second Colours.
Stretchers—				
£10 17 6	£9 7 6	£12 7 6	£16 7 6	£10 17 6
Headers—				
10 7 6	8 17 6	11 17 6	15 17 6	10 7 6
Quoins, Bullnose, and 4½in. Flats—				
13 17 6	12 17 6	16 7 6	19 17 6	14 7 6
Double Stretchers—				
16 7 6	14 17 6	19 7 6	22 17 6	16 7 6
Double Headers—				
13 7 6	11 17 6	16 7 6	19 17 6	13 7 6
One side and two ends, square—				
17 7 6	15 17 6	20 7 6	24 17 6	17 7 6
Two sides and one end, square—				
18 7 6	16 17 6	21 7 6	25 7 6	18 7 6
Splays and Squints—				
15 17 6	14 7 6	20 7 6	23 7 6	15 17 6
Plinth and Hollow Bricks. Stretchers and Headers—				
5d. each	4d. each	6d. each	6d. each	5d. each
Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres—				
5d. each	4d. each	8d. each	8d. each	5d. each
Rounded Internal Angles—				
4d. each	3d. each	5d. each	5d. each	4d. each

MOULDED BRICKS.

Stretchers and Headers—				
8d. each	8d. each	8d. each	8d. each	8d. each
Internal and External Angles—				
1/2 each	1/2 each	1/2 each	1/2 each	1/2 each
Cill Bullnose, Stretchers and Headers—				
5d. each	4d. each	6d. each	6d. each	5d. each

	Per 1,000		
Majolica or Soft Glazed Stretchers and Headers	£21	17	6
„ „ „ Quoins and Bullnose	26	17	6

Compass bricks, circular and arch bricks of single radius £6 per 1,000 over above list for their respective kinds and colours } Not exceeding 9in. × 4½in. × 2½in.
Camber arch brick, any kind or colour, 1s. 2d. each

Stretchers cut for Closers and Nicked Double Headers, £1 per 1,000 extra.

* These prices are carriage paid in full truck loads to London stations.

	s.	d.	
Thames and Pit Sand	7	0	per yard, delivered.
Thames Ballast	5	6	„ „
Best Portland Cement	28	0	per ton, „
Best Ground Blue Lias Lime	19	0	„ „

Exclusive of charge for sacks.

Grey Stone Lime 11s. 6d. per yard, delivered
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. sta.

SLATES.

	In.	In.	£	s.	d.	
Blue Portmadoc	20×10	..12	12	6	per 1000 of 1200 at r.sta.	
„ „	16× 8	.. 6	12	6	„ „ „	
Blue Bangor	20×10	..13	2	6	„ „ „	
„ „	20×12	..13	17	6	„ „ „	
First quality	20×10	..13	0	0	„ „ „	
„ „	20×12	..13	15	0	„ „ „	
„ „	16× 8	.. 7	5	0	„ „ „	
Eureka unfading green	20×10	..15	17	6	„ „	
„ „	20×12	..18	7	6	„ „ „	
„ „	18×10	..13	5	0	„ „ „	
„ „	16× 8	.10	5	0	„ „ „	
Permanent green	20×10	..11	12	6	„ „ „	
„ „	18×10	.. 9	12	6	„ „ „	
„ „	16× 8	.. 6	12	6	„ „ „	

TILES.

	s.	d.		Delivered
Plain red roofing tiles	42	0	per 1000	at rly. sta.
Hip and Valley tiles	3	7	per doz.	„ „
Roseley tiles	50	0	per 1000	„ „
Ornamental tiles	52	6	„	„ „
Hip and Valley tiles	4	0	per doz.	„ „
Ruabon red, brown, or brindled	57	6	per 1000	„ „
do. (Edwards)	60	0	„	„ „
Ornamental do.	4	0	per doz.	„ „
Hip tiles	3	0	„	„ „
Valley tiles				
Selected "Perfecta" roofing tiles:—Plain tiles (Penke's)	46	0	per 1000	„ „
Ornamental do.	48	6	„	„ „
Hip tiles	3	10½	per doz.	„ „
Valley tiles	3	4½	„	„ „
"Rosemary" brand plain tiles	48	0	per 1000	„ „
Ornamental tiles	50	0	„	„ „
Hip tiles	4	0	per doz.	„ „
Valley tiles	3	8	„	„ „
Staffordshire (Hanley) Reds or Brindled tiles	42	6	per 1000	„ „
Hand-made sand-faced	45	0	„	„ „
Hip tiles	4	0	per doz.	„ „
Valley tiles	3	6	„	„ „
"Hartshill" brand plain tiles, sand-faced	50	0	per 1000	„ „
Pressed	47	6	„	„ „
Ornamental do.	50	0	„	„ „
Hip tiles	4	0	per doz.	„ „
Valley tiles	3	6	„	„ „

OILS.

Rapeseed, English pale, per ton	£28	15	0	to	£29	5 0
Do., brown	„ ...	26	15	0	„	27	5 0
Cottonseed, refined	„ ...	29	0	0	„	30	0 0
Olive, Spanish	„ ...	39	10	0	„	40	0 0
Seal, pale	„ ...	21	0	0	„	21	10 0
Cocoanut, Cochin	„ ...	46	0	0	„	46	10 0
Do., Ceylon	„ ...	42	10	0	„	43	0 0
Do., Mauritius	„ ...	42	10	0	„	43	0 0
Palm, Lagos	„ ...	32	5	0	„	33	5 0
Do., Nut Kernel	„ ...	35	0	0	„	35	10 0
Oleine	„ ...	17	5	0	„	19	5 0
Sperm	„ ...	30	0	0	„	31	0 0
Lubricating U.S. per gal.		0	7	0	„	0	8 0
Petroleum, refined „		0	0	6¾	„	0	0 6¾
Tar, Stockholm per barrel		1	6	0	„	1	10 6
Do., Archangel „		0	19	6	„	1	0 0
Linseed Od per gal.		0	4	2½	„	—	
Baltic Oil „		0	4	6	„	—	
Turpentine „		0	5	6½	„	—	
Putty (Genuine Linseed Oil) per cwt.		0	11	0	„	—	
„ Pure Linseed Oil, "Stority" Brand „		0	10	0	„	—	

VARNISHES, &c.

	Per gallon.		
Fine Pale Oak Varnish	£0	8	0
Pale Copal Oak	0	10	0
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of churches	0	14	0
Fine Elastic Carriage	0	12	6
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	16	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flatting Varnish	0	16	0
White Copal Enamel	1	4	6
Extra Pale Paper	0	12	6
Best Japan Gold Size	0	10	0
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	0
Berlin Black	0	16	0
Knotting	0	10	0
French and Brush Polish	0	10	0

GLASS IN CRATES.

English Sheet Glass:	15oz.	21oz.	26oz.	32oz.
Fourths	1¾d. ...	2½d. ...	3½d. ...	4½d.
Thirds	2½d. ...	3½d. ...	4d. ...	5½.
Fluted Sheet	2½d. ...	3½d. ...	6d. ...	6½d.

Hartley's English Rolled Plate: ⅛in. 3/16in. ¼in. 2½d. ... 2½d. ... 3½.

Figured, Rolled, and Repoussine: White. Tinted. 3½d. ... 5d.

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ADDRESS .....

.....

LIST OF COMPETITIONS OPEN.

Luton—Charles-street [illegible]		The Secretary of Education, Town Hall, Luton	Mar. 21
San Thomé, Portuguese [illegible] Streets, Sewerage, Water Supply, [illegible]		The President of Municipal Council, San Thomé, Portuguese West Africa	,, 25
Gidea Park—Town Planning Gidea Park: F. G. Dawber, H. V. Lanchester, and M. E. Macartney, Assessors	£100, £50	The Secretary, Town Planning Exhibition, 33, Henrietta-st., W.C.	,, 31
Manchester—Library and Art Gallery (Prof. Reginald Blomfield, A.R.A., assessor		Thomas Hudson, Town Clerk, Town Hall, Manchester	,, 31
New Cumnock—Limited Free Cinema [illegible]	£10	The Rev. W. Scott, The Manse, New Cumnock	,, 31
Coventry—Municipal Buildings and Proposed Town Hall. (F. Guy Dawber, F.R.I.B.A., 22, Buckingham-street, W.C., Assessor		Geo. Sutton, Town Clerk, 10, Hay-lane, Coventry	April 1
Carlton—Sewage Disposal Scheme		James Senior, Clerk, Carlton, near Barnsley	,, 6
Corbridge, Hexham—Sewerage and Sewage Disposal Scheme	£15, £10	J. H. Nicholson, Clerk, Midland Bank Chambers, Hexham	,, 13
Kilkee, West Clare—Sewerage and Sewage Disposal Scheme		T. Kelly, Clerk, The Workhouse, Kilrush	,, 15
Swansea—Castle-street Improvement: Assessor, S. S. Reay, F.R.I.B.A.	£50	The Town Clerk, Guildhall, Swansea	May 5
Aspatria—Sewerage Scheme		F. Richardson, Clerk, Aspatria, Cumberland	June 10
Athens—Court of Justice (cost £100,000)	£80, £320	Comm. Intel. Branch, Board of Trade, 73, Basinghall-street, E.C.	Aug. [illegible]
Glasgow—Alexander Thomson Travelling Studentship	£60, £20	C. J. Maclean, Secretary, 115, St. Vincent-street, Glasgow	Dec. 29
Inverness—Remodelling Northern Meeting Assembly Rooms		Thomas G. Henderson, Secretary, Eastgate House, Inverness	No date
Lowestoft—Elementary School (Limited to Norfolk and Suffolk Architects)	20gs., 10gs., 5gs.	R. B. Nicholson, Town Clerk, Town Hall, Lowestoft	do.

LIST OF TENDERS OPEN.

BUILDINGS.

London, N.—Maintenance of Buildings (Three Years)	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	Mar. 17
Hull—Reconstructing Madeley-street Baths	Corporation	A. E. White, M.I.C.E., Town Hall, Hull	,, 17
London, S.—Maintenance of Buildings (Three Years)	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 17
Gravesend—Additions to 52, Queen-street	Town Council	H. H. Brown, Town Clerk, 1, Woodville-terrace, Gravesend	,, 17
Boston—Renewing Stonework at two Cemetery Chapels	Burial Board	The Borough Surveyor, Municipal Buildings, Boston, Lincs	,, 17
Andover—Pavilion on Sports Field in London-road	Grammar School Governors	F. Ellen and Son, Andover	,, 17
Eastbourne—Additions to Old Town Baths	Town Council	W. C. Field, Borough Architect, Town Hall, Eastbourne	,, 18
Merthyr Tydfil—Shops, Nos. 35, and 36, High-street	Merthyr Billiard and Recreation Co.	T. Edmund Rees, Architect, Merthyr Tydfil	,, 18
Immingham—Police Station and Pair of Cottages	Lindsey County Council	James Thropp, County Surveyor, 29, Broadgate, Lincoln	,, 18
Ynysddu—School (500 places)	Monmouthshire Education Com.	J. Bain, F.R.I.B.A., Council Offices, Newport, Mon	,, 18
Greetland—Altering Premises into Stabling		C. F. L. Horsfall and Son, Architects, Lord-street, Halifax	,, 18
Tredegar—Extensions to Intermediate School	Monmouthshire Education Com.	J. Bain, F.R.I.B.A., Council Offices, Newport, Mon.	,, 18
Pengam, Mon.—Extensions to School	Monmouthshire Education Com.	J. Bain, F.R.I.B.A., Council Offices, Newport, Mon.	,, 18
Merthyr—House and Addition to Shop, Merthyr-road		T. E. Rees, Architect, Merthyr Tydfil	,, 18
Trelewis, near Treharris—Twenty Houses	Ffaldcaiach Building Club	Treharne Jones, Architect, Nelson, via Cardiff	,, 18
Newtown, Montgomery—Drill Hall	Territorial Force Association	R. W. Davies, M.S.A., Architect, Carno	,, 18
Manchester—Chimney (250 ft. high), Stuart-street	Electricity Committee	C. S. Allott & Son, Civil Engineers, 46, Brown-street, Manchester	,, 18
Stratford-on-Avon—Primitive Methodist Church		Knight and Heberv, Architects, 5, Rother-st., Stratford-on-Avon	,, 18
Banbury—Repairing Isolation Hospital, Warwick-road	Town Council	N. H. Dawson, C.E., Borough Surveyor, Town Hall, Banbury	,, 18
Eastbourne—Additions to Acacia Villa, Seaside	Town Council	W. C. Field, Borough Architect, Town Hall, Eastbourne	,, 18
Keighley—Additions to Park Works		J. Haggas and Sons, Architects, North-street, Keighley	,, 20
Halifax—Barn and Stable at Mixenden Green	Waterworks Committee	K. J. Hartley, C.E., Waterworks Eng., Gibbet-street, Halifax	,, 20
West Ham—Temporary Classrooms at Custom House School	Education Committee	William Jacques, A.R.I.B.A., 2, Fen-court, Fenchurch-street, E.C.	,, 20
Burnley—New Buildings, Barrack-road	East Lancashire Association	W. Greenwood, A.R.I.B.A., Architect, Victoria-street, Blackburn	,, 20
Winsford—Cattle Sheds	Urban District Council	James Wilkinson, Surveyor, Market-place, Winsford	,, 20
Selby—Additions to Police Station	West Riding Standing Joint Com.	J. V. Edwards, West Riding Architect, County Hall, Wakefield	,, 20
Milborne Port—Council School	Somerset Education Committee	A. J. Picton, Bruton	,, 20
Keady and Castleblaney—Three Gate Cottages	Gt. Northern (Ireland) Railway Co.	The Chief Engineer's Office, Amiens-street Terminus, Dublin	,, 20
Halifax—Rebuilding Mortuary, Stoney Royd	Health Committee	J. Lord, M.I.C.E., Borough Engineer, Town Hall, Halifax	,, 20
Middlesbrough—Assembly Hall and Sunday Schools		J. Forbes, Architect, 43, Albert-road, Middlesbrough	,, 20
Stocton—Block of Three Shops and Houses		G. L. Clarke, Architect, Arcade Chambers, North-street, Keighley	,, 20
Robert-town, Dewsbury—Additions to Property	Geo. Hutchinson	E. Vincent King, A.R.I.B.A., 24, Westgate, Dewsbury	,, 20
Plymouth—Additions to Workhouse Laundry	Guardians	Thornely, Rooke, & Barrons, Archts., 11, The Crescent, Plymouth	,, 20
Liverpool—Jobbing Repairs at Workhouse (One Year)		G. O. Holloway, Acting Vestry Clerk, Parish Offices, Liverpool	,, 20
Dipton—Nine Houses	South Medomsley Colliery Co.	G. T. Wilson, Architect, 22, Durham-road, Blackhill	,, 20
Batley—Four Residences, Healey lane		B. Watson, Architect, Upper Taylor-street, Batley	,, 20
Keighley—Enlargement of St. Anne's Schools	Rev. J. F. Russell	E. Simpson and Son, 12, Cunliffe-terrace, Manningham	,, 21
Ben Rhydding—Motor Garage at Wheatley-lawn		C. Williams & Sons, Architects, Commercial-street, Halifax	,, 21
Dunbar—Barrack Block and Troop Stables, Castle Park	War Department	The Director of Army Contracts, War Office, Whitehall, S.W.	,, 22
Southmolton—Drill Hall	Territorial Force Association	S. Edwards, Architect, Barnstaple	,, 22
Manchester—Corrugated Iron Buildings, Abbey Hey lane	Education Committee	The Secretary, Education Offices, Deansgate, Manchester	,, 22
Leeds—Alterations to Offices in Municipal-buildings	Corporation	W. T. Lancashire, City Engineer, Municipal-buildings, Leeds	,, 22
King's Lynn—Alterations to House in Cattle Market	Corporation	A. J Smith, Borough Surveyor, Town Hall, King's Lynn	,, 22
Blaenavon—Five Cottages, Llanover-road		D. Cotterell, King-street, Blaenavon	,, 22
Southowram—Alterations to Brookfoot School	West Riding Education Committee	The Education Architect, County Hall, Wakefield	,, 23
Golcar—Houses in Leymoor-road		A. Shaw, Architect, Golcar	,, 23
Stockwell, S.W.—Slating Roof at Council's Depot, Landor-rd.	Lambeth Borough Council	H. Edwards, C.E., Boro' Eng., Town Hall, Brixton Hill, S.W.	,, 23
Antwerp—Warehouse	Municipal Authorities	The Burgomaster, Hotel-de-Ville, Antwerp	,, 23
Wakefield—Partition at Brierley Grimethorpe School	West Riding Education Committee	The Education Architect, County Hall, Wakefield	,, 23
Golcar—Six Houses, Rundel-street		Lunn and Kaye, Architects, Milnsbridge	,, 23
Westtown, Dewsbury—Extension of Convent		Holtom and Fox, Architects, Corporation-street, Dewsbury	,, 23
Hull—Works to Premises, Hessle-road	Governor and Guardians	T. Beecroft Atkinson, Architect, 11, Trinity House-lane, Hull	,, 24
Devizes—Nurses' Bathrooms at Workhouse	Guardians	O. Sheppard, Clerk, Union Offices, Devizes	,, 25
Marsden—Fifty-three Houses, Smithy Holme	Equitable Industrial Society	J. Berry, Architect, 3, Market-place, Huddersfield	,, 27
Southall—Repairs &c., at St. Marylebone Schools	St. Marylebone Guardians	A. Saxon Snell, F.R.I.B.A., 22, Southampton Buildings, W.C.	,, 27
Greenwich-road, S.E.—Extending Hospital	Management Board	H. A. Bone, Secretary, Miller Hospital, Greenwich-road, S.E.	,, 27
Ipswich—Dining Hall, Chandlery, &c., St. John's Home	Guardians	J. A. Scheuermann, Architect, Northgate-street, Ipswich	,, 28
Worksop—Alterations to Head Post Office	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 28
Barrow-in-Furness—Fire Station in Abbey-road	Corporation	The Borough Engineer's Office, Town Hall, Barrow	,, 28
Bridgend—Twelve Semi-detached Houses, Merthyrmawr-rd.	Glanogwr Building Club	O. P. Bevan, Architect, 26, Park-street, Bridgend	,, 29
West Hartlepool—Secondary School for Girls, Eldon grove	Education Committee	N. F. Dennis, M.I.C.E., Borough Engineer, West Hartlepool	,, 29
Leeds—Two Hostels at Training College		A. E. Kirk, Architect, Albion-street, Leeds	,, 29
Gellifaelog—Schools (150 places)	Merthyr Tydfil Education Com.	J. Ll. Smith, M.S.A., Aberdare	,, 31
Sandbach—Upper Sandbach School	Congleton Administrative Sub-Com.	Alfred Price and Son, Architects, Sanbach	,, 31
Pontypool—Covered Play Shed at West Monmouthshire School		Fisher and Sons, Architects, Albion Chambers, Pontypool	,, 31
Longtown—Additions and Improvements to Schools	Cumberland Education Committee	The Clerk of Works, 13, Earl-street, Carlisle	April 1
Barming Heath—Internal Alterations to Lunatic Asylum	Kent Asylums Committee	Francis R. Howlett, Clerk, 9a, King-street, Maidstone	,, 1
Maldon, Essex—Elementary School (520 places)	Essex Education Committee	F. H. Bright, Clerk, 63, High-street, Maldon, Essex	,, 3
Wimbledon—Additions to Drill Hall, St. George's road	Territorial Force Association	Jarvis & Richards, Archts., Queen Anne's Gate, Westminster, S.W.	,, 3
Truro—Seventeen Artisans' Dwellings at Water-co	City Council	F. A. Barnes, A.M.I.C.E., City Eng., Municipal Buildings, Truro	,, 3
Aberdeen—Goods Shed and Offices	Caledonian Railway Co.	J. Blackburn, Secretary, 302, Buchanan-street, Glasgow	,, 3
Tadworth—Riding School, Assaye Barracks	Secretary of State for War	The Director of Barrack Construction, 80, Pall Mall, S.W.	,, 3
Swindon—Enlarging Head Post Office	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 4
Merthyr Tydfil—Infants' School, Mount Pleasant	Education Committee	The Deputy Surveyor, Town Hall, Merthyr	,, 4
London, S.W.—Extending Distr. Post-Office	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 5
Chatham, Kent—County School, Chatham Hill (240 places	Kent Education Committee	W. H. Robinson, M.S.A., Archt., Caxton House, Westminster, S.W.	,, 7
Perth—Infirmary Buildings	Infirmary Directors	J. Miller, A.R.S.A., F.R.I.B.A., 15, Blythswood-square, Glasgow	,, 8
Croydon—Drill Hall, Mitcham-road	Territorial Force Association	Jarvis and Richards, Architects, 10, Queen Anne's-gate, S.W.	,, 9
Deal—Alterations to Engineer's House at Waterworks	Deal & Walmer Joint Water Board	Brown and Hardman, Clerks, Deal	,, 10
Stansted—Elementary School (216 places)	Essex Education Committee	F. Whitmore, Architect, 73, Duke-street, Chelmsford	,, 15
Stansted—Alterations to School	Essex Education Committee	F. Whitmore, Architect, 73, Duke-street, Chelmsford	,, 15
Arnstable—Improvements to School	Cumberland Education Committee	I. Forster, Clerk of Works, 13, Earl-street, Carlisle	No date
Cardiff—Office Buildings, West Tute street		Henry Budgen, F.R.I.B.A., 95, St. Mary-street, Cardiff	do.
Carshalton—Post Office	Postmaster General	The G.P.O. Surveyor, 12, St. Andrew's-square, Surbiton, Surrey	do.
Earlestown—Additions to Assembly Hall, Earle-street	Conservative Club Committee	R. Curran and Son, Architects, Cairo-street, Warrington	do.
Manchester—Church		E. H. Lingen Barker, Architect, 78, King-street, Manchester	do.

March 24, 1911. Volume C. No. 2933

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House, Strand, W.C.

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"Inverlune," Aldcliffe. Mr. Charles B. Pearson, Architect.

71, 72, and 73, St. James-street, S.W. Messrs. William Woodward and Sons, Architects.

Building News Designing Club. a Refreshment Hostel in Timber for Workpeople. Three Designs.

Glasgow Cathedral. Photographs of New Roofs.

The British Art Palace, International Fine Arts Exhibition, Rome.

Rood Screen, Mobberley Parish Church.

"THE WORLDE THAT NEWETH EVERIE DAYE."

It is related of one of the celebrities of the middle nineteenth century (was it not told of John Stuart Mill?) that, being in his youth a passionate lover of music, it unhappily struck him one day that as there are really but seven notes in an octave, all their possible permutations would soon be exhausted, and afterwards that there could be no fresh music, only the old combinations over again. This thought filled his mind with melancholy. He did not believe, like the old poet Gower, in "The worlde that neweth everie day," nor think, like Tennyson, that "We are the ancients of the earth, And in the morning of the times." Had Mill been an architect, he might in this matter have had many followers. For as Mr. Garbett long ago pointed out, it is the way of architectural styles to proceed from large details to smaller, from the gigantic monoliths of Luxor and Carnac to the smaller, if more refined, proportions of the Greek and Roman Orders, and so onwards in the same dwindling direction from little details to less ones, till Mediæval work which began with massive piers like those of Durham and Peterborough, dies out at last in the "tobacco-pipe shafts" of the latest of the old cathedrals, which, it is said, was that of Funchal, in Madeira. Not that Funchal (to judge from photographs) quite bears out Mr. Garbett's reference to its pettiness of detail. Externally, it is less "cut up" than the latest Late Gothic work in general, and inside, though the nave piers are small, they are by no means comparable in smallness to anything which would occur, even to the most extravagant smoker, in his wildest dream, unless, like De Quincey, he happened to be a smoker of opium. "Tobacco-pipe shafts," or something hardly bigger, may indeed be found in monuments and shrines, worked in clunch, or in some like material, or depicted in stained glass, as, for instance, at Fairford; but before general stonework had become so petty as this, people had got disgusted with it, and started a Renaissance of one kind or another. Perhaps it was of the mental world rather than of the physical one that "ancient Gower," as Shakespeare calls him, was thinking when he wrote of "The worlde that neweth everie daye," and not of the world which brings us Summer on the steaming floods, And Spring that swells the narrow brooks, And Autumn with a noise of rooks, That gather in the waning woods"; but rather of the Thought that is eternal, separate from fears; The all-assuming months and years, Can take no part away from this"—a thought "of what the world will be, When the ages have rolled away."

For there have been many architectural Renaissances already, besides the one about which, in Italy, Brunelleschi showed so much mechanical skill and so little artistic foresight. He began the destruction of the world that then was. He showed how architecture could be taken out of the hands of working men, each with some idea, or fraction of an idea, in his head, and all turned over to one money-making master-mason, with only his own imagination to supply all the ideas, and only his own judgment to criticise them. And Brunelleschi showed, though perhaps he himself did not discover it, how poor and trite is the best building one man by himself can produce compared with the best which a hundred men, made up, perhaps, of ten or twenty crafts, can turn out, when every one of them bestows on his work the best invention, and the best experience, and the best criticism that is in him. We, in England, seem to have had a potential Brunelleschi once, at Wells Cathedral. But our man was an artist, and not merely a very superior mechanic; so his name, therefore, is naturally left in obscurity, and we only hear of the "great man" who appointed him—Bishop Jocelyn Trotman—who began building at Wells about A.D. 1214, and who died in 1242. As the custom then was, still is, and apparently will be, world without end, the man who cared nothing for his own glory finds no one else to care for it, and the bishop, not the builder, gets praised for the sculpture in the west front of Wells Cathedral.

There have been many Renaissances, we said; many partial attempts, where architectural detail had sunk into pettiness, to go back to the days when the giants lived; many efforts of the architectural world to renew itself. Such efforts, conflicting for awhile with revived Classic, can be traced in Italy about the early fifteenth century, and in Holland and the Low Countries nearly 100 years later. The church of Santa Maria delle Grazie at Milan, with its polygonal tower and projecting apses, only strikes the uncultured Englishman as a visible and tangible heresy—a terrible thing with invention in it; the work of somebody who dared to think for himself, and which every orthodox soul should try to root out and utterly destroy. To people who can tolerate, and even welcome, fresh ideas, there is not only much that is novel in it, but even more of what is old: more of the long-abandoned Romanesque, with its panellings, its pilasters, its surface decoration, and its marble columns. The average tourist only notes it as a church with which Bramante had something to do, and if he remembers anything beyond Bramante's name, it will be the height of the tower and perhaps the money it cost. To the average tourist, "A fine building," as Fielding says, "is merely a heap of stones set up as a monument, to show that a heap of money has been piled there before." Yet "The worlde that neweth everie daye" produced it, and has tolerated it in the Milan case for half a millennium or thereabouts, and tolerates it still, though it is outwardly a reproduction (though not a mere copy) of the round-arched work of the eleventh or twelfth century. Similar reproductions, in which long forsaken forms were revived for a time, to clothe for awhile the newest of ideas, abound in Southern Europe, for there, as elsewhere, thought began in the South, and worked its way Northward by much hard fighting. So the revived Romanesque of Holland and Flanders is later date than that which, for a time, half-overpowered the revived Greek and Roman in Italy, and almost took fresh root in Germanic countries, and nearly became again a growing and flourishing style. For a repetition of twelfth-century forms, copied so closely as to be almost deceptive, and yet permeated throughout so fully with the modern spirit that, as we once heard a Cockney traveller remark about Mr. Butterfield's restoration of St. Buryan's Church, West Cornwall, "their anciency is entirely obliterated," the reader may refer to the sketch of the Hoorn gateway, and to the scale elevation of it with plans—both of which were published in the Building News many years ago. In this gateway the gable is crowned by a tower which at once brings to remembrance that of St. Mary-le-Strand; but below is a range of trefoiled arcades, with each trefoil five or six feet in span, while twenty feet higher up or more is an Early-English-looking arcade of rather similar form, with its mullions little more than 3ft. from centre to centre. All this is mixed with Classic quoins and curved gable copings with saddlestones, such as were used in England in the time of James I., and yet the composition is not wanting in harmony, and its Classic elements and Romanesque ones do not agree quite so imperfectly as "the 100th Psalm and the tune of 'Green Sleeves.'" There is much more of this revived Romanesque in Holland; and some of it may be found by

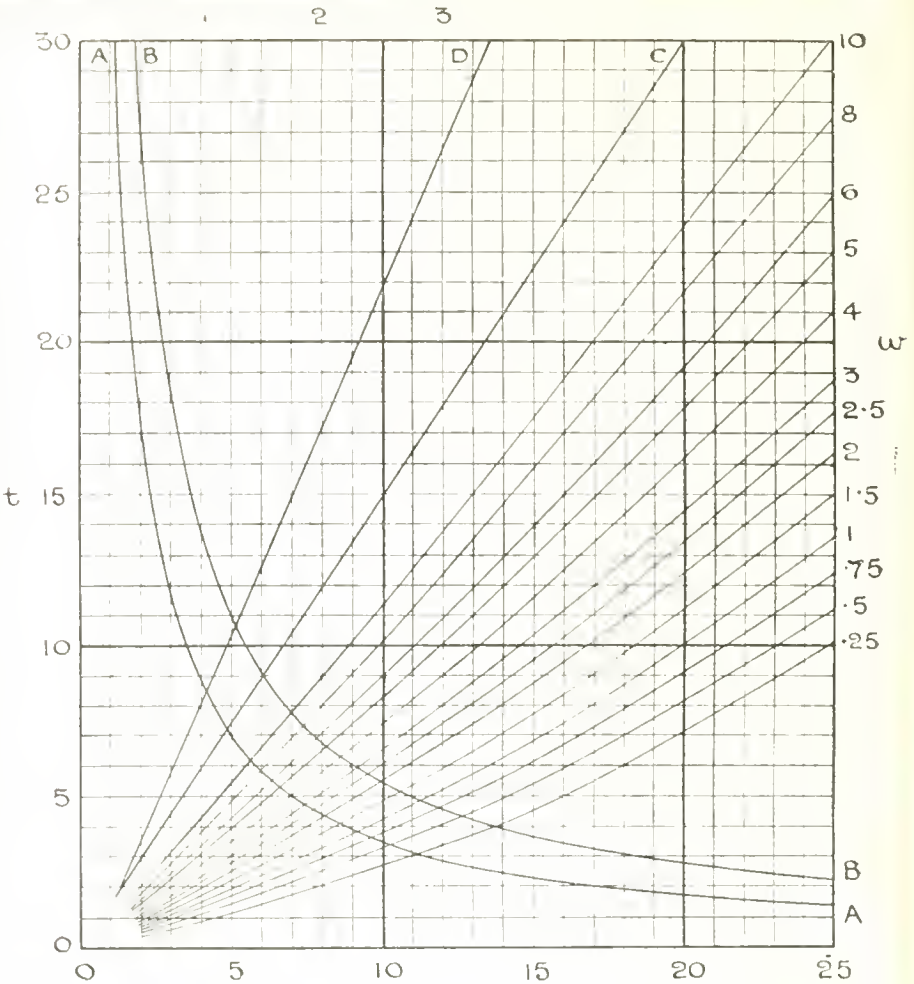

DIAGRAM 6.—Slabs with Single Reinforcement in One Direction. Sides fixed or continuous over beams. $m = 12$. For other values of m multipy actual span by $3.46\sqrt{m}$ m and use as L. From curve A read on base line spacing in inches of $\frac{1}{2}$in. diameter rods; from curve B read on base line spacing in inches of $\frac{5}{8}$in. diameter rods; from curve C read on base area of steel in tenths of a square inch per foot breadth of slab; from curve D read on top line approximate weight per square foot in cwts., and approximate cost per square foot in shillings.

[illegible] most parts [illegible] where there is any work of [illegible] 1600 or later.

The [illegible] seems to have had a [illegible] both century, as [illegible] thoughtful and [illegible] Gothic might have [illegible] been favourable [illegible] church and [illegible] Nonconformity [illegible] this country [illegible] they are [illegible] styles. They [illegible] City churches [illegible] feeble copies [illegible] Mary-le-Bow. But [illegible] Gothic [illegible] and carried everything before [illegible] out of it was to lug out of the [illegible] which is no better tolerable perhaps less so to Low Church people and Dissenters than to High Church people and avowed Catholics. So we have seen the sons of the Puritans restoring the statues of saints which their fathers broke as superstitious, and reviving styles full of symbolism for a world which neither accepts the symbols, or even understands them. The architect and his works have sunk nearly to the level of the "modes et robes" of Regent-street, and the world rates his worth accordingly. So we see another Classic Revival, with nothing to be revived, and "the world that neweth every daye," with little to renew but rubbish. Early Victorianism has come back naked and not ashamed, while Pugin and Ruskin, Burges and Edward Godwin, Scott and Street and Butterfield, all appear, for the moment, to have lived in vain. But the end is not yet. Architecture one might fancy has almost ceased to be. But it has only died down for awhile, as plants do in winter. In its season it will renew itself, perhaps with the aid of craftsmen who will each be wiser than to take all knowledge for his province, but of whom one will give all the invention that is in him to masonry, and another to carpentry, and others to long lost arts such as those of plumbing, nonfounding, concrete and plastering, which at present have mostly passed beyond death into what goes by the name of "art-manufacture," "which is the second death."

REINFORCED CONCRETE DESIGN. IV.

By Richd. Coutson Licentiate R.I.B.A. and Richd. Coutson Jun. Assoc. R.C.Sc.I.

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[illegible] formulæ and diagrams [illegible] slabs are given [illegible] the bending moment factors 12 and 24 only, these being the ones most frequently required in practice, where the slabs are usually [illegible] as panels in a continuous floor supported at intervals in either one or both directions by beams of which they form a part.

Should it be desired to vary the factor for the outer bays, where the slabs are supported only by walls or the like, and cannot therefore be regarded as fixed at both ends, or to use any system of bearing other than uniformly distributed, this can be readily done by means of the formulæ given under the diagrams for other values of m, and using the equivalent L thus found in place of the actual span.

This also applies to isolated slabs [illegible] single floors where m is usually taken as either 8 or 16 for reinforcement in two directions respectively.

For doubling slabs, fixed on all four sides and reinforced in both directions (where $m = 24$ for square slabs) a diagram is given showing at a glance the factor to be used for obtaining the equivalent L for various ratios of length to breadth, and also one giving the proportion of load transmitted in each direction, so that the supporting beams may be designed accordingly.

Examples illustrating their use follow immediately after the diagrams.

REDUCED WORKING FORMULÆ AND DIAGRAM 6 FOR SLABS WITH SINGLE REINFORCEMENT IN ONE DIRECTION.

$f_c = \frac{1}{4}$ ton per square inch, $f_s = 7\frac{1}{2}$ tons per square inch, $s_c = 60$lb. per square inch, $s_s = 5$ tons per square inch, $r = 15$, $m = 12$, $n = 140$, $w_c = 490$. Cost of concrete, including timber forms, 1s. per cube foot; cost of steel £3 per cube foot.

Considering a 12" breadth of slab—

$$t = .00594\,L^2 + .0000353\,L^3 + L^2(.1125\,w + .0146)$$

the equation from which the curves are plotted, and which includes the weight of the slab.

$$T = t + 1\tfrac{1}{2}$$
$$A_s = .067\,t.$$

Spacing in inches of $\frac{1}{2}$" diameter round rods—

$$35\ \frac{}{t}.$$

Spacing in inches of $\frac{5}{8}$" diameter round rods—

$$55\ \frac{}{t}.$$

Stirrups will not be required unless t exceeds 1.93 L. Weight of slab per square foot—

$$.106\ t = .13\text{cwt.}$$

Cost of slab per square foot—

$$.111\ t = .104\text{ shillings.}$$

For any other value of m, substitute $12\,L^2\ m$ for L^2 in the formula for t.

REDUCED WORKING FORMULÆ AND DIAGRAM 7 FOR SQUARE SLABS WITH SINGLE REINFORCEMENT IN TWO DIRECTIONS.

$f_c = \frac{1}{4}$ ton per square inch, $f_s = 7\frac{1}{2}$ tons per square inch, $s_c = 60$lb. per square inch, $s_s = 5$ tons per square inch, $r = 15$, $m = 24$, $n = 140$, $w_c = 490$. Cost of concrete, including timber forms, 1s. per cube foot. Cost of steel £3 per cube foot.

Considering a 12" breadth of slab—

$$t = .003\,L^2 + .000009\,L^3 + L^2(.056\,w + .0088)$$

the equation from which the curves are plotted, and which includes the weight of the slab—

$$T = t + 1\tfrac{1}{2}$$
$$A_s = .067\,t \text{ (in each direction).}$$

Spacing in inches of $\frac{1}{2}$" diameter rods—

$$35\ \frac{}{t}.$$

Spacing in inches of $\frac{5}{8}$" diameter rods—

$$55\ \frac{}{t}.$$

Stirrups will not be required unless t exceeds 1.93 L. Weight of slab per square foot—

$$.107\,t = .156\text{cwt.}$$

Cost of slab per square foot—

$$.159\,t = .125\text{ shillings.}$$

For any other value of m, substitute $24\,L^2\ m$ for L^2 in the formula for t.

EXAMPLE 5.

A floor 50ft. by 40ft., with beams 10ft. apart in one direction only, is to carry a superload of, say, 10cwt. per square foot. Thus L for slab = 10, $w = 10$, and $m = 12$

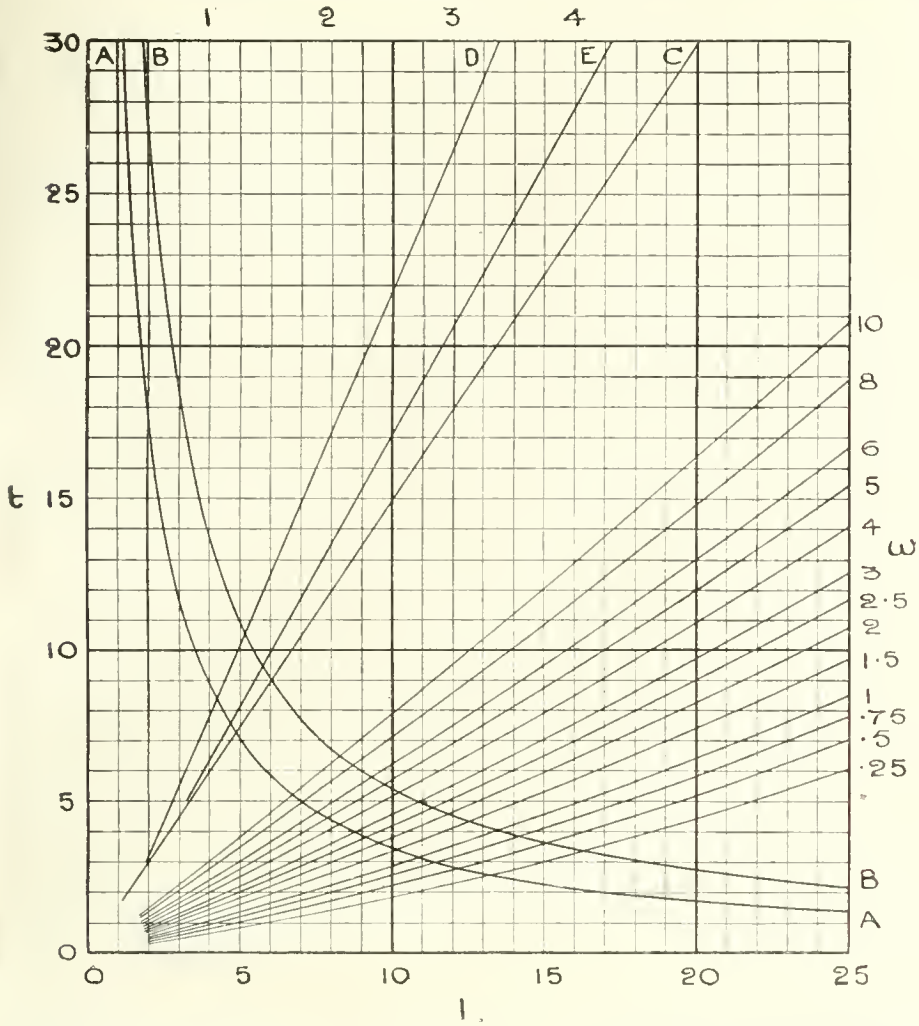


Diagram 7.—Square Slabs with Single Reinforcement in Two Directions. All edges fixed or continuous over beams. $m = 24$. For other values of m multiply actual span by $4.9\sqrt{m}\ m$ and use as L. From curve A read on base line spacing in inches of $\frac{1}{2}$in. diameter rods; from curve B read on base line spacing in inches of $\frac{5}{8}$in. diameter rods; from curve C read on base area of steel in tenths of a square inch per foot breadth of slab in each direction; from curve D read on top line approximate weight per square foot in cwts.; from curve E read on top line approximate cost per square foot in shillings.

From Diagram 6, t = 11¼in., or by calculation:—

$$t = .594 + \sqrt{.353 + 100\,(1.125 + .0146)}$$
$$= .594 + \sqrt{114.3}$$
$$= .594 + 10.69$$
$$= 11.28, \text{ say } 11\tfrac{1}{4}\text{in.}$$

T = 12⅜in., A_s = .75sq.in. per foot of length, spacing of ½in. diameter rods = 3in., or of ⅝in. diameter rods 4¾in., weight of slab = about 1.3cwt., and cost about 1.3 shillings, or, say, 1s. 4d. per square foot

If a bending moment factor of 10 be used for the outer spans, then equivalent—

$$L = 3.46\sqrt{10}\ \ 10 \times 10 = 10.94,$$

and applying this to Diagram 6—

$$t = 12\tfrac{1}{2}\text{in., T} = 13\tfrac{3}{4}\text{in., } A_s = .82,$$

and so on. Or if it is not desired to increase the thickness for these spans, A_s can be increased and f_s decreased proportionately, their new values being found by equations (5) and (6), Article I. p. 269 *ante*. Thus—

$$f_s = 5.35, \text{ and } A_s = 9\cdot78.$$

Example 6.

Taking a similar case to the last, but with secondary beams dividing the floor into panels 10ft. square, with reinforcement in two directions, then L = 10 and w = 10, as before; but m = 24, and from Diagram 7 t = 7⅞in., or by calculation:—

$$t = .3 + \sqrt{.09 + 100\,(.56 + .0088)}$$
$$= .3 + \sqrt{56.97}$$
$$= .3 + 7.55$$
$$= 7.85, \text{ say } 7\tfrac{7}{8}\text{in.}$$

T = 9⅜in., A_s = .53sq.in. per foot in each direction, spacing of ½in. diameter rods = 4⅝in., or of ⅝in. diameter rods 7in., weight of slab = about 1cwt., and cost about 1.22 shillings, or, say, 1s. 3d. per square foot.

Example 7.

Again assuming a similar floor, but with secondary beams only 8ft. apart, dividing the area into panels 8ft. by 10ft., then L_1 = 8 and L_2 = 10. From equation on p. 269, Article I., the bending moment factor used should be—

$$\frac{L_1^4 + L_2^4}{L_2^4}\,m = \frac{4{,}096 + 10{,}000}{10{,}000} \times 12 = 16.9$$

Then by formula given under Diagram 7 for other values of m, equivalent—

$$L = 4.9\frac{\sqrt{16.9}}{16.9} \times 8 = 9.54,$$

or it can be obtained from Diagram 8, when—

$$\frac{L_1}{L_2} = \frac{8}{10} = .8,$$

which applied to the curve gives—

$$4.9 \div \sqrt{m}\ \ m = 1.19,$$

and this multiplied by—

$$L_1 = 1.19 \times 8 = 9.52.$$

Using Diagram 7 as before, t = 7⅝in., T = 9in., A_s = .5sq.in. per foot in each direction, spacing of ½in. diameter rods = 4⅝in., or of ⅝in. diameter rods = 7¼in., weight of slab = about .96cwt., and cost about 1.17 shillings, or, say, 1s. 2d., per square foot.

The proportion of load borne by each span will be found from Diagram 9 to be .71 on L_1 and .29 on L_2; therefore the load per

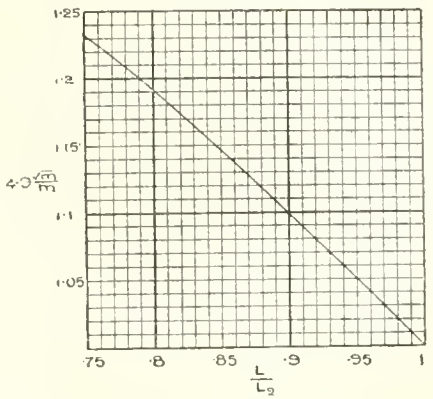


Diagram 8.—Factor to be Used as $4.9\sqrt{m}/m$ to Obtain Equivalent L for Oblong Slabs Reinforced in both Directions, where m = 24 for Square Slabs.

lineal foot *due to each slab* on each secondary beam supporting the shorter span—

$$= .71\,w\,\frac{L_1}{2} = .71 \times 10 \times 4$$
$$= 28.4\text{cwt. per lineal foot}$$

and on the main beams supporting the longer span—

$$= .29\,w\,\frac{L_2}{2} = .29 \times 10 \times 5$$
$$= 14.5\text{cwt. per lineal foot.}$$

or these can be calculated by formulæ given on p. 269, Article I.

Example 8.

In the case of an isolated floor, supported on four sides by walls, as in an ordinary

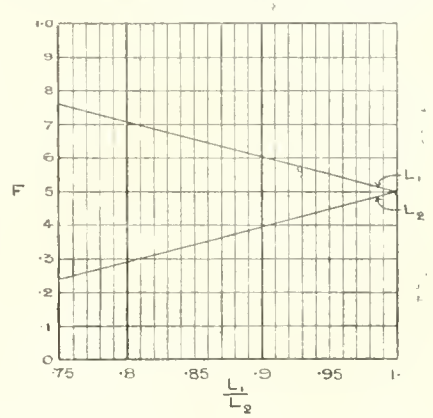


Diagram 9.—Fraction of Load F taken by Shorter Span L_1 and Longer Span L_2 of Oblong Slabs.

dwelling-house, and reinforced in both directions, the usual bending moment factor would be 16; and if the room be 12ft. square, the equivalent span—

$$= 4.9 \times \sqrt{16}\ \ 16 \times 12 = 14.7.$$

Taking the live or superload at 1cwt. per square foot, and using Diagram 7, t = 4⅜in., T = 6in., A = .3sq.in. per foot in each direction, spacing of ½in. diameter rods = 7¾in., or of ⅝in. diameter rods = 12½in., weight of slab = about .61cwt., and cost about .75 shillings, or, say, 9d. per square foot.

As t does not in any of these examples exceed 1.93 L, no stirrups are required.

(To be continued.)

The corporation of Manchester have decided to raise the salary of the city surveyor, Mr. Thomas de Courcy Meade, from £1,100 to £1,200 a year.

FREEHOLD LAND STIPULATIONS.

Although those who are concerned in the development of estates for building purposes, by means of the sale of the land in freehold plots are well aware of the stipulations that are inserted in every separate conveyance, subsequent purchasers of the houses themselves, as freehold, are not always clearly acquainted with the legal position. Many of these usual stipulations relate to the value of the buildings proposed to be erected on the plots, whether as houses or shops, or deal with the fencing, etc. When the houses are completed these conditions are practically complied with, and so come to an end. But there are other stipulations which continue to control the holding of the freehold, and, of course, apply to all subsequent owners. The estate is usually laid out by plan, which indicates which plots shall be private dwellings and which, if any, may be shops. It is usual to provide, nowadays, that no licensed house of any kind shall be allowed. Where it is desired to keep the estate as a high-class and select residential locality—which, of course, helps to maintain the price and letting value of all the houses erected, to the advantage, at all events, of the first owners—a stipulation is inserted in each conveyance of the plot of freehold land that no building erected there shall, at any time, be used for any other purpose than a private dwelling-house without the written consent of the original vendor of the land, or his successors in the title. The legal effect of this stipulation, or condition, is exactly the same as the usual restrictive covenant in similar words which occurs in many leases. In one sense it is an even greater clog upon the use and enjoyment of the property, because it is not for a term of years merely, but, in law, it goes on for ever. It would be difficult to dispense with these stipulations, because without them the residential character of an estate could not long be maintained, as each small freeholder would be able to do as he liked with his own piece of land. This freedom has often been seen at work where separate plots have been sold anyhow and without such conditions, with disastrous results to all concerned.

The first purchaser of a freehold house on one of these new and attractive estates is quite content with the restrictive condition as to its being used only as a dwelling-house. But as time goes on and the locality changes, as happens so quickly in many places nowadays, subsequent owners may not find the position so satisfactory. A beautiful red-brick residence which, twenty years ago, commanded a high rent and was reckoned as being in a high-class suburb, may to-day have to be put at a much lower rental value, or may be standing empty for a long time as being too large for the class of tenants who have invaded an area which was once in favour with those who were socially, or financially, their superiors. Then the question arises in the mind of the last purchaser of the freehold, or of the lessee under a long term from him, what is the best thing to do, as he himself no longer wishes to reside in the locality. Possibly he finds he cannot sell or let the house at all, or only at a very low rent as a private dwelling. So he looks about and sees agents to find some way out of the dilemma. It is suggested to him that, being a large house in a good suburb, it is just fitted for a select and high-class boarding establishment, as no doubt it is. Negotiations are entered into to effect this excellent arrangement, and the owner, being the freeholder, or a long lessee from him, regards the matter as capable of easy adjustment. If he is a leaseholder, he finds a restrictive covenant in his lease requiring the premises to be used solely as a dwelling-house. But after having obtained his lessor's consent to waive that condition, he proceeds with his plan until something happens to reveal the restrictive stipulation in the conveyance from the original owner of the estate.

The difficulty, however, may go even deeper than this, for if the first purchaser of the freehold plot had granted a long lease of the house erected at a ground rent, and this lessee had assigned, the assignee would have no right to go into this freehold title of the lessor, and so might well be quite unaware of the existence of a restrictive stipulation clogging the use of the land from the beginning. That this sort of thing can and does occur is well shown by the recent case of "Milch v. Coburn" (*Times*, Dec. 24, 1910). Here the house was in Fitzjohn's-avenue, Hampstead, and the action of the plaintiff was for the rescission of an agreement for three years at a rental of £165 a year, on the ground of misrepresentation and breach of warranty by the defendant as landlord. It was a tangled tale of mistakes and misunderstandings. The plaintiff wished to open the premises as a high-class boarding establishment. The defendant's agents got the consent of his lessor, for he held a lease, to waive the covenant as to using it other than as a dwelling-house. Solicitors on each side passed the thing as in order; the plaintiff took possession, and bought furniture. Then the original owner of the estate, who had sold it in freehold building plots, finding a boarding-house among his private dwellings, came forward with the restrictive stipulation. So the bomb burst, and Mr. Justice Joyce had to do what he could in the way of justice. All the parties had acted bonâ-fide. The defendant now agreed to rescind the plaintiff's useless agreement, and each side was to pay his own costs. So the plaintiff has had all the loss and worry for nothing, and the house can still only be used as a private residence.

If some of the professional persons engaged had thought of the stipulation in the conveyance of the freehold plot, all this would have been avoided, and probably the vendor would have refused his consent to waive the restriction. He would be within his legal right in so doing, and, moreover, he might have to consider the interests of the other freeholders who had bought land from him and built houses, which they still desired to use only as private dwellings in a select residential quarter. The true point to note and remember is that, although the owner of a freehold, or fee simple, has the largest estate in the land allowed by law, he may, all the same, be shackled by the stipulations or conditions contained in the first conveyance from which, or through which, he is bound to trace his title. In this way a freehold house may be little better than a leasehold, except that no term is limited and no ground-rent paid; but it can, in the same manner and extent, be subject to restrictive covenants, not removable except with the consent of the original owner of the estate or his representatives, whose act in this regard must be affected by other considerations. Nor is it easy to see how the law can be altered satisfactorily. For these stipulations are fair and necessary, while the locality remains residential; and even if the Courts had power to waive them when this character changes, it would be difficult to deal with the vested rights of other freeholders on the same estate to keep all the houses as private dwellings.

The city council of Bradford have adopted a scheme for the widening of Keighley-road at an estimated cost of £3,443.

THE ARCHITECTURAL ASSOCIATION.

The fortnightly meeting of the Architectural Association was held on Monday evening at 18, Tufton-street, Westminster. In the absence of the President, Mr. Arthur Keen, owing to indisposition resulting from a chill, the chair was occupied by Mr. Gerald C. Horsley, Vice-President. Three nominations having been read, the following were elected as members:—Messrs. C. O. Beardmore, Oxford; A. A. Messer, Woking; and F. M. Tozer, Maidenhead. Mr. E. Gunn, hon. secretary, announced that the members' smoking concert will be held at 18, Tufton-street, this (Friday) evening at 8 o'clock; an athletic club smoker and revel on Tuesday, March 28, at the Pillar Hall, Victoria Station; a meeting of the Camera, Sketch, and Debate Club will be held on Thursday, March 30, when Mr. H. W. Willis, A.R.I.B.A., will read a paper entitled, "That Socialism Means the Extinction of Fine Architecture," and a spring visit will be made on Saturday, April 1, to the Royal Academy of Music, Marylebone-road, by permission of Mr. Ernest George, A.R.A.

HOUSE LIST FOR SESSION 1911—1912.

The Chairman read the following "House List" of nominations of officers for the ensuing session, 1911-12:—President, Mr. Gerald C. Horsley; Vice-Presidents, Mr. W. Curtis Green and Mr. W. J. Tapper; ordinary members of Council, Messrs. A. T. Bolton, C. C. Brewer, F. C. Eden, G. Leonard Elkington, Horace Field, Stanley Hamp, A. R. Jemmett, A. Foxley, P. W. Lovell, G. Lucas, E. B. Maule, Percy May, C. Wontner Smith, Sir A. Brumwell Thomas, G. G. Wornum (fifteen nominated, ten to be elected); hon. treasurer, Mr. Arthur Keen; hon. editor "A.A. Journal," Mr. P. Cart de Lafontaine; hon. librarian, Mr. W. H. Ward; hon. secretary, Mr. Herbert A. Hall. Additional nominations for officers or ordinary members of the Council may, he explained, be made by members at the next ordinary general meeting on April 3, in accordance with By-law 33.

THE LEGAL AUTHORITY OF THE ARCHITECT AS AN AGENT.

Mr. A. Montefiore Brice, barrister-at-law (and formerly secretary to the Society of Architects), read the following paper upon this subject:—

It is obvious that, in dealing with a subject so large as the title of this paper indicates, I must confine myself rather to principles than details, to illustrations rather than to arguments, and it seems to me that it may be more suggestive if I dwell upon the cases where the authority of the architect is implied, rather than upon those in which it is expressed, for the careful architect will find expressed in the building contract from which he derives his authority as agent, precise directions as to the nature of that authority, while it may be only by the aid of a long experience or a legal knowledge that he will be able to decide for himself the range and limitation of his implied authority. Speaking generally, an architect may be employed merely as an adviser, or as a designer or draughtsman, or as an agent for the building owner. Usually, of course, he is called upon to discharge all these functions together. As adviser he holds himself out as possessing the necessary knowledge and skill, and as willing to exercise all reasonable care in giving such advice. No authority is delegated to him by the building owner, because there is none to exercise in this simple relation. As designer or draughtsman he contracts to supply drawings and a specification executed with reasonable care and skill, and that these shall be capable of being carried out. He warrants no special degree of skill, and the test as to whether he displays enough is whether the skill is so deficient or the case so defective that a bad result becomes inevitable. Again, no authority is delegated to him by the building owner, because there is none to exercise in this relation. But when he adds to these the function of supervisor of the works upon which he has advised, or which he has planned, or, less often, when he undertakes

to supervise the erection of what others have planned, he becomes the agent of the building owner, invested with certain authority over others, and expressly liable to his employer and to third parties for his use of it. He is invested with authority to deal with many questions regarding both site and building, the preparation of the plans, the working drawings and specification, the estimate of the cost of their execution, the obtaining of tenders, the preparation of the building contract, the performance of the duties imposed by the contract and the agreed variations from it, and the general supervision and control of the performance of the contract by the principal contractor and his sub-contractors. An architect may be appointed and invested with the full authority of the terms of his appointment by mere word of mouth, or his appointment may be inferred from the conduct of his apparent principal, or from the ordinary course of dealing, or, as is obvious, it may be shown by a written contract. In practice appointment by written contract is the usual manner; but in law it is only necessary in two cases to make such appointment in writing. In the first case, if the work is not to be performed within the year, or is incapable of being completely performed within the year, then, in order to satisfy the Statute of Frauds, the appointment must be in writing. In the second case, seeing that a corporation aggregate can in general only act by deed, its agent must be appointed by deed. There are exceptions to this second rule, and for certain trifling agencies a corporation can act without deed, while a trading company, though it be a corporation aggregate, can generally act without a deed.

THE AUTHORITY OF AN ARCHITECT

flows from the terms of his appointment as the agent of his employer, and in practice is generally limited (so far, at least, as the relations between the building owner and the builder are concerned) by the terms of the building contract. On the other hand, it frequently happens that where the work is on a small scale, or of an intermittent character, the building owner does not enter into a formal agreement expressing the conditions upon which he delegates his own authority to the architect, and in such cases the limits of that authority must be sought elsewhere than in a formal contract. It follows that where no formal agreement exists defining the power of the architect that the general principles of the law of agency, limited by the application of the ordinary practice of the profession, will control the authority of the architect. The general principles of the law of agency as affecting the authority of the architect are equally applicable whether the appointment is made in writing or otherwise; but in both cases they may be excluded by an express, or what in point of law may be held to amount to an express, provision to the contrary. Failing such express provision, it is clear that the architect's authority (as between his employer and third parties) is to be measured by the extent of his usual employment—a standard which, though it might be readily ascertained in practice, is not unlikely to invite litigation. Where the architect is the agent of his employer, authorised to act in the name of that employer, he may be the general agent of his employer, or his authority may be restricted within narrower limits. If he be the general agent to the extent of the usual employment of an architect, then he possesses the full apparent authority due to his position, and his employer is bound by all acts of the architect which come within that authority. And whether the terms of the agreement are merely general, or are in part or wholly inconclusive as to the nature of the authority imposed, the architect would be justified in adopting the ordinary and reasonable practice of his profession, and in doing so would be held to be complying with the requirements of the law. On the other hand, where the authority of the architect is defined by express terms, which may be oral, but are usually in writing, such limitation must be strictly observed. Any infringement of such authority by the architect would release the employer from liability, and render the architect himself liable in damages to injured parties. But the infringement must be material, for the law holds that in the construction of such authority there is present an implied permission to the agent to use the means that are necessary to carry into effect the expressed purpose of the employer. Thus, in Evans on "Principal and Agent" (second edition, p. 178), it is pointed out that when authority is conferred upon an agent by a formal instrument there are two rules of construction to be carefully observed:—

(1) The meaning of general words in the instrument will be restricted by the context and construed accordingly. (2) The authority will be construed strictly so as to exclude the exercise of any power which is not warranted either by actual terms used, or as a necessary means of exercising the authority with effect.

A good illustration of this doctrine is afforded by the leading case of Sharpe v. San Paulo Railway (1873, L. R. 8 Ch. 597), where it was held, inter alia, that the contractors could not, on mere verbal promises by the company's engineer (which were unauthorised), maintain against the company a claim to be paid sums beyond the sums specified in the contract, even though the amount of work to be executed might have been underestimated by the company's engineer; and that as the contract had provided that the certificate of the engineer had been made a condition precedent to payment, such certificate must be held conclusive between the parties in the absence of fraud. The authority of the architect, whether general or limited, usually extends to his doing all acts required in the process of obtaining tenders and making drawings for and supervising the erection of or addition to the building, for the purpose of which he has been employed. Thus, in Kimberley v. Dick (1871, L. R. 13 Eq. 1), Lord Romilly, M.R., said that he must treat the architect as the agent of his employer, "generally, for all purposes connected with this building, and that without any limitation as to price or anything else." That is a wide definition, and more accurately, perhaps, Lord Coleridge pointed out in Ludlow v. Hastings Pier Company (Jenkins and Raymond, fourth edition, p. 238) that the engineer, from the beginning to the end of the deed, "out of the four corners of which his position is to be collected," was agent to his employers; but as their agent "clothed with peculiar functions exercisable only as provided for by the deed." Where, consequently, an architect allowed the projecting timbers of the adjoining owner to be built into the wall of his employer, it was held that he had exceeded the nature of his employment, and that the act was not within his authority (Betts v. Pickford's (1906), 75, L. J. Ch. 483). Again, if an architect be employed merely to make drawings, he is acting as an independent contractor, a skilled draughtsman, or professional man, and, as no question of agency arises, no question of authority can follow. But if he is making drawings for delivery to the builder, a question of authority can enter as to the warranty that they are correct or that the builder can work to them. But no such warranty can be implied. An illustration of this is to be found in Thorn v. London Corporation (1876, 1 App. Cas. 120), where the House of Lords held that where plans and a specification for the execution of a certain work are prepared for the use of those who are asked to tender for its execution, the person asking for the tenders does not enter into any implied warranty that the work can be successfully executed according to such plans and specification. No such warranty would appear in any properly-drafted building contract, and if the architect should be so foolish as to warrant such accuracy or possibility to the builder it is he and not the building owner who would be liable to that builder, for it is the architect who has exceeded his express authority.

LIMITATION OF AUTHORITY.

Where the duty and authority of the architect are set out in a written contract there should, as a rule, be little difficulty in ascertaining the extent and limitation of both duty and authority. But all building contracts (in which the provisions for the architect's powers are usually embedded) are not perfect specimens of draughtsmanship, and it is when they become ambiguous, inconclusive, or defective that questions for consideration and settlement arise. It is in such cases that it becomes of the highest importance to know what the implied as opposed to the express authority of the architect may be, and to apply to the omissions or ambiguities the general principles of the law of agency as modified by the practice of the profession, and as limited by the context of the contract in question. For example, when the architect has power to order extras he has not, in consequence, the implied authority to order as extras the execution of omissions on his drawings (Sharpe v. San Paulo Railway, *supra*). Nor when his drawings are not practicable has he any implied authority to order as extras work to be done that will render them practicable. Thus, in Tharsis Sulphur and Copper Company v. M'Elroy and Sons and Others (1878, 3 App. Cas. part 2, p. 1040), where there was a contract for construction for a lump sum, and a clause that no extras should be done without a written order from the employer's engineer, it was held that the certificates of the engineer, though they referred to work done of a more expensive character than that specified for, were not to be regarded as written orders, and that the claim of the contractors was excluded by the contract. No implied authority rests with the architect either to obtain tenders or to enter into contracts with a builder. Neither is he authorised to negotiate for advances or undertake any preliminary work of this character without an express authority from the owner. If, on the other hand, he has such express authority, he can bind the owner for any reasonable expenses to which he may have been put in the course of conducting such preliminary work. Though an architect has authority to make drawings for the purpose of the works, he has no implied authority to make such changes in those drawings as would destroy the original scheme. But he has an implied authority to supply drawings of details not shown in the original plans. So, too, it has been held that an architect has, when authorised to obtain tenders, an implied authority to engage the services of a quantity surveyor to supply quantities, although it is doubtful whether such architect has any implied authority to take out those quantities himself. But the quantities must comply with the limitations of the architect's authority, and if he be authorised only to obtain tenders not exceeding a certain amount, then he can only have the implied authority to obtain quantities within that amount. But where, as in Evans v. Carte (*Times*, May 5, 1881), the quantity surveyor brought an action against the building owner for fees for reducing the quantities upon drawings of the architect, which proved too expensive when the tenders came in, and the building owner authorised the architect to reduce the quantities in order to reduce the cost of the building, it was held that the quantity surveyors were entitled to sue the building owner for the cost of such reduction of quantities. And even if the building owner has not originally given the architect authority to reduce the estimates and quantities, but becomes aware of the fact and approves expressly or impliedly, the architect's authority would be confirmed, for, as Lord Coleridge said in the case just cited, "ratification or tacit assent would be equivalent to precedent authority." In the absence of a limit of price in the contract, the architect has an implied authority to order works for which the builder may recover the price, even though, as a fact, the employer has privately given such limit of price to the architect. As long as the authority can be properly implied, the builder can maintain his claim against the building owner, and it is for the latter to recover damages from the architect for exceeding his authority. The

architect has [illegible] dismiss a builder [illegible] authority to [illegible] and [illegible] into the [illegible] general [illegible] that when [illegible] architect [illegible] written [illegible] dismiss [illegible] to [illegible] terms [illegible] You are [illegible] employ [illegible] Nor has [illegible] behalf [illegible] specialists [illegible] by the [illegible] employed by the [illegible] specialists are [illegible] contractors of the principal con[illegible] architect [illegible] to claim payment from the [illegible] owner; nor can the contractor claim [illegible] from the building owner in respect [illegible] made or caused by such specialists (Leslie Metropolitan Asylums Board (1901), 68 J. P. 86). The architect has no implied authority to vary the building contract. His authority, on the contrary, directs him to see that its express terms are carried out. It is always possible for the parties to the contract to vary it by consent, and to empower the architect to authorise such variations. Where he is empowered to give directions, such directions must be within the expressed limits of the contract (Sharpe v. San Paulo Railway, *supra*). Similarly, an architect has not the power, unless expressly given, to represent that the building owner has varied certain conditions often such [illegible] dealt with by waiver. The contract [illegible] to writing, remains the only [illegible] of the contracting parties, and [illegible] unauthorised representation of the [illegible] cannot reduce the liability of the [illegible] or impose one on the building owner [illegible] before the builder has [illegible] the contract as to the character [illegible] required, he would be [illegible] subsequently upon such [illegible] and they would not be held [illegible] to the terms of the contract unless [illegible] consistent with the repre[illegible] But the making of such repre[illegible] loose and ill-advised, and leans [illegible] An architect has no implied [illegible] to give verbal orders which the contract provides for orders in writing, nor can he dispense with estimates in writing when such are required. But this does not prevent the architect from giving verbal orders or even accepting verbal estimates conditionally upon their being reduced into writing before they [illegible] to be included in the building. As to extras, the architect has no implied authority to vary the [illegible] to which the terms of the contract [illegible] in respect of these items. Nor has he [illegible] to bind [illegible] extras such items as [illegible] to impose the con[illegible] other certificates [illegible] which are not shown on [illegible] to the specifications [illegible] He may [illegible] though [illegible] to [illegible] are [illegible] the [illegible] [illegible] [illegible]

authority, then his right of action against both the building owner and the architect disappears. And, at this date, when building contracts are not only almost universally used, but largely become in course of time of a stereotyped character and singularly complete, it has become increasingly difficult for a builder to say that he has had no notice of what the building owner will be responsible for, and no notice of the extent and the limitations of the architect's authority. Before closing this paper a few words should be added with respect to the architect's capacity to delegate his authority. The old maxims—"Delegata potestas non potest delegari" and "Delegatus non potest delegare"—apply to architects as to others; but it is settled law that, in the case of architects, as, indeed, in the case of others, too, the delegate may employ subordinates to carry out the details of his work. In Hemming v. Hale (1859, 7 C. B., N. S. S. 487), Williams J. held that, "Where a man employs an agent, relying upon his peculiar aptitude for the work entrusted to him, it is not competent to that person to delegate the trust to another; but, where the act to be done is of such a nature that it is perfectly indifferent whether it is done by A or B, and the person originally entrusted remains liable to the principal by whomsoever the thing may be done, the maxim, 'Delegata potestas non potest delegari,' does not apply." And in a much more recent case, that of Graham v. The Commissioners of Works (*Builder*, November 15, 1902, p. 456), it was similarly held by the Court of Appeal in circumstances thus described by the Master of the Rolls:—"By the terms of the contract the architect could order the removal of any materials used in the building that appeared to him not up to the specified quality. What the architect actually did was to examine the wood on the ground, and, finding that it was not of the required quality, he directed the clerk of the works to mark the timbers already put in the roof of the sorting house to which he objected. Upon that gentleman's report the architect framed his certificate, and the question was whether in these circumstances the architect could be said to have adjudicated on the matter. It was perfectly obvious as a matter of business that one could not expect an architect to go into every detail himself, and he (the Master of the Rolls) had no hesitation in holding on the authorities that the architect, having himself first ascertained that the timber being used was not of the stipulated quality, was perfectly entitled to delegate the duty of particularising which of the timbers had to be removed." And the Lords Justices concurred in this judgment. But the architect is not entitled to put unreasonable confidence in any person to whom he may delegate his authority, even though that person be employed by the building owner; and he would be liable in damages to the building owner if, by reason of such unreasonable confidence, he should certify for work which is inferior to the quality reqnired by the contract. For example, where a building owner employed an architect to superintend the rebuilding of a house after a fire, and also appointed and employed the clerk of the works, and the architect, accepting the view of the clerk of the works that certain timbers did not reqnire replacing without himself inspecting such timbers, passed those timbers, it was held by Cave J. that the question whether new timbers were required or not was one for the architect and not for the clerk of works, and that if the architect adopted the view of the clerk of the works without himself inspecting the timbers the responsibility of doing so attached to the architect, who became, in consequence, liable in damages to the building owner (Lee v. Bateman (Lord), 1893, *Times*, October 31). To put it briefly, although the architect may delegate certain duties of a more or less ministerial character, he must not abdicate his position or lay down his responsibility as the authorised agent of the building owner.

In proposing a vote of thanks to Mr. Montefiore Brice, Mr. William Woodward, A.R.I.B.A., the Mayor of Hampstead, remarked that they had listened to a very interesting, carefully prepared, and complete paper on an important subject. It had been so incisively read as to make him think that his ideas of an architect's duties and responsibilities had been altogether wrong. The architect was recognised as the agent of the building owner, and as soon as this was lost sight of, all manners of risks and difficulties opened out. Members of the profession had hitherto acted on the assumption that the architect was entitled to pledge the authority and credit of his client—the building owner. Until very recently the architect had made a separate arrangement, through the builder, with each subcontractor, so as to insure that the building owner would not have to pay twice over for items sublet; but the recent decision by Mr. Justice Channell (Crittall Manufacturing Co. v. London County Council) upset all architects' theories, and laid down the principle that even though the contracting builder had paid moneys on account to the subcontractor, the latter could, in the event of the contractors' failure, recover from the building owner all sums due. That decision of Mr. Justice Channell's had not been appealed against, and stood. The building owner was held responsible for the charges of the quantity surveyor who was employed on his behalf by the architect; but in an action heard not long since, it was held that as the client had stipulated that a certain sum was not to be exceeded, the fact that the cost was greater than that amount put the quantity surveyor out of court when he sued for his fees. In the case of Schofield v. Barnardo and Gregg, heard in 1887, the quantity surveyor claimed for preparation of specification and for repayment of moneys expended on the testing of girders, but failed. There had been cases where the quantity surveyor sought to recover his charges from the architect who engaged him, and succeeded. It was important to remember that under the Statute of Frauds, where a contract could not be or was not intended to be, completed within a year, the architect's appointment must be in writing, and it was certainly a new point to most architects. Surely, if an architect were so appointed in writing he became the agent of the building owner, and, as such, was authorised to pledge the credit of his client to any extent. Mr. Brice had stated that an architect had "no implied authority" to obtain tenders from a builder; but, surely, as agent for the building owner he possessed such authority. As to tenders, it was obviously unfair to expect the builder to ascertain when tendering whether the specifications and bills of quantities contained all the items necessary for the proper execution of the contract: the usual and reasonable method was for the builder to make these investigations when supplied with the detailed drawings. To protect both parties, in his own practice he directed the builder to furnish him each week with a list in writing of any verbal orders for alterations to the contract, and while the matter was fresh in his recollection he went over these and signed an authority to proceed. As a rule, the building owner could take it for granted that there would inevitably be some extras on the contract. When giving orders he always stated that he was acting for his client. Some time since, it would be remembered, Mr. Starkie Gardner took a large order as subcontractor for ironwork. The builder failed, and Mr. Gardner preferred to bring his action against the architect rather than the building owner, and won his case, on the ground that the principal's name had not been disclosed by the architect. The architect, therefore, acted prudently who, in giving an order, did so in his client's name, and the subcontractor could then make up his mind whether he would give the building owner credit. The recent decision in the Leicester Guardians v. Trollope, where an architect was held responsible for dry-rot passed by the clerk of works was very unsettling to architects, as they must rely on the fidelity and care of the clerk of works. It seemed that the architect could not delegate his authority to the clerk of works, although the latter was personally appointed by the building owner. He wished to thank the lecturer for the care with which he had prepared his paper, and the new light he had thrown on what the law actually said.

Mr. H. Phillips Fletcher, F.R.I.B.A. and barrister-at-law, seconded the vote of thanks, observing that Mr. Brice had dealt with the architect as the agent of the building owner as regarded from a strictly legal viewpoint. But the architect was also an arbitrator under the contract, and in that aspect was in a far better position, whether regarded from the architect's own standpoint or that of the contractor; for, if he acted bonâ fide and without fraud, the architect was not liable for any action he took as arbitrator. An extraordinary point was raised in the case of Dollar v. Higgs, tried in December, 1900. There the plaintiff, an architect, employed a quantity surveyor to complete the measuring up of some work. The defendants paid the surveyor the 2½ per cent. on the amount of the contract, which was included in this certificate. The plaintiff contended that such payment should have been made to him and not to the surveyor, who was acting as his assistant, and this view was upheld by Mr. Justice Wills, who gave judgment for the plaintiff for the sum claimed, less one-third, which was admittedly due to the surveyor. In the well-known case of Sharpe v. San Paulo Railway, if it were correctly reported, the engineer seemed to have played pretty low down in making verbal and unauthorised promises to the contractors. It was very hard that the law so protected the building owner that omissions from the drawings or specifications had to be borne by the contractor who undertook to carry out the whole of the required works. The case of Goldon v. Blackburne, heard in the Lord Mayor's Court in 1879, showed that where an architect failed to disclose the name of his principal, he must himself pay the quantity surveyor. In Hobbs v. Turner (1902), where an architect had certified for the amount due to the subcontractor direct to the building owner, the defendant in the case, it was upheld by the Court of Appeal that the subcontractor could successfully sue the owner for the value of certain ironwork which had been provided for in the specification by a provisional sum. If an architect was acting as arbitrator he had authority to order extras on behalf of his client. The great difficulty in all these cases was that the architect did not adhere to the letter of the contract. As to the case of the Leicester Guardians v. Trollope, he frankly could not understand from the reports of the case the grounds for the decision of Mr. Justice Channell. If it was correctly reported, the members of the profession were in a very unfortunate position, and the case ought, for the protection of architects, to have been carried further.

Mr. Ellis Marsland, M.S.A., said from the lawyers' viewpoint the path of the architect was a thorny one; but there was little ground for discouragement, for in the great majority of cases where prudence and common sense were used, all went smoothly. The architect should not, as was too often now the case, delegate the preparation of specifications to the quantity surveyor.

Mr. Arthur T. Bolton, F.R.I.B.A., remarked that a prudent architect adopted in all cases the Institute form of contract, which had been settled after negotiations between the two institutes representing respectively the leading architects and builders. It afforded considerable driving power against the building owner if he proved awkward, and it was easy to supply copies to all the parties concerned. This should be supplemented by a book of forms of extra orders. He wondered that a committee of the R.I.B.A. had not formulated and published a model set of forms of extras; they would be of great practical utility. The rapid decay of modern building methods was a serious matter in view of the liabilities sought to be cast upon architects. Too often the Courts and the lawyers engaged on building cases assumed that the building owner, with whom they sympathised, was an angel, the builder a devil, and the architect an unscrupulous and careless rascal—assumptions which were not always verified by the facts.

Mr. Morgan Veitch, solicitor, said that naturally public opinion was in favour of

protecting the building owner and that was reflected by the policy. The architect if he found himself exposed to fresh liabilities for dry rot and other defects in building material would take steps to protect himself by getting such indemnities as he could demanded. He agreed with Mr. Brice that when appointed the architect should draw the building owner's attention to the Institute scale of charges. The first lesson they learned from Mr. Brice's paper was that it was desirable for the architect to obtain a certain amount of legal knowledge bearing upon his profession, and which he justifiably felt himself apprehending, and he should lose no time in consulting his legal adviser. It was certainly advisable, as Mr. Editor had suggested, to use the R.I.B.A. form of contract, and to protect himself as far as possible from misunderstandings by explicit letters to the building owner and to the contractor.

Mr. E. Greenop, A.R.I.B.A., thought of late years clients had shown a tendency to become increasingly exacting. He must differ from Mr. Brice on one point, for he thought the authority of the architect, as controlled by the general principles of the law of agency, was "extended" rather than "limited" by the application of the ordinary practice of the profession. As to the architect being in the position of a quasi arbitrator, the case of Robins v. Goddard appeared to upset that presumption. Both in the United States and in Canada excellent definitions of the architects' duties and responsibilities had been prepared as prefaces to the schedules of charges, and it would be well if a committee of the R.I.B.A. would undertake the formulation of a similar definition at an early day. He confessed that if the architect had no implied authority to issue an order for extras, it was difficult to see how a contractor could recover for work not specified, even on a *quantum meruit*.

The vote of thanks having been passed by acclamation, Mr. Brice briefly replied, remarking that every one of the points he had dealt with had been settled by actual cases. As to Mr. Greenop's suggestion that the authority was extended by the nature of an architect's practice, he had used the word limited in the sense of altering and defining. He agreed with Mr. Marsland that it was the architect's duty to write his own specifications and not to delegate this work to a quantity surveyor. He thought if an elementary course of the legal position and responsibilities of architects were introduced into the Association school's curriculum, it would be beneficial to students. There was no implied authority to an architect to vary the conditions of a contract; any such authority must be expressed by the client. Complaints had been made as to the incidence of the Law of Contracts; but the common law had been built up during many centuries as a compact mass of prudent wisdom, based on innumerable cases, and must therefore, be assumed to be fair as a whole.

GLASGOW CATHEDRAL ROOF RESTORATION.*

By W. T. Oldrieve, F.S.A. Scot., F.R.I.B.A., F.S.I., Principal Architect for Scotland to H.M. Office of Works.

ITS NECESSITY, PRINCIPLES, AND METHODS.

Before entering upon the consideration of the roof itself, Mr. Oldrieve gave a short resume of the general development of the history of the cathedral, and then gave a definition of "restoration" and "necessity" for it.

Before explaining the process of investigations by which we were able to proceed with the actual work, he continued, I must state what led me to consider the work as one of necessity. It is well known to students of the cathedral that there are abundant evidences, both at east and west ends and on the north side, that large masses of the main walls have moved considerably through the "thrust" of the stone vaulting of the aisles and the timbers of the main roof. My attention was drawn to this by our most careful clerk of works, Mr. William Kennedy, about six years ago, and where there was, in my opinion, any danger, steps were taken to strengthen those parts requiring it. It is clear, from an examination of the masonry, that a considerable amount of work was done, probably in 1824, with the object of strengthening the upper parts of the wall; but the main roof exercised a continual outward thrust, and exact measurements proved that this was so great as to constitute a very serious risk if the roof were allowed to continue to deteriorate by decay. From a general view of the cathedral, no one would detect any deviation from the straight line in roof or walls. A series of measurements with the plumb line was taken, and, following upon the rest by measurement, a detailed inspection of the roof timbers was made, first from the interior space above the collars of the trussed rafters, and then from the outside by stripping the lead and boarding near the feet of a number of the rafters and noting their condition. It was found that a large number of the rafters were badly decayed, and that the repairs carried out about 1735 or 1824 had not appreciably strengthened the roof trusses. In several cases the lower ends of the rafters had entirely disappeared, and had no bearing whatever upon the wall-head. A full report upon the condition of the roof was now submitted to the Board of our Department, with plans and estimate, and, upon the urgency of the case being made known, both the Hon. Sir Schomberg McDonnell, Permanent Secretary of H.M. Office of Works, and the Right Hon. Lewis Harcourt, M.P., First Commissioner of Works, promptly supported the proposals for thoroughly dealing with the dangerous condition of the roof. Official representations to the Lords of H.M. Treasury followed, and funds were in due course provided for the necessary expenditure, at first estimated at £9,000. After full consideration, and with the advice of the Board's Inspector of Ancient Monuments, Mr. C. R. Peers, it was decided to retain exactly the form and, so far as possible, the material of the original trussed rafters throughout. This course will necessarily involve a very large additional cost, and occupy a much longer period of time to carry out the work; but there will be the satisfaction that the whole roof is "restored" in the truest possible sense, and that with the constructional reinforcement of steelwork, which is inserted quite independently and as

GLASGOW CATHEDRAL: THE CHOIR, SHOWING THE PROPOSED NEW ROOF.

* Paper read before the Glasgow Institute of Architects, March 16, 1911.

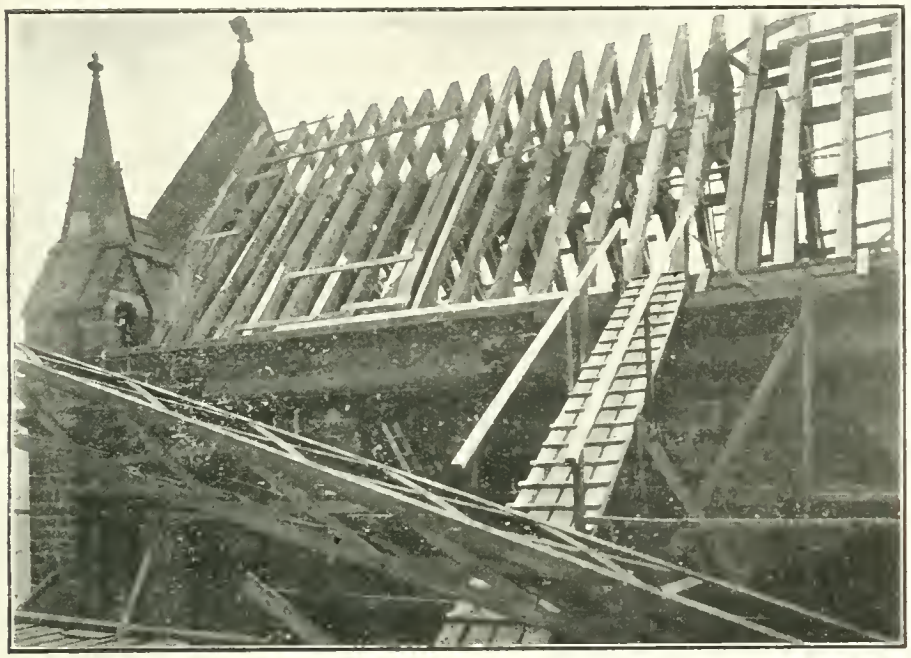
supplementary support, the cathedral will, when this work is completed, have at least as sound a covering as ever before.

PRINCIPLES OF DESIGN.

Sir Gilbert Scott has stated that while in France nearly every great church of the 13th century is stone-vaulted, such is not the case in England, but that there they seem to have acted with perfect freedom in this respect, even the largest churches having frequently had open timber roofs.[1] There is certainly not the slightest evidence that stone vaulting was ever contemplated for roofing Glasgow Cathedral. There can be little doubt that if the proposed addition of stone vaulting, as shown over the nave in the set of drawings for a restoration in 1836, had been carried out, the result would have been the wreck of the building, as in the case of Holyrood Chapel Royal in 1768. Of Norman church timber roofs, few remain. One over the chancel of Adel Church, Yorkshire, is referred to as apparently original in Brandon's "Analysis of Gothic Architecture," as also one over the nave of Whitwell Church, Rutland.[2] The best-preserved Norman roof is said by Mr. Francis Bond to be that above Bishop's Palace at Hereford, as also that the South Transept at Winchester has the original 11th-century roof.[3] These early roofs were of the "tie-beam" type, the tie-beam evidently being at that time intended to form a tie between the walls of the building, and not as the tension member of the roof-truss, as in modern carpentry. In this type the principal rafters pitch on to the tie-beam, and are braced together with collars, while slanting struts stiffen the principal rafters by taking the weight on to the tie-beam as a cross strain. The next development in Gothic roof design appears to have been the trussed-rafter type, with which Glasgow Cathedral, both choir and nave, was roofed. A simple example is that over the porch of Stuston Church, Suffolk, where slanting halved cross braces are pinned into the rafters. Usually, however, in the case of larger spans, each pair of rafters had a horizontal collar, and was further stiffened by braces obliquely. The foot of each rafter was framed in the form of a triangle whose base was generally equal to the width of the wall. Sometimes there is one central wall-plate, and sometimes there are two—one at each edge of the wall. This triangular arrangement was a very shrewd method of distributing the weight and thrust upon the wall-head, so long as the joints were sound, and thus maintained the rigidity of the angles. Neither ridge-pieces nor purlins were used; there could, therefore, be little resistance to longitudinal stress, and in those cases where internal boarding was not used, it is probable that many of these early roofs suffered seriously from lack of lateral rigidity. Sandridge Church, Herts, affords an example of the Transitional form of roof where the tie-beam has been retained at intervals—i.e., two ties in the length of the chancel, with about twelve rafters between each. A similar example is that over the nave of Clymping Church.[4] Bloxam refers also to the roof of the chancel of Polebrook Church, Northamptonshire, which he says is apparently in this style. It is divided into three bays by moulded tie-beams, with braces beneath, and each tie-beam supports a king-post; the principals, which are massive, are cut in the form of a trefoil, the purlins, ridge-pieces, and wall-plates are moulded, but the common rafters are plain.[5] As Early English church building developed, the simple trussed rafter type of roof, without tie-beams, became the favourite style, and continued into the "Decorated" period. Brandon affirms[6] that the remaining examples of this type of roof are more numerous than any others, but that, in most cases, they have been lathed and plastered, though probably they were originally sometimes boarded. Lympenhoe Church is a good example of the open trussed-rafter type of roof, and Wimbotsham provides an example of a somewhat similar type boarded and panelled by moulded ribs underneath. As a matter of fact, no inscriptions or coats-of-arms have been found upon the old oak roof at Glasgow to furnish a clue to the exact date of its construction. There has been some misconception on the subject through a misstatement in 1736 by McUre. In Gordon's edition of McUre's "History of Glasgow,"[7] it is stated that the coat-of-arms of Bishop Walter Wardlaw "is placed near the middle of the choir, on the right side of the high altar, where has been an altar for him over it. On the roof of the area is his coat-of-arms, finely illuminate." The fact is, as anyone may see, that the shield, with "arms" and the words, "Walterno Cardinalis," are not on the roof of the choir at all, but upon the stone vaulting of the south aisle at the second bay eastward from the south transept. As already indicated, the principle upon which the new roof has been designed has been to ascertain, from a very careful examination of the remains of the old roof, every detail which would throw light upon the original work, and to endeavour to follow the guidance thus obtained. Upon the naked timbers being exposed by the removal of the plaster ceiling, diagrams, sketches, and photographs were prepared, and fragments of detail which would help to elucidate the problem carefully noted, all peg-holes being marked and plotted in their correct positions. By these means, certain disputed points were clearly settled. For instance, it was found that there could hardly have been tie-beams—as some at first thought probable—because the details of the old jointing at the foot of the rafters varied so much that this appeared impossible. The method of connecting the rafters and struts to the existing cross-pieces upon the wall-head would have been out of the question for the purpose of a tie-beam. That originally there was internal boarding was also clearly proved, because fragments of the actual oak boarding and grooves were found upon some of the principal rafters. One fragment only was found to indicate the character of the moulded principal rafters, and this was, of course, carefully measured and drawn full size. From this fragment it was possible to construct the contour of the original mouldings. The position of the peg-holes indicated where the carved bosses had been fixed at the junctions of the moulded ribs, and it became evident that the original division of the ceiling into panels had been followed when the plaster ceiling was substituted, although the spirit of the original work had been entirely lost. The greatest surprise of all was to find that the original rafters had been shaped so as to form a trefoil or cusped roof. When we at first examined the roof from the interior space near the ridge, it was only possible, by the light of a lantern, to look down between the outer boarding and the plaster ceiling, and in one or two instances to crawl down into a very limited space, so far as one could reach. It did not occur to anyone, so far as I am aware, that the uneven-shaped timbers were all carefully shaped in order to form the cusped design, which is a most unusual, if not unique, form for the trussed-rafter type of roof to take in a church of large dimensions. The ancient roof-timbers were found to be of the following scantling:—Rafters, 8in. by 8in.; collars, 7½in. by 7½in.; braces, 8in. by 7½in.; wall-plates, 8in. by 8in.; cross-plates, 8in. by 8in. Having thus obtained clear guidance as to the general character of the roof to be designed, working drawings and details were prepared, and the views given will afford a better idea than I can give by words of what is now being carried out. It is, of course, rash to be dogmatic in matters of detail, and there will almost certainly remain differences of opinion among architects as to what should be done. There is also room for much difference of opinion in regard to the character and subjects for the carved bosses and other similar decorative work; but I am arranging to carry out this part of the work, keeping, so far as practicable, to the Early English type of work, not because, in my opinion, it is of a purer and higher type of design, but because it is in harmony with the general character of the architecture of the cathedral. In carrying out this work, firms of high standing as modellers and carvers were invited to submit sketch models and tenders, the result being that the work has been divided between Glasgow and Edinburgh firms. It is proposed to arrange the subjects of the roof carvings as follows, taking as the leading idea along the ridge, from west to east, the Life of Christ. The nave will read thus:—

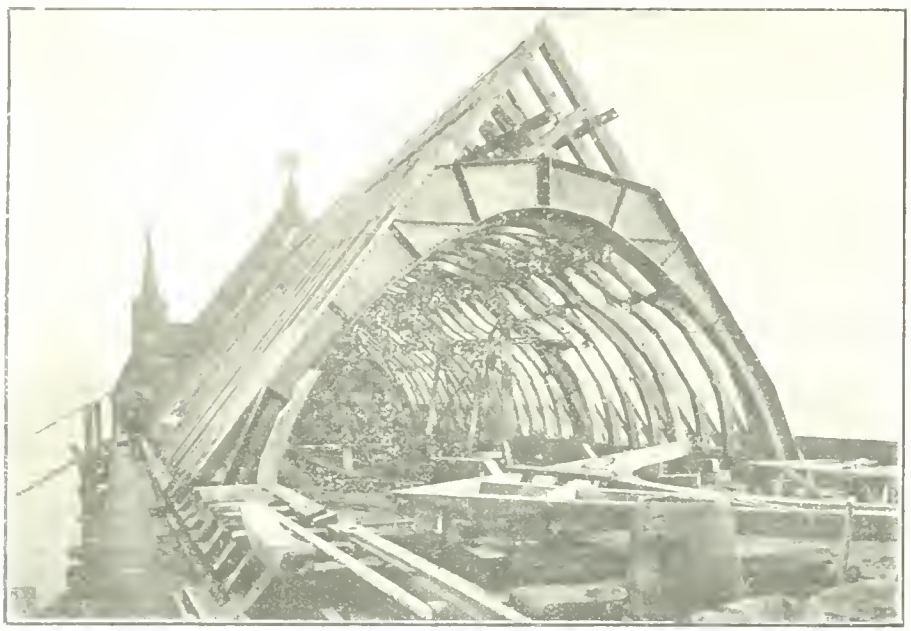
South Side. Old Testament Characters.	Ridge. Life of Christ.	North Side. Apostles.
(1) Adam and Eve	Annunciation	Peter
(2) Enoch	Nativity	John
(3) Noah	Presentation	James
(4) Abraham	The Carpenter's Shop	Andrew
(5) Joseph	Baptism	Philip and Nathaniel
(6) Moses	Temptation	Matthew
(7) Gideon	Healing	Thomas
(8) David	Teaching	Thaddeus and James the Less
(9) Elijah	Transfiguration	Simon Zelotes

The choir will, as usual, have richer carving, not only having bosses at the intersections



GLASGOW CATHEDRAL: RENEWAL OF ROOF OVER CHOIR.

[1] Lectures on Mediæval Architecture, Vol. I. p. 202.
[2] Vol. I. p. 91.
[3] Gothic Architecture in England, p. 572.
[4] Parish Churches (Brandon), p. 75.
[5] Gothic Architecture (Bloxam), p. 180.
[6] Analysis of Gothic Architecture, Vol. I. p. 92.
[7] Vol. I. p. 60.



GLASGOW CATHEDRAL. RENEWAL OF ROOF OVER CHOIR, SHOWING SUPPLEMENTARY STEEL PRINCIPAL AND RAFTERS RESET.

[illegible] enrichment of carving in the choir roof is [illegible]ably to be as follows, reading from [illegible] to east. In the choir all three rows of [illegible] bosses are devoted to the commission of the Lord Christ. South side:

Ridge, Succession of Ministers.	Continuation of Nave Subjects.	North Side, Symbols.
[illegible] Water		
[illegible] Washing	Eucharist	Dove
[illegible] Kisses Betrayal		Lamb
[illegible] Denying	Crucifixion	Shepherd's Crook
[illegible] Burial		
Dwelling	Resurrection	Chalice
[illegible] Opening the Eyes		
[illegible] Bread	Ascension	Five Spots
[illegible] Feeding		
Widow's Son	Waiting	The Three Nails
[illegible] Healing Mu[illegible]		
[illegible] Tribute	Advent	Scourge of Cords
[illegible] Walking on the Sea		
Sick	Multitudes	Crown of Thorns
[illegible] Raising Lazarus		
[illegible]	Trinity	Alpha and Omega

[illegible] the arrangement of Kings and Bishops has not yet been definitely formulated, but [illegible] to make these choir [illegible] to, and elected to the Cathedral. It is good that before the work [illegible] the opportunity was found in some way to [illegible] the radically all the sloping [illegible] to hold the rafters, letters and [illegible] [illegible] and [illegible].

METHOD OF CONSTRUCTION.

So far as possible [illegible] the original design [illegible] the roof has been followed, the principal [illegible] being [illegible] by relieving the main walls [illegible] outward thrust, and thus providing longitudinal rigidity. The former object has been attained in two ways: by providing [illegible] secondary steel trusses of sufficient strength to resist the entire strain of dead load plus stress of wind and weather, and also by means of steel posts as purlins, to transmit the weight of the whole of the oak trusses and rafters to the steel trusses, so that there can be nothing but vertical pressure upon the walls. The necessary rigidity longitudinally has been attained by steel purlins being secured to the principals, and to the walls of the tower and the east gable and by constructing an arch, to suit the outline of the ceiling, but they are calculated as bent girders, and exert no horizontal thrust upon the walls. These trusses or ribs are about 20ft. apart over the choir. The purlins are 10 by 6in. rolled steel joists, placed directly under the old collar beams. An allowance of 50lb. per square foot horizontal wind force has been provided for, representing a hurricane of 100 miles per hour. The bars, which act as wall-plates, extend continuously from end to end of the choir, and serve the double purpose of wall plates and of longitudinal ties, being securely anchored into the east gable wall and into the tower, and being tightened up by cottars. The weight of the roof has been reduced considerably by the substitution of copper sheeting for lead. It may be of interest to state that the specification provides for the quality of materials as follows. Steel must be mild, and of British manufacture, the tensile strength being between 27 and 32 tons per square inch, with minimum elongation of 20 per cent. in 8in., the elastic limit being one half the ultimate strength. All the oak is to be British home grown, of not less than three years' fall. The standard of purity for the copper sheeting is a maximum of .5 per cent. for impurities, with tensile strength of 13.5 tons per square inch, with 50 per cent. elongation in 2in. So far the tests have been highly satisfactory. As regards the copper, fourteen separate analytical tests have been made at the Government Laboratories, Somerset House, and the result has been an average of .21 of impurities, the minimum being .11 and the maximum .4. The impurities have consisted of silver, nickel, tin, and lead, with traces of iron, arsenic, and antimony. As regards methods of execution, it was, of course, necessary to arrange a cradle for the protection of the structure and the safety of those occupying the church below. A temporary flat roof was designed, with framed trusses below, serving also as braces or shores, covered with sheet lead and with gutters formed to take away rain water. Extensive staging, and an electric crane, were erected, and although the progress of the work is necessarily slow it is proceeding smoothly and satisfactorily, and, I hope, without risk of any damage, so far as that can be foreseen. A few interesting details may be referred to in closing. The doorway from the tower which led to the gallery over the rood screen was found built up with rubble, and this was opened out and restored, as shown. When the roof is finished, this will afford a good position from which to view the ceiling, and also an easily adjusted means of ventilation. Several moulded stones of early form were found built in as ashlar at the wall head of choir. On taking measurements, Mr. McGregor Chalmers tells me he found that these stones exactly correspond with the responds of the extreme east wall of the Cathedral at the choir floor level. Another curious "find" is the marking with a sharp point upon one of the ancient timbers, as though some young guildsman of the day had been practising setting out a vault to scale. Some of the 1824 plaster detail of the choir ceiling shows how the mouldings have been run in situ with a "core" secured by tarred string and wrought iron nails. The plaster "boss" is interesting, as reflecting very tamely the early type of carving, the spirit of which has been lost.' The cast lead plates, with names of superintendent of works, and plumbers, are of local interest.[1] The stonework detail of the upper part of the beautiful four light lancet headed east window had been a good deal mutilated when the "Easter Kirk" was "newly reiled and painted in the roof," about 1735, as recorded shortly afterwards by Mr. McUre, the plaster imitation vault having been carried right across the trefoil shaped stone label mouldings, so as to entirely hide the original design. The choir roof having been first in the builders' hands, has, of course, taken up most of our attention. When this section has been completed, the reroofing of the nave will be proceeded with on similar lines. Until, however, the lath and plaster has been removed, and the ancient timbers have been exposed, it is not possible to state with certainty what will be done. We know that the nave roof also is of the trussed-rafter type of construction, with oak timbers of similar scantling to those over the choir, and I anticipate that we shall find indications that it has, following the usual custom, been of simpler design. The roof timbers of transepts and aisles have, at some unknown period, probably in 1824, been renewed, deal having been substituted for the ancient oak. These comparatively modern parts are in sound condition, and therefore do not require renewal. All parts of the roof, however, will be covered with copper, and it is proposed to substitute oak moulded ribs and boarding for plaster in both nave and transepts.

"BUILDING NEWS" DESIGNING CLUB.

A REFRESHMENT HOSTEL IN TIMBER FOR WORKPEOPLE.

"Margis" has the knack of presenting his proposals in a popular and pleasant way, though, perhaps, his perspective on this occasion displays a tendency to over-emphasise a pretty effect which risks the chance of being misleading. William Burges, A.R.A., had a stern manner mingled with a precipient wit; but he was all for truth and strict architectural principle—qualities which give point to his remark about draughtsmanship dangers, when he said: "It is not so important that you may deceive your client, but mind how you deceive yourselves." Mere prettiness in sketching just borders on that eventuality, and when a man has reached the level displayed by "Margis," it is wholesome for him to be reminded of that possibility. For one thing, he does not attempt anything of the sort with his geometrical drawings, which are workmanlike and devoid of nonsense. We put him first in this subject; but his elevations look best where the vertical timbers are not over-emphasised. If the oak

[1] "The lettering upon the boss is "Andrew Crawford, Plasterer, 1824."

"To James Cleland, Superintendent of Public Works, 1824." "Geo. Crookshanks. A. McAulay. I. Bell, Plumbers, 1824."

is left as it comes from the saw—unstained—it might weather a silvery grey, which would be harmonious. His perspective gives an idea of Stockholm tar being used, and undue verticality cuts the wall-face up too much in consequence, dodged about with shading, which is adroit enough, but perhaps over-emphatic. This much by way of allusion to the drawings. The plan fairly well realises our intentions; but the kitchen is disconnected from the upper big room. The lift stops short, and only works downwards; but it should go upwards also, because the service of a building like a refreshment hostel is a matter of prime consequence. The upper story faced with weatherboarding has a nice appearance, and, being set between the brick flanks, would be effective; and so would the roof of the men's clubroom, with its heavy timberings and quaint contour. The absence of rainwater pipes has to be noted.

"Liver" is the motto of the second design, in which the lift does apply to both dining-rooms; but the upper room is curtailed by a buffet sort of arrangement, which contrivance has, no doubt, some advantages, and it may be a gain to recess the stage in this way also, with retiring-rooms, when entertainments are given. Nevertheless, "the prime purpose of the arrangements are intended to supply a convenient provision for meals at popular prices," as set forth in the instructions, and this extended drinking-bar scarcely meets the object in view; and, besides, it would be a big business to remove such a very substantial counter and bar fittings every time a platform would be required. The kitchen is more spacious; but the fireplace is away from the light, while the lift encumbers the apartment and makes the dresser dark. Architecturally the scheme is fairly commendable; but the entrances are not particularly happy.

"Harvey" takes the third place with a neat, compact, and clearly-drawn scheme, having the stairway pavilions brought to the front, with slight projections beyond the façade; but the porch is so flat that the external doors would hardly pass the inner screen, to throw back out of the way when open. The lift, in some respects, is better placed than in either of the previous plans; but, even so, the larder and store are not on a level with the bottom journey of the cage, and the only alternative would be to work the lift from off a flight of steps, which would be most inconvenient. There is no fireplace in the kitchen, which strikes us as an oversight of some importance, and with the staircase practically in the kitchen, the smell of cooking might in the ordinary way make the upper clubroom unduly odoriferous, like a common cookshop. To fully realise the appearance of the roof internally, a longitudinal section is needed, and the arched principals might be inclined to spread at the springing, even though there may be a tie in the depth of the first-floor flooring.

"Showman" has the merit of boldness and simplicity, coupled with picturesque simplicity; but he affects more the style of a plastered building than a timbered one, and the ground-floor stage is of roughcasted brick, with red quoins showing. He puts the larger dining-hall downstairs, and has no lift to the top floor, which he treats as a club-room, forgetting that the ground floor was to be for women, though in the section it seems his idea to have a bar at the kitchen end, and a hatch is indicated in the section for the lift just where the lift happens not to occur in the plan. Thus, while we were attracted by his sheet of drawings, "Showman" could not take a higher place than fourth. It is a pity to ram big tree-stumps close up to the ends of the premises in the view. They do not look like trees, to begin with, and they do not make for good effect, stuck in in this promiscuous fashion quite out of scale.

"Oxonian" somehow makes his conception of a hostel hall look more like two houses, which militates against his success. His plan is much in his favour, being, generally speaking, well thought out, though the stairs do not realise the requirements of local councils for public places of resort, and there is much waste space in what he calls a "staircase hall." The lift works into its place in the plan very well, and the kitchen is a good, well-arranged one. The competitor's intentions are not so clear as could be wished in regard to the triplet window between the two hipped roofs at the west end of the building. The head of this window is level with the ridge of these minor roofs; but to put the window vertically it must come several feet into the hall, resting on the tie-beam in an odd, casual manner which "Oxonian" has not made manifest. The exterior of the front gives no impression of a big hall inside the premises, and this is an initial fault.

The same remark applies to the design submitted by "Also Ran," though his projections producing this dual appearance are very slight, and, indeed, considering the emphasis given elevationally, the breaks are entirely inadequate, so that the hipped roofs scarcely project at all, and, as a matter of construction, would be exceedingly difficult to make efficiently watertight. The "stairs halls" are wastefully large, without really giving the kind of staircase needed. The lift does not reach the main dining-room, which is too exclusively treated as an assembly-hall, and the landings are wasteful. "Also Ran" has, however, much improved, and we note the industry and care displayed, for which due credit is accorded. His roof over the upper hall is not an eminent success, and the front porch has a trivial look, and so have the four-centred arched doors in the wings.

"Prospero" does not understand the principles of half-timber work as understood by the old builders who made our countryside so charming. The intervening brick piers in a way are legitimate; but they confine the wood framing into panels, and these are not well managed. The plans are simple and direct; but two lifts are not required. The broken eaves are hardly justified by the dormer treatment adopted. Two gables off the brick piers would have been more natural and effective.

"Chocolate Soldier" disregards the rules as to size of papers, and there was no reason whatever for this digression on his part. The fault is due to lack of forethought in scheming the arrangement of his sheet. The elevations are spoiled by the awkward manner in which the end pavilions cut into the eaves of the main roof, as if by accident. Had the stairway towers been put level on plan with the eaves fascia, a very pretty effect might have been managed; but these things are too deep for good effect, and being treated in brick after a later manner, do not go well with the half-timber work, which in itself is not far from a success. The plans are faulty in detail, such as the kitchen stove close up to the larder-door, from whence the food is served by dual lifts.

"Briton" over-elaborates his premises with a verandah and two solid brick, concrete, or stone bay windows projecting in front. There seems to be no flue from the heating furnace, and the one chimney at the other end of the hall from the kitchen is a trifling affair coming through a window and stairway, though this fact is ignored on plan, as the flue is left out on the first floor. The two ventilating turrets have a trumpery look. The "trees" in the perspective are curiously and wonderfully made, and the open stairways in a long single flight are as dangerous as they would be uncomfortable. Fancy an approach like this in a snow-storm!

"Cada" spoils his façade by the very steeply-pitched blind gables, and his wood-work is too small in the scantlings. The plans have a casual look, but there is an idea of picturesqueness about the elevations, notwithstanding the overmastering scale of the big brick chimneys. "Cada's" drawings are thin, and we would advise a bolder line. His taste justifies a hope that he may improve.

"Pylon" would have been better advised if the larger treatment of the gabled projection had corresponded with the other two, which are finished as dormers. The brick staircase wings are overdone with rusticated quoins and hooded doorways. "Pylon" has lost sight of the need of horizontal lines in domestic work. There is not one strongly-defined binding feature in his building except the ridge-line of the roof, and his plans, though better than many, do not redeem his scheme, over which he evidently has spared no care. More reserve of fancy and more thought would have gone far to improve his chance of success. The awkward stairs from the kitchen to the receiving-place would be the cause of much hindrance to efficient service.

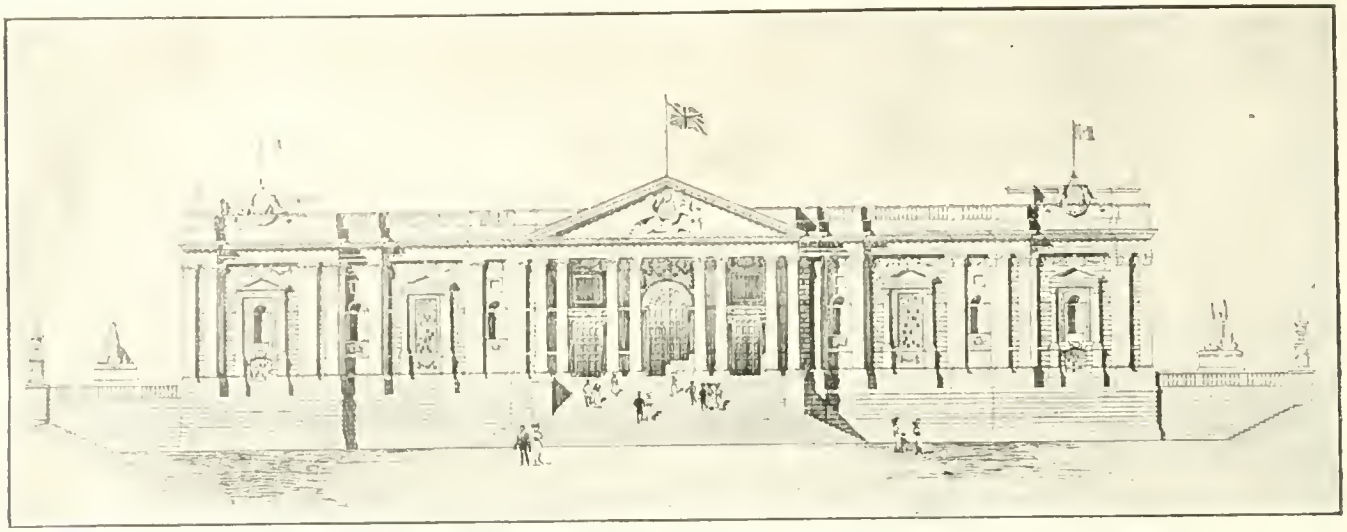
"Batten" crowds his sheet with a complete set of drawings, which he has unfortunately not completed. The "verandah portico" flanking the building makes it look too like a cricket pavilion and generally the scheme is too ambitious and over-diversified in the framings. The plans are practical and well arranged, though we do not like the open-air stairways at the ends.

"Harvest Man" covers his stair approaches with pent roofs and open sides in a pleasingly picturesque way; but the front elevation is not happily managed, the big and enriched chimney-breast in the middle dividing it in two, which effect is further emphasised by the projecting gables and intermediate dormers. The plans are oddly arranged, and a spiral iron stairs gives access to the bar in the upper hall from the scullery underneath. There is no perspective with this proposal.

"Bournemouth Queen" draws in an inky manner, and designs with little coherence of idea. The women's hall porch is so big that the bigger hall doorways look like merely secondary affairs. The oriels in the top gables are meaningless, and the roofings are too cut-up and ugly. The plans are well thought out; but the ground floor has a dark passage with stairs in it, very like a trap for accidents. "Me" puts his stairs in big circular brick, squat towers, and the front has a triangular porch done in wood in the middle for the women's entrance. "Ink Splash" and "Arte et Labore" complete the series.

The following were the conditions of this competition:—A timber-built refreshment "hostel" for workpeople employed in a countryside factory. The building is to be so contrived that the upper floor may be occasionally used for entertainments, and generally as a men's clubroom during evenings. The prime purpose of the arrangements are intended to supply a convenient provision for meals at popular prices. The ground-floor to be allocated to a woman's dining-hall, as well as kitchen and scullery, these apartments being placed on a mezzanine floor, with larder and storage, manager's office, and stuff reception-place in a half-basement, thus obtaining double floor space approximately within the height of the women's dining-hall, which is to be 15ft. high from floor to ceiling, its ground-floor level being one foot above the ground-line, which falls 3ft. from west to east in a length of 60ft., which is to be the maximum length of the building, exclusive of the stairways. These are to be placed in brick-built adjuncts, with stone or concrete steps planned in short lengths; one at each end for approach and exit to the upper floor, which is to be occupied as a hall of about 1,800ft. super., including a removable platform at one end. This room to have an open timbered roof with tie-beams. No drinking-bar is required, and no lavatories or closets. The kitchen part of the premises to be towards the east end, the frontage facing south. A coal-store and heating-chamber may be placed in a basement under the women's hall, with approach to same below adjacent staircase. The treatment must be suitable for "half-timber," the panels being filled with concrete slabs, with plastered face inside as well as out, and the timber to show. Roofs tiled. Iron casement windows. Part of the elevations, if desired, may be weather-boarded. A lift to be provided for service up and down from kitchen. Heating to be by radiators worked from basement boilers. Floors boarded, and plastered ceilings. The plans may be 16in. to the foot. Elevations and section 8ft. to inch. View sketch desirable. Drawings to be sent in not later than March 4, 1911.

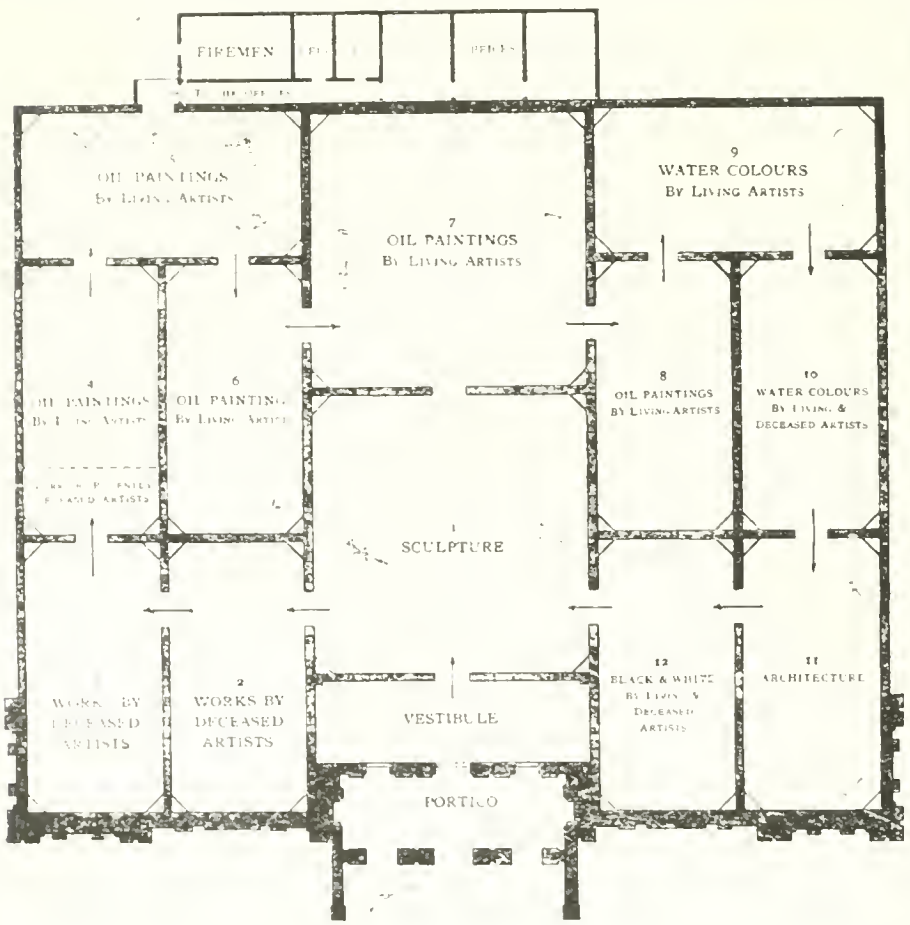
Mr. Fletcher, who has held the position of surveyor to the Dorset County Council since 1874, has resigned his office, and the council are about to advertise for a successor.



THE BRITISH ART PALACE, INTERNATIONAL FINE-ARTS EXHIBITION, ROME.

THE INTERNATIONAL FINE-ARTS EXHIBITION AT ROME.

This exhibition is to be opened by the King of Italy on the 27th instant. The design as adapted from the upper Order in the façade of St Paul's Cathedral, has been arranged by Mr. E. L. Lutyens, F.R.I.B.A. It presents the motive of the original work, with such adaptations as were necessary for the purpose: the central pediment slightly flattened, the Royal Arms upon it substituted for the Biblical subject of the relief on St Paul's, while the details of the cherubim, swags of fruit, and other ornaments, have been carefully and thoroughly modelled from the originals by Grinling Gibbons and other great contemporary craftsmen. The lie of the ground necessitated the raising of the building upon a podium prolonged for 33ft. on either side, to accommodate the extremities of the two flanking 165ft. terraces, whereon, facing front, are the models by Mr. Brock of his two heroic groups of "Truth" and "Justice," for the Queen Victoria Memorial. Thus, its great portico approached by twenty-eight steps, the Palace now stands, closing in, in imposing fashion, the vista of the avenue. It towers 23ft. higher than the German Palace, and 30ft. above that of Italy, and is yet convenient of access by an easy rise of ground and terraced stairway. The façade is composed of plaster, and the whole internal construction of the building is of rolled steel joists and cement, and the floors of cement and concrete.



The architectural section of the Exhibition illustrates the advance that has been made in domestic architecture in the more noteworthy buildings erected throughout the kingdom, and in such attempts at town-planning as have been permitted.

REGULATIONS FOR TECHNICAL SCHOOLS, ETC.

In the Prefatory Memorandum to the Grant Regulations for Technical Schools, Schools of Art, and other forms of provision of further education in England and Wales, issued in August last, and in force from August 1, 1910, it was announced that the Board hoped before the end of 1910 to issue a new body of regulations which would come into force on August 1, 1911. The Board regret that it has been found impossible to complete the preparation of these new regulations at as early a date as they contemplated when making this announcement. This being so, they felt that to bring new regulations into force by August 1 next would allow insufficient time to local education authorities for accommodating their existing arrangements to the requirements of these regulations. The Grant Regulations for 1910 will, therefore, be continued in force during the educational year 1911-12, and it is hoped in the course of the coming summer to issue the new regulations referred to above, which will not, however, become operative until the educational year 1912-13. It is hoped that by the adoption of this course the new regulations may be in the hands of local education authorities a year before they come into force.

It will not be necessary similarly to defer the issue or the operation of the separate regulations for university institutions, which were also contemplated in the Prefatory Memorandum to the Grant Regulations for technical schools, etc., of 1910. The Board, accordingly, contemplate issuing separate provisions in respect of the educational year 1911-12 for the payment of grant in aid of approved courses provided by university institutions. Any course so aided will cease to be eligible for recognition under the Board's regulations for technical schools, etc.

The forms of register and the rules for registration prescribed under Article 14 (a) of the existing regulations for technical schools, etc., are being revised for the educational year 1911-12, and will be issued in May or June next.

New regulations with regard to the Science and Art Examinations, the National Competition, and the various forms of scholarships and exhibitions given and aided by the Board are under consideration, and it is hoped that some of the changes involved may be announced in the course of this summer, and may become operative in the summer of 1912.

For some months the executive of the Mid-Scotland Ship Canal Association have been inquiring into the Loch Lomond route and the direct route, Grangemouth to Yoker. After careful consideration, the executive strongly recommend that the direct-route canal at sea-level should be adopted.

CURRENTE CALAMO.

We sincerely hope the London County Council will get the new powers it is asking for with respect to signs. Many of these excrescences are dangerous, for at present the more flimsily they are attached to structures the more chance have their owners of evading such present powers as the Council can exercise. Many are hideous abuses of the right to advertise, and simply outrages on good taste. No one has any objection to the sign proper, which, under due regulation, might be multiplied with advantage to the picturesqueness of our public thoroughfares. But that the perpetration of the horrors that multiply increasingly, vulgarising some of our finest thoroughfares, and insolently defying the remonstrances of reasonable objectors, should much longer remain unchecked would be a disgrace to the Legislature, and damaging to all decent adjacent property.

It is surprising how ignorant people allow themselves to be humbugged by crafty, self-interested monopolists into the belief that powers thus sought by the London County Council are simply meant to be used to "harass" the public. Bung and certain fifth-rate newspaper combinations are playing this game at the present moment for all it is worth. As a matter of fact, a few moments' consideration would enable any citizen with an ounce of brains left in his head to see that abuses of the kind are in a great measure responsible for the depreciation of property in many parts of London and the nearer suburbs, and that their restraint is, on the one hand, most righteously democratic, and on the other most wholesomely conservative of the real rights of the property-owner.

As also with regard to the kindred matter of obstructions, with regard to which the L.C.C. often fights with one leg chained to a post, thanks to the stupid shortsightedness of the local Borough Councils, which neglect or refuse to define or settle building lines when street improvements are made. We have a present case in mind where a row of shops have been run out along a hitherto fairly good-class road. One trader has run out many feet of what are practically stalls against a flanking wall. He will probably have to remove them; but within his own frontage-line he will persist in displaying his wares, removing them night and morning, thus escaping control. Others will copy, the adjacent residents will quit one by one, property will go down, the rates will go up, and shortsighted traders—who principally dominate the Borough Councils—will discover that their best customers have gone, thanks to their own folly and the indifference of the general body of ratepayers to the best interests of the locality.

The worst opponents of Tramways will admit they do wake up sleepy or behind-the age railway companies. For years the Metropolitan Railway Company has been urged to improve Baker-street Station, and run through trains to the Northern suburbs it connects up—after an aggravating "change." One might as well have asked for the moon! Now tramways are to extend down the Edgware-road as far as the Marble Arch, in spite of the opposition of the local authorities, the railway company has woke up—too late, probably, to save some of its passengers, and the long-demanded facilities are to be granted.

We must still pay for the repair of the pipes which connect our premises with the Water Board mains, no matter who breaks them, or how shallowly they are laid, so the Westminster County Court Judge had regretfully to decide once more on Wednesday. In the defendant's case it was alleged that the damage had been done by the motor-'bus traffic. Most likely! There is not much this side the centre of the earth a motor-'bus will not shake more or less to bits. We had a similar case in regard to our own late premises not many months since, and the only thing to be done was to "pay up and look pleasant."

We confess we do not anticipate much success for the scheme championed by Lord Tenterden, which, on the circular that reaches us, a week after date, is variously described as "The King Edward National Memorial," and "(The Lord Tenterden Crystal Palace Memorial)." The Crystal Palace, in our opinion, is never likely to regain its old footing, in the face of so many modern rivals in places of entertainment. The proposed régime, which is to consist of fourteen persons, is scarcely likely to be "nationally representative," and the vague statement of the objects of the "council"—viz., "the renewing and modernising the departments and attractions" of the Palace, is unsatisfying. Whether anything or nothing comes of the various proposals to "save" the Crystal Palace, we confess we hope some such public regulation may govern it as Mr. Gautrey seeks to obtain by his resolution, of which notice was given for Tuesday's meeting at the L.C.C., to instruct the Building Acts Committee to apply to the Local Government Board for a town-planning scheme dealing with the Crystal Palace estates, and any adjacent undeveloped land. A "town plan," which is quite inexpensive under the provisions of Mr. Burns's new Act, would give the County Council a measure of control which would be vital if certain schemes are taken in hand.

The Salting collection at the Victoria and Albert Museum, which was opened to the public on Wednesday, is a very fine one, though in parts badly arranged and objectionably overcrowded. Especially is this the case with the unrivalled display of Far Eastern jade, lacquer, and porcelain on the second floor, where the gangway is blocked with cases which themselves are unworthy of the treasures they contain. The Italian bronzes in Room 128 are magnificent examples, especially those in the case assigned to Il Riccio of Padua and his contemporaries. In the same room there is a fine display of Italian majolica and Hispano-Moresque ware of about the same period; several cases of Italian, French, and German medals; examples of Damascened swords and steelwork, leather-work, glass and crystal, plaquettes, medallions, tapestry, and old furniture. Through a smaller room, containing examples of the art of Persia, Syria, and Turkey, and a series of Greek and Roman antiquities, one reaches another devoted mainly to art of the French and German Renaissance. These exhibits comprise many exquisite examples of furniture and wood-work, goldsmith's work, and jewelry, Limoges painted enamels, French earthenware, Delft ivories, and wood-carvings. At the east end of this room a portion is screened off to hold the illuminated manuscripts, miniatures, prints, and drawings. There is the portrait of Anne of Cleves, fourth Queen of Henry VIII., painted by Hans Holbein for the King himself, and numerous other gems by Samuel Cooper, Richard Cosway, John Downman, John Bogle (a Scotsman), and George Engleheart. Among the prints are a series of line engravings by Albrecht Durer and seven etchings by Rembrandt. The two remaining rooms contain the collections of Chinese jade and crystal, Chinese and Japanese pottery and bronzes, enamels, and sword-mounts.

Some of the many inventions we note connected with our own trades often strike us as being a little old, and some as rather selfish attempts to monopolise methods more or less known long ago in general practice. In "reinforced concrete," for instance, we doubt whether some of the "systems" would stand so rigid a test of "previous publication" as one of the American Patent Office Examiners used to apply. The late Mr. George Seeley, the functionary referred to, examined the class of electrical distribution, and had charge of electrical conduits during the modern development of that art. An applicant, early in the history of the art, presented a conduit of wood coated inside and out with pitch, and it was promptly refused by Mr. Seeley on reference to the fourteenth verse of the sixth chapter of Genesis: "Make thee an ark of Gopher wood . . . . and shalt pitch it within and without with pitch."

Architects, town-planners, and all eager competitors for the first prize of £1,500 offered by the Commonwealth Government for the best scheme of laying out the Australian Federal capital of the future will soon be able to consult the contour surveys and gain all other information at the offices of the High Commissioner, Sir George Reid. The Home Secretary, Mr. King O'Malley, whose Department has charge of the business, says it is proposed to provide for a population of 20,000 at the outset, but "the designs submitted should permit of indefinite expansion." That will probably shut out ambitious "Gateways to Capital Cities" of the recent Soane Medallion Competition sort, unless, indeed, they are designed so as hereafter to form commemorative reminders in the centre of the great Antipodean Metropolis of the future of its initial size limit.

Tariff Reformers, proud provincials who plume themselves on the monopolies they fancy they enjoy of certain industries, and others who delight to take a rise out of mere Cockneys like ourselves, thorough bred, "on both sides," through several generations, should read last Monday's instalment of those very interesting talks, "Awake, and at Work," by Mr. George W. Gough, in the *Westminster Gazette*. It is perfectly true, as he reminds us, that in engineering and machine-making, London employs as many men as Manchester, Leeds, and Liverpool put together. In the making of furniture half as many again as Leeds, Liverpool, Manchester, Salford, Birmingham, Glasgow, and Edinburgh combined. Birmingham is famous for jewelry, watches, instruments, and allied trades; she employs in making the same about one-third as many hands as London. Leicester and Northampton have to combine their forces to show more boot- and shoe-makers than London, and there are more shoemakers in London than there are people in Stafford, a town world-famous for its ladies' shoes. As for builders and printers, London is first, and all the other big towns

[illegible]

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The present position of Trade Unionism [illegible] with complications and difficulties. At the moment, none immediately threaten peace in our own trades; but no one can say how long this may last if the disloyalty of some of the members of some of the Unions to their own executive on the one hand, or the disabilities brought about by the Osborne decision cause further disturbance. Anyhow, the legal status of the Unions, and the terms and conditions of their membership, are on the eve of change—for the better or worse. We are inclined to think with Mr John H. Greenwood, B.Sc., barrister at law, whose sixpenny booklet on the "Theory and Practice of Trade Unionism" is just published by A. C. Fifield, 13 Clifford's Inn, E.C., that the Trade Unionists must be prepared to put their organisations on the same plane as registered companies. However this may be, there is much in Mr Greenwood's book worth present study and consideration.

Do you understand this building [illegible] scheme?"

"Sure." They built your house, and you have so much a month." By the time you are thoroughly dissatisfied with the place, it's yours.—*Ladies' Home Journal.*

ELECTROLYTIC CORROSION OF METAL EMBEDDED IN CONCRETE.*

By Cloyd M. Chapman.

Portland cement mortar and concrete form an excellent protecting cover for iron and steel under ordinary conditions; but when concrete has steel embedded in it under such conditions that there are electric currents passing through the steel, and from the steel to the concrete, there is set up a corrosive action due to electrolysis that may rapidly deteriorate both the metal and concrete. The conditions which bring about this destructive action are neither uncommon nor complicated. If electric currents pass into dense concrete through steel which is tightly embedded in it, an action takes place which will immediately rupture the surrounding concrete. If the concrete is not dense, but contains an appreciable percentage of voids, and is, therefore, somewhat compressible, as in the case of a cinder concrete, then the result of the swelling action may be that of closing up some of the voids, and so no actual rupture of the mass may occur. If the steel but rests upon the surface of the concrete, and is not embedded in it, the action may take place on the plane of contact with or disrupting the concrete. The current passing may be extremely small, with the result that the action is very slow, but the effect is the same in the end. These facts have been well established. They have been previously studied, experiments demonstrating them recorded, and results reported in several technical publications during the past four years. As to the cause of this rupture of the concrete, five different theories have been offered as follows: (1) Expansion of the metal due to change in its chemical nature. (2) Hydrostatic pressure. (3) Pressure of liberated gases. (4) Internal heating, and consequent expansion. (5) Expansion of metal due to corrosion. It will be noted that only one of these theories, the last one, depends upon the presence of a metal. Each of the others would hold equally well if some non-metallic conductor were embedded in the concrete, and a current passed. In order to get further evidence as to which of these five explanations is the nearer correct, the following experiment was carried out.—Two 6in. cubes of dense concrete were made up, in one of which was embedded a ½in. round iron rod, and in the other a ½in. round carbon rod. Carbon was chosen because, under the temperature and conditions, it would not oxidise or swell appreciably; yet it would transmit current to the heart of the concrete block, just as the iron rod would offer little resistance. Electrolysis would take place on the surface of the carbon as it would on the surface of the iron, gas would be formed in the one case as in the other; in fact, the only important difference in the action between the carbon and the iron rods, for the purpose of this investigation, is the fact that the iron oxidises or rusts under these conditions while the carbon remains passive and unaffected. These two blocks were then connected up in parallel, and a current passed through them. There was no rise in temperature which the hand could detect. A difference of potential of about 10 volts direct current was maintained on the two blocks. In just one week the block containing the iron rod burst, and after a period of over two months the block containing the carbon rod was apparently as sound as ever. The voltage was then raised to 30, and, two days after, to 50, with no apparent effect. The block containing the iron rod, after about two weeks' exposure to the action of the electric current at 10 volts, had cracked and broken away from the iron rod. In the light of these results, the theories enumerated above may be examined, to ascertain which of them seems to most fully explain the phenomena described. The first mentioned theory, namely, that the cracking is caused by the expansion of the concrete due to change in its chemical nature, is commented on by its advocate as follows:—"Experiments . . . seemed to show that . . . the strong oxidising agents, chlorine and oxygen, permeated the pores of the concrete and, in the presence of water, changed some of the cement compounds to higher states of oxidation. Such a change should make more space necessary, and so act as a bursting force." This may be answered with the statement that with the carbon electrode the same gases would be liberated, and the action of these gases upon the concrete would be the same, therefore the concrete should have burst as surely with the carbon rod as with the iron rod. The fact that this was not the result throws doubt upon this theory. The second theory is that a hydrostatic pressure is produced at the anode which ruptures the block. An advocate of this theory says:—"According to the tests of Quincke, it appears that an actual bodily transfer of electrolyte takes place under the action of electric currents. This transference caused a rise in hydrostatic pressure at the anode or cathode by heaping up the electrolyte, as it were." If this were true when iron is used, there appears no reason why it should not be equally true when a carbon electrode is used, and a theory which does not explain this discrepancy is defective. On the third theory, which ascribes for the cracking by the presence of a gas pressure, which acts at the anode, an exponent says:—"The cracks in the concrete are best accounted for by the following theory of gaseous pressure. The steel pipe . . . liberated two gases at its surface—viz., oxygen and chlorine. If these gases were hindered in their escape by the surrounding concrete, they would accumulate and gradually increase in pressure. As the pressure in a particular void increased, the surrounding cement crystals would be subjected to a tensile stress . . . and might reasonably crack." To this the same answer applies, namely, that the gases are liberated by the carbon rod as by the iron rod. The next or fourth theory mentioned is to the effect that the current heats up the concrete internally, and the consequent expansion bursts the block. Its sponsor says:—"This leads to the belief that the indirect thermal effect of the current is a more important factor than the formation of gases under sufficient pressure to rupture the concrete . . . The temperature may be supposed to have risen considerably along the path, giving rise to local expansion, cracking, and general disintegration." As to the former theories, the reply again is that this heating by current is in no way peculiar to an iron electrode, and therefore the block containing the carbon rod should burst as quickly as the one having the iron rod. Even the increase in voltage from 10 to 50, with the consequent increase in current passing, and in the heat generated, apparently had no effect on the block, though the iron burst its block in one week at 10 volts. The fifth or last theory, which is the one most commonly advanced, seems to explain more completely the phenomena noted. We all know that iron rust occupies more volume than the original metal from which it is formed, and as the rust which formed on iron subjected to the conditions here described must find space for itself, a great internal pressure is set up as the amount of rust increases, until the enclosing and confining concrete gives way. This great internal pressure also explains the partial breaking down, or crushing, or softening of the layer of concrete immediately adjacent to the metal. Typical faces of concrete have burst, due to electrolytic corrosion of iron embedded in it. Some of these plates were painted and some were not. Part of the paint adheres to the concrete. In the case of the faces where the plate was unpainted, and the corrosion was very rapid, there is no spreading of the iron oxide away from the plate, although some rust adhered to the concrete when the plate was removed. It is only when a current is passing that steel corrodes when embedded in concrete. Reinforcing bars are sometimes placed so close to a surface that is exposed to the weather that air penetrates the concrete to the steel in dry weather, and water reaches it in wet weather. Under these conditions, the concrete does not possess sufficient protective power to overcome the corroding tendencies of steel which is alternately wet and dry. This becomes especially true after repeated rains have washed out a portion or all of the free lime in the outside layer of the concrete which so effectively protects iron and steel from corrosion. In outside walls the reinforcing steel should be kept far enough from the surface to be well protected. As an illustration of the failure that may follow the placing of steel too near the surface, I gave a photograph of an exterior wall in which steel in a few places was less than ½in. under the surface. The result was the corroding of the metal first at the points where the rods were nearest the surface, and then the gradual extending of the corrosion along the rods, with the consequent bursting out of the concrete in which it was embedded. This building was erected about nine years ago, and the rusting of the bars and cracking of the concrete became apparent after some two or three years. Similar effects have followed the use of ungalvanised metal lath over which insufficient coating of mortar had been placed. In some cases large areas have scaled from outside stucco walls because the rusting of the iron lath and the consequent swelling action separated the stucco on the outside of the lath from that on the inside. Having thus lost its bond, the outside stucco falls off very easily. The painting of metal lath to protect it against such action we believe to be of little avail. The remedy lies in the use of a substantial, well galvanised lath, and placing on it a good and sufficiently heavy coating of dense plaster.

* Paper Presented to National Association of Cement Users.

Our Illustrations.

GOLD MEDAL AND OTHER PRIZE AND MEDAL WORKS: FROM THE NATIONAL COMPETITION, BOARD OF EDUCATION, SOUTH KENSINGTON.

The examples on this plate are reproduced, by the permission of the Board of Education, from the illustrated edition of the official report of the examiners, the photographs being those taken by the authorities for this useful and excellently-produced art handbook, which is issued for the net price of three shillings. Nos. 1 and 2 show a modelled design for a Library Doorway, by Mr. William H. Wright, of Nottingham, who was awarded a National Gold Medal for this capable composition, which has a well-modelled panel above, intended for marble, in low relief, the subject being "The Poet." The judges were Messrs. Reginald Blomfield, A.R.A., S. J. Cartlidge, A.R.C.A., and Bertram Mackennal, A.R.A., with Sir George Frampton, R.A. Nos. 3 and 4 are studies from the nude, by Miss Amy E. Webb, of Maidstone; a Bronze Medal was awarded to the seated shaded figure of a Girl, No. 4, and a book prize for the chalk study of a standing Maid, No. 3. The examiners in this subject on the last occasion were Sir Wm. Richmond, K.C.B., R.A., with Messrs. George Clausen, R.A., and Arthur Hacker, R.A. No. 5 shows the Gold Medal model of a figure from the life, by Miss Lottie May Ayers, of St. Martin's School of Art, Westminster. The judges, Messrs. W. R. Colton, A.R.A., W. Goscombe John, R.A., and F. Derwent Wood, A.R.A., report thereon, with special emphasis, describing this study as admirable and vigorous, and a work which is worthy of the highest praise. The remaining subject on our plate is a prize oil nude painting of a man, by Mr. Charles Thomas, of Birmingham, Margaret-street School of Art. The examiners in this class were Messrs. Arthur Hacker, R.A., George Henry, A.R.A., and J. Seymour Lucas, R.A.

"INVERLUNE," NEAR LANCASTER.

This residence was recently built for the Constable of Lancaster Castle (Mr. Edward B. Dawson, J.P., of Aldcliffe Hall) on his estate at Aldcliffe. The site is a very fine one, well timbered, and from which magnificent views of the Lune estuary and the surrounding country may be obtained, especially from the "look-out," which has been introduced on the south front. The house was designed to harmonise to some extent with "Inglewood," which is near to it, and which was designed by the owner's son — the late E. Howard Dawson, A.R.I.B.A. The materials are local stone, cement roughcast, and green Westmorland slates. Mr. Chas. Bulmer Pearson, Licentiate R.I.B.A., of London (late of Lancaster), was the architect.

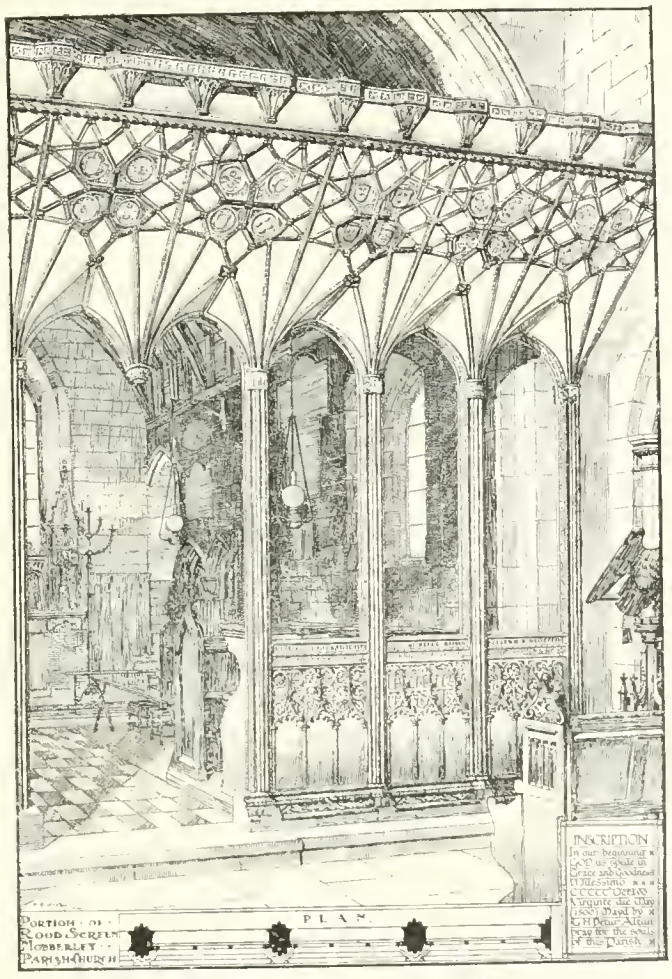
NOS. LXXI., LXXII., AND LXXIII., ST. JAMES'S-STREET.

This building is at the lower end of St. James's-street, between two heavy club buildings, neither of which could it afford to architecturally offend. It is faced with Portland stone, the ground floor and basement being occupied by Messrs. Rumpelmayer, and the upper part designed for residential chambers. Messrs. Perry and Co., Ltd., of Bow, were the contractors, and Messrs. Wm. Woodward and Sons, of Southampton-street, Strand, are the architects.

A REFRESHMENT HOSTEL IN TIMBER FOR WORKPEOPLE.

(For assessor's award in this BUILDING NEWS Designing Club competition, see page 414.)

The death is announced of Mr. James Sheard Kirk, of Marsden, senior partner in the firm of Messrs. John Kirk and Sons, architects, of Huddersfield. Amongst the buildings for which the firm have been architects are the Crosland Moor workhouse, the Huddersfield Union offices, and the Marsden parish church. Mr. Kirk was in his sixty-ninth year.



ROOD-SCREEN, MOBBERLEY PARISH CHURCH.

ROOD-SCREEN, MOBBERLEY PARISH CHURCH.

This screen (which is probably one of the finest in Cheshire) bears the date 1500, and is beautifully groined. It has, with other devices, the arms of the Talbots, and an inscription on the top rail which reads as follows:—"In our beginning God us spede in grace and goodness Milessimo C.C.C.C.C.°. Octavo Virginte die May (1500) Mayd by G. H. Petur Altun, pray for the souls of this Parish." The illustration is a reproduction from a pen drawing made by Mr. R. G. Heape, 2, Ridgefield, Manchester.

PROFESSIONAL AND TRADE SOCIETIES.

EDINBURGH ARCHITECTURAL ASSOCIATION.—At the last meeting of this body a lecture was given by Mr. Lawrence Weaver, F.S.A., London, on "British Leadwork: Its Art and History." It was unfortunately true, he said, that Scotland was not a very fruitful field in which to study the art of the leadworker, if we excepted the very notable spires of Aberdeen. This was due probably to the fact that Scottish lead mines were but scantily worked in the Middle Ages. This lack, however, provided no good reason for the neglect in these days of a craft that offered such wide possibilities in design and treatment from the æsthetic point of view. In England there were thirty ancient fonts of lead, a great many of them of the 12th century; but none was to be found north of Derbyshire. Most of the Early Gothic leaded spires of England had disappeared, owing to fires destroying their timber framework, and this cause was responsible for the loss some forty years ago of the magnificent pinnacled example of St. Nicholas, Aberdeen. St. John's, Perth, retained its spire of collar-type, and at King's College, Aberdeen, was an hexagonal flèche of particular beauty, for which no parallel existed in England. Lead was pre-eminently the best material for garden ornaments, and was greatly employed by the Dutch statuaries and garden designers who changed the face of English gardens at the end of the 17th century. Scotland had some examples of such figures — a kneeling Hercules at Winton Castle, and a curiously naturalistic cow at Biel Castle. To-day Scottish architects had been honourably to the fore in reinstating lead in its rightful position as a material peculiarly capable of artistic treatment. Mr. R. I. Lorimer and Mr. Deas had made charming use of it for garden ornaments, and Mr. J. J. Burnet was employing it for a splendid parapet on the new north front of the British Museum.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.—A special meeting of the council of the above body was held on Monday last. The president, Mr. A. E. Murray, F.S.A., F.R.I.B.A., was in the chair. Correspondence in reference to Licentiates of the R.I.B.A. and other matters was dealt with. Mr. J. H. Webb was declared elected a fellow of the institute, and Mr. Ernest Lucius Woods a member. After some financial business had been dealt with, a report from the examination committee with reference to the forthcoming examination for admission to the Student's class of the Institute was read and received, and it was decided to circulate it amongst the members of the council, to be dealt with at a future meeting. A report from the professional practice committee bearing upon the regulations for conducting architectural competitions was considered and adopted.

After a protracted and painful illness, Mr. J. Samble, surveyor to the St. Austell Urban Council, passed away, at the age of 63 years, on Friday. He leaves a widow and a grown-up daughter.

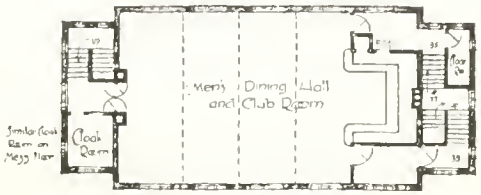
PLACED SECOND

: South Elevation :

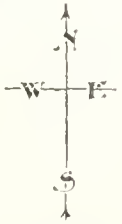
View from South East

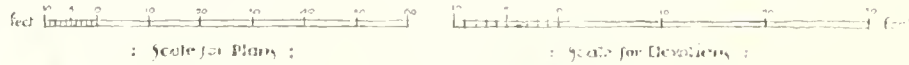
: Building News Design Club :

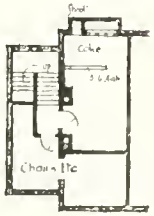
: A Refreshment Hostel : "By Lucy" :



: First Floor Plan :

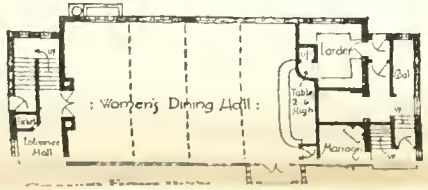


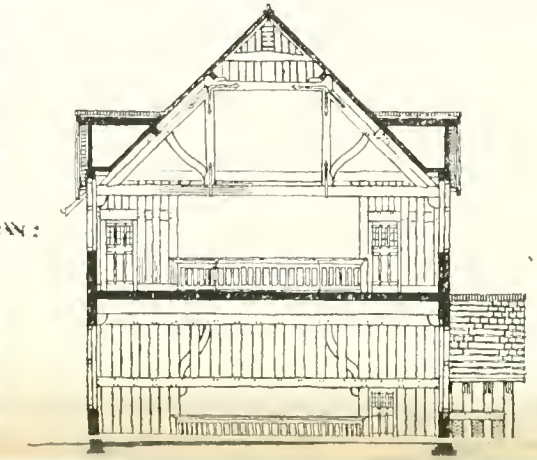


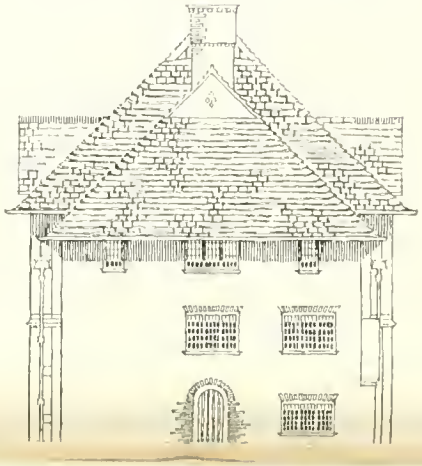


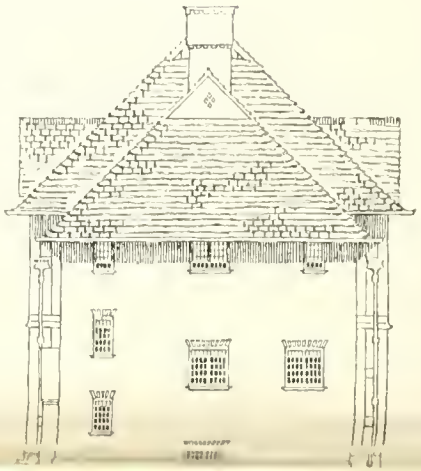
: Basement Plan :

: Mezzanine Floor Plan :









SCALE ⅛ FEET FOR ELEVATIONS & SECTION

bN.D.C

A TIMBER BUILT REFRESHMENT "HOSTEL"

PLACED FIRST

SOUTH ELEVATION

NORTH ELEVATION

NOTE

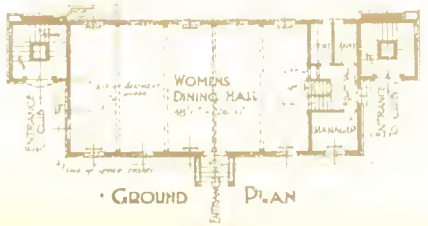
CROSS SECTION

MEZZANINE PLAN

SCALE ⅛ FEET FOR PLANS

EAST ELEVATION

FIRST FLOOR PLAN



GROUND PLAN

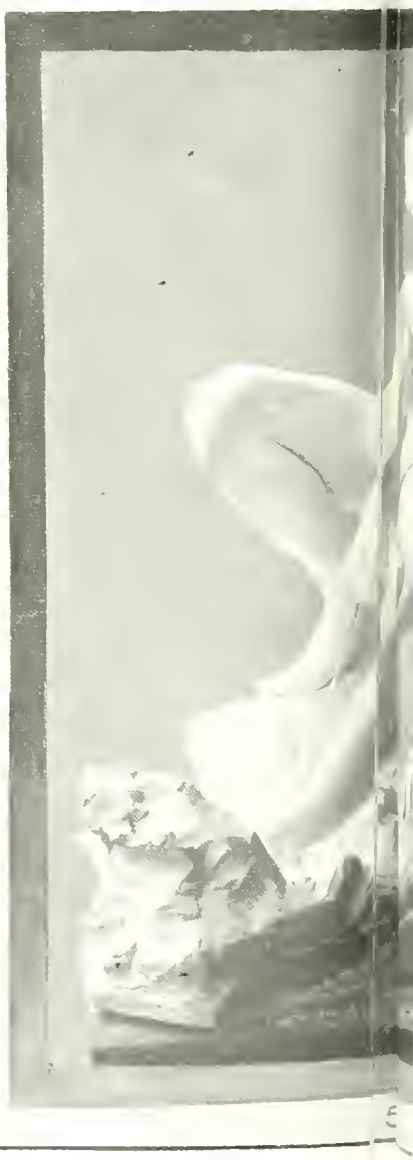
"BUILDING NEWS" DESIGNING CLUB

NORTH FRONT.

1

2

4



GOLD MEDAL AND OTHER PRIZE AND MEDAL
BOARD OF EDUC

3

6

WORKS, FROM THE NATIONAL COMPETITION,
ON, KENSINGTON.

C.
E.H.
H.
P.
S.
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L.
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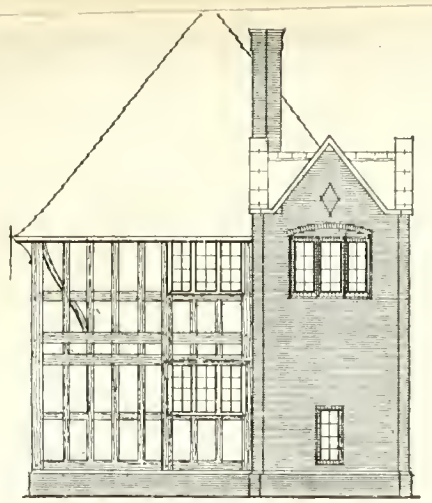
W.
W.H.
SOUTH FRONT.
"INVERLUNE" ALDCLIFFE
FOR E. B. DAWSON ESQ.RE J.P.
CHARLES B. PEARSON
ARCHITECT LANCASTER.

PHOTO-TINT

PHOTO-TINT

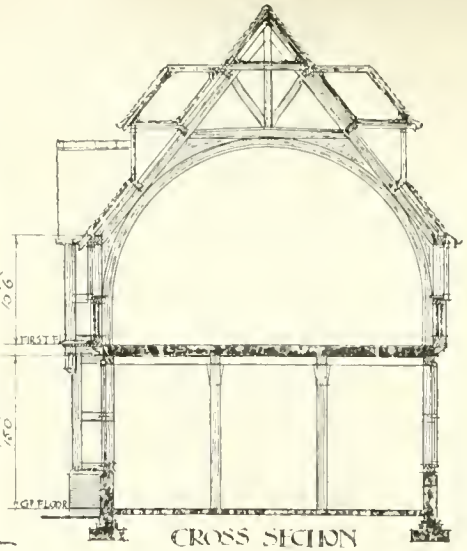
71-72-73 ST JAMES ST S.W. WM WOODWARD & SONS ARCHITECTS



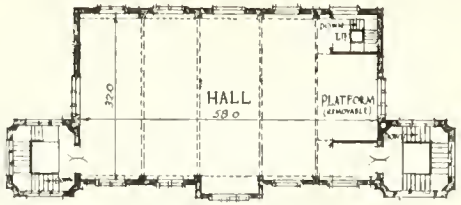
WEST ELEVATION

·PLACED THIRD·

SOUTH ELEVATION

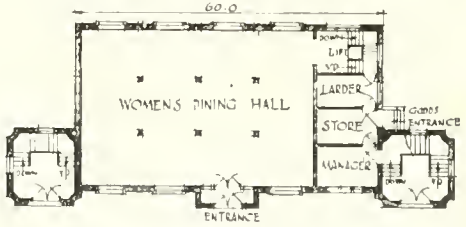


CROSS SECTION

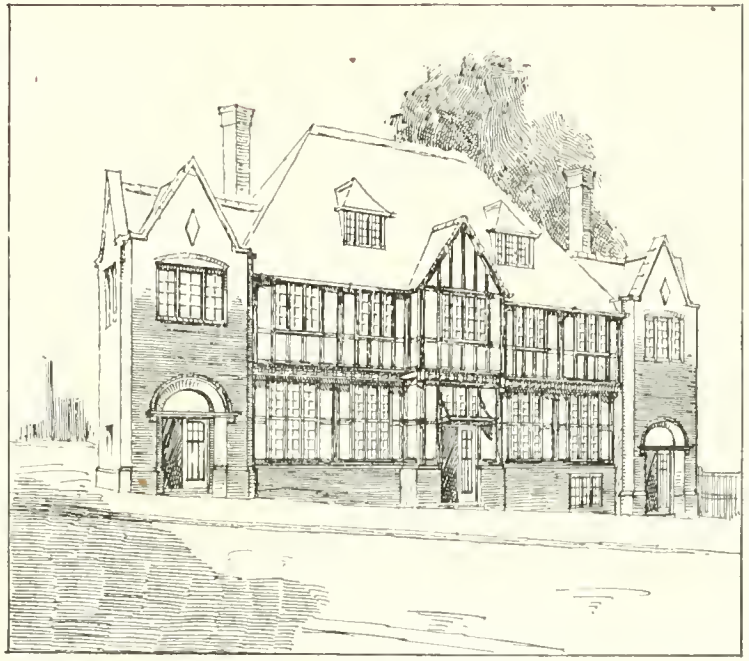


FIRST FLOOR

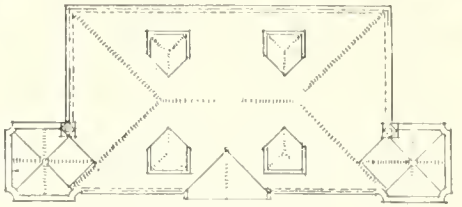
MEZZANINE



GROUND FLOOR



VIEW FROM SOUTH-WEST



ROOF PLAN

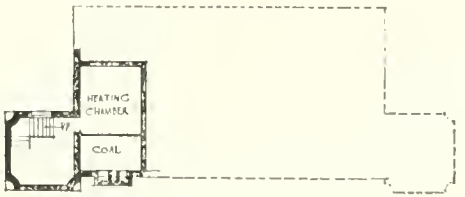
B · N · D · C

DESIGN FOR TIMBER-BUILT REFRESHMENT HOSTEL

Harvey

SCALE FOR PLANS

SCALE FOR ELEVATIONS AND SECTIONS



HEATING CHAMBER

MAR 1911

COLOURING AND AGEING OF WOOD BY MEANS OF GASES

An article appeared [illegible] Gerda Wedell [illegible] published in the [illegible] It deals in [illegible] colouration [illegible] of age. The [illegible] the superficial [illegible] drying [illegible] colours [illegible] Natural History.

Proceeding [illegible] colouration [illegible] the author says:

All wood [illegible] the air and the action [illegible] moisture [illegible] a marked [illegible] effect [illegible] light [illegible] weeks [illegible] Dust especially [illegible] and fungi and bacteria [illegible] contribute to this colouration. The [illegible] is purely superficial. The [illegible] wood pulp paper when exposed [illegible] well known. The effect appears to be chiefly due to the ultra-violet rays. We find [illegible] two colour changes occurring simultaneously or successively—a very slow colouration [illegible] the entire mass and a comparatively [illegible] change in the colour of the [illegible] which may be orange-yellow, brown, or [illegible]

[illegible] the higher Alps have [illegible] of rare beauty. These [illegible] found only at great elevations [illegible] and snow and glaciers, [illegible] the sun's rays and of [illegible] particular is little [illegible] absorption. Wiesner asserts that especially beautiful colours are found [illegible] bodies of water and in damp forest [illegible]; but this luminous, red brown tint does not occur in similar localities in the lowlands. The author has made certain observations which give some explanation of this remarkable phenomenon.

EXPOSURE TO AMMONIACAL EFFECTS.

The wood is always grey on the weather side of the house which is frequently exposed to rain and snow. The sunny side is more or less brown, according to age. In some houses, hundreds of years old, the colour is so dark as to appear almost black in [illegible] daylight. The projecting ends of the floor joists are found actually carbonised or ferred in very old houses. A few years' exposure produces a light brown colour, and still newer houses have a pale yellow tint. Two phenomena are found in all cases: a pure grey on the weather side and an entire [illegible] of colour above the stable doors and [illegible] windows.

The boards exposed to the ammoniacal [illegible] of such places are as white as the [illegible] washed boundary walls. The brown [illegible] matter is evidently quite superficial and [illegible] as it is easily and completely [illegible] by the mere ammoniacal vapours. The [illegible] spot surrounded by a dark [illegible] which the colour has either been [illegible] or darkened by ammonia. Closer [illegible] of the bleached surfaces shows that not only the [illegible] matter, but all of the [illegible] of the wood has been removed. The superficial layer is a snow white, felted mass of fibres of pure cellulose and gives none of the reactions of lignin. All easily decomposable incrustations are also removed by the combined action of light, air, moisture and ammonia.

The most remarkable peculiarity of this natural browning of wood is the fact that it does not take place to anything like the same extent or beauty in the lowlands. As the traveller descends from the Alps, where he finds the beautiful luminous brown colour gradually superseded by a grey. Wherever a bright brown colour is found in wooden structures on the lowlands it has been produced artificially by a coating of tar or other substance employed as a preservative against decay. Very probably the tannins and the ferrous salts of the sap which are sensitive to light and air play a part in this natural colouration. The question is well worth investigation.

EFFECTS OF OPEN AIR AND OLD AGE.

When [illegible] wood is exposed to the open air [illegible] protected from rain, the superficial layer [illegible] assumes a yellow colour, but this is [illegible] changed into a grey, usually of an [illegible] appearance, which has nothing in common with the grey of old age, which permeates the whole of the wood in the interior of old houses. According to Schrammn, this superficial grey colour is caused by traces of iron in the wood, or in the dust of the air, in combination with ingredients of the sap, which become oxidised, producing a greenish or violet grey, and ultimately a "dirty" grey colour. Like all iron stains, this grey can be quickly lightened or removed by oxalic acid. The same grey colour can be produced artificially by applying iron salts to some kinds of wood.

In the natural process it appears most rapidly on wooden fences, posts, and structures in dirty streets or courts; but even amid green fields and distless air, the weather side of an unpainted wooden building always turns grey first of all. Although this grey colour, due to iron, rapidly produces an appearance of age, and is, perhaps, more pleasing than new wood, it does not possess the artistic value and effect of the genuine grey of age which is found in the interior of old houses.

ARTIFICIAL COLOURATION.

If there is a comparatively new process has been applied only to woods abounding in tannin, for the purpose of producing the pleasing greyish brown colour, which is so highly prized in old oaken furniture. The best technical treatises give directions for this [illegible] process of imitating old oak, and for some modern improvements by which a similar effect can be produced in wood destitute of tannin.

Fuming with ammonia is applied to the completed article of furniture or other object, by exposing it for a day or two to the combined action of ammonia and air in an air-tight chamber, in which shallow vessels containing a concentrated solution of ammonia are placed. Or the ammonia may be evolved by heating a mixture of ammonium chloride (sal-ammoniac) and slaked lime over a small alcohol lamp. A small quantity of ammonia, together with the oxygen of the air, produces a soft brown colouration in the wood, which penetrates to a depth in proportion to the time of treatment. The usual exposure of one or two days gives a far deeper colouration than can be produced with liquid stains, yet even two or three days' exposure seldom produces an effect deeper than $\frac{1}{16}$in.

The treatment for wood containing no tannin includes a preliminary application of a tannin liquid. As ordinary tannin agents do not penetrate deeply into the wood, the liquid employed is a 5 or 10 per cent. solution of pyrogallic acid, which is very easily oxidised and is deeply coloured by ammonia and oxygen. But even this solution does not reach the interior of the wood, and, consequently, the characteristic advantage of fuming with ammonia is lost.

CHARACTERISTICS OF THIMM'S METHOD.

The same fundamental defect exists in Thimm's method, in which wood naturally free from tannin is steeped in solutions of metallic salts and then fumed with ammonia or sulphuretted hydrogen, which produced variously coloured metallic compounds in the fibres of the wood. By this method it is possible to attain a great variety of tints; but these are only superficial, and could be produced as well by the use of ammonia solution or other liquids.

Even for oak abounding in tannin, the employment of fuming with ammonia is so restricted by various causes that the process is seldom used, notwithstanding its simplicity. The quantity of tannin in oak varies in different trees and even from layer to layer of the wood, so that a striped and spotted effect is produced.

As only completed articles can be fumed, the pieces constituting a set of furniture should be, if possible, made from a single tree and fumed simultaneously in one chamber, if they are to be alike in colour. Spots are also produced by oil, glue, dirt, and by careless handling of the articles before fuming, while after fuming the colour, if not protected by varnish, is liable to be spotted and stained by water.

STEAMING AND COLOUR.

Treatment with superheated steam has until recently been used only for the purpose of softening wood for bending, for example, in the manufacture of the well known Thonet Vienna bent wood furniture, which is made chiefly of red beech. The colouring which is incidentally produced is uncertain, and is, therefore, avoided as far as possible. Superheated steam, however, can be employed to produce a uniform brown colour through the mass of the wood. The colour is due to humin bodies resulting from partial decomposition of the lignin substances (sugar, gum, tannin, etc.). Superheated steam has recently been used in America for the purpose of drying timber, and a process of colouring might be advantageously combined with the drying process.

THE NEW WIESLECHNAS PROCESS.

The principle of following nature as closely as possible is obeyed in a process, invented and patented by the writer, which is practically employed at an establishment near Dresden, with surprisingly good results. By this method, and by this alone, it is possible to produce in a comparatively short time the soft brownish grey colour of age throughout the mass of large beams of every sort of wood, although not every wood is equally suited to the process.

The most beautiful effect is produced with oak, which, despite its closeness of texture, is coloured throughout. Beech, elder, and birch also give good results. Of resinous woods the larch and the American varieties, redwood, cypress, and pitchpine, give the best results, but even the European birch, pine, and spruce quickly lose the raw colour of freshly cut wood and develop the agreeable grey tones of age instead of the usually ugly, yellow-grey colour caused by light and air.

The new process differs essentially from the earlier tentative methods of colouring wood by burying it in mud or animal excrement, and the result is also very different from the humin colouring of pieces of wood which have lain buried in swamps or moors for centuries. In the repulsive methods referred to, the effect is due to liquids, and is, therefore, more or less superficial. In the new process the colouring is effected by the natural gases of the soil, together with artificial gaseous additions. With a suitable composition of the soil, the unstable ingredients of the wood are decomposed, and the stable parts are aged, ripened, and softly tinted by the humin bodies. The change has nothing in common with ordinary decay, for it can be effected in a medium like coal ashes, which is entirely free from bacteria.

The wood, in the form of planks or beams, is laid horizontally on its edge in shallow pits, and covered with the prepared soil. The pits are about 20in. deep and have a porous bottom. The soil should be neither a pure clay nor a pure sand, but a coarse-grained mixture containing a little humus. The size of the grain should range from $\frac{1}{16}$in. to $\frac{1}{8}$in. Sifting is usually required to obtain this result. If no suitable natural soil is obtainable, moderately fine-grained coal ashes, which contain some unburned coal, instead of humus, may be employed. This material is continuously permeable for water and air, and, when frequently sprinkled or exposed to rain, remains sufficiently moist, without long retaining liquid water.

OXIDISING ACTION OF AIR.

In the alteration of watering and drainage, air is copiously absorbed and a moist atmosphere is maintained in the soil. The oxidising action of this moist air is greatly increased and modified by the addition of some substance which will evolve ammonia slowly and for a long time. After many experiments, a perfectly clean mineral mixture was found to be a far more satisfactory source of ammonia than the foul messes formerly employed for this purpose.

The best result is obtained by adding lime and ammonia salts, or lime-nitrogen, to the

soil in the proportion of one or two parts to a hundred. The chemicals are mixed with the soil by working with shovels on a board floor. In the mixing process the soil should be as dry as possible, in order to avoid rapid evolution and loss of ammonia.

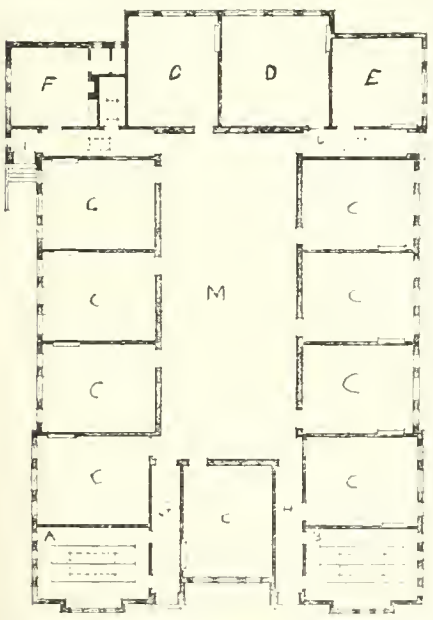
If ammonium sulphate is employed, the lime may be added in the form of ground limestone, which is cheaper and more satisfactory than either slaked or unslaked lime. The ammonium sulphate gradually dissolves in the moisture of the soil and reacts with the insoluble limestone, forming calcium sulphate and ammonium carbonate, which readily decomposes into ammonia and carbon dioxide. The gradual and long-continued formation of ammonium carbonate produces a much better effect than the direct addition of a large quantity of this salt, which is expensive and decomposes too rapidly, or than the rapid production of ammonia gas by the action of lime upon ammonia salts. The effect is especially good when care is taken to drain off all excess of water, to regulate the moisture and aëration of the soil, and the slow and uniform production of ammonia, and to prevent the rapid escape of this gas from the pit. For this purpose the pit, filled with the prepared soil and boards, is covered with coarse sand or rags. Too little and too much moisture are equally injurious.

Experience has shown that a large proportion of organic matter in the soil actually protects the boards from the colouring action of the ammonia and air, which in this case is exerted on the humus alone. Loose mineral soils containing a small proportion of humus or coal, on the contrary, allow the soil gases (air, water, vapour, ammonia, carbon dioxide, and probably hydrogen dioxide) to produce the desired soft, greyish-brown colour of age in its full beauty.

CENTRAL-HALL SYSTEM SCHOOLS.

JUNIOR MIXED SCHOOL AT BRISTOL.

In January, 1908, the Bristol Education Committee issued to the Bristol architects instructions for preparing plans and estimates for a junior mixed school, to accommodate 600 children, at Alexandra Park, Fishponds, with the result that the plans submitted by Messrs.



A, Girl's cloaks; B, Boys' cloaks; C, Classroom, 50; D, Classroom, 60; E, Classroom, 40; F, Teachers' room; G, Girls' entrance; H, Boys' entrance; I, Girls' exit; J, Boys' exit; L, Main-road; M, Central hall.

Rodway and Dening, of Gaunt House, Orchard-street, were accepted. The work was commenced in Janaury, 1909, and the building was opened on February 6 this year. The contract for the general building was given to Messrs. Samuel Roberts, Ltd., of 81, Old Town-street, Plymouth, their tender being £5,997. The total amount of the accepted tenders was £150 below the architects' estimate.

The school is planned on the central-hall system, and the accommodation for the 600 scholars is provided by 10 classrooms of 50 each, one of 60, and one of 40. The classrooms have been so planned as to permit of each receiving sunshine during some portion of the day. Each room is cross-ventilated by a lantern or dormer window, and as an additional means for extracting the foul air, gratings have been placed between the classrooms and the central hall. The heating of the premises is by means of hot water at low pressure with ventilating radiators. The extraction of the vitiated air from hall and classrooms is effected by means of a separate boiler, feeding a coil of steam-pipes in the central turret.

The entrances for boys and girls, with cloakrooms adjoining, are from the new road, the exits to playgrounds being at the rear end of the hall. A teachers' room and caretaker's wash-up are also provided. The central hall, which is 72ft. by 30ft., is under the maximum allowed by the Board of Education.

The building is of local grey pennant stone, with dressings of "St. Aldhelm" Box Ground. The pitched roofs are covered with hand-made sand-faced Broseley tiles. The flat roofs to three of the classrooms are of reinforced concrete, finished with asphalt. The glazed brick dadoes to the entrances and cloakrooms are of golden brown, with a capping of blue green, the jambs and archways being carried out entirely in blue-green bricks.

OBITUARY.

Mr. Ernest Crofts, R.A., the well-known painter of military subjects of the Cromwellian and Waterloo periods, and Keeper of the Academy, died on Sunday, aged sixty-three years. In thirty-five years from the day when he had his first picture hung at Burlington House he only exhibited forty-four works there. Half of these were scenes from the struggle between King and Parliament, a fourth were scenes of the Waterloo campaign, the remainder mostly illustrated other battles, such as Landen and Ramillies. Ernest Crofts was born at Adel, near Leeds, on September 15, 1847. He studied first in London under A. B. Clay, and then at Dusseldorf (1874-8) under Emil Hunten, military painter to the Emperor William I., and himself a pupil of Horace Vernet. His conscientious and laboured draughtsmanship and the dull unattractive colouring are typical of German genre-painting in the early seventies, before the modern movement had begun. Croft's first picture at Burlington House was shown in 1874: it was a scene from the Franco-Prussian War, entitled "The Retreat," and was purchased for the Konigsberg gallery. His "Morning of the Battle of Waterloo" (1876) and "Wellington's March from Quatre Bras" (1878) were bought by Sir F. T. Mappin and J. N. Mappin, and now hang in the Mappin Art Gallery at Sheffield, which also possesses a smaller piece, "The Empty Saddle" (1882). In 1879 his "Evening of the Battle of Waterloo," the confused retreat of the French near Genappe, was bought for the Walker Art Gallery, Liverpool. Elected an A.R.A. in 1878, he became an Academician in 1896, and two years later succeeded Philip Calderon as Keeper, an office which carries with it the duties of chief director of the art schools and custodian of the diploma gallery of the Academy.

At a meeting of the Manchester Council of National Registered Plumbers it was stated that the Budget meant more buildings of the sky-scraping pattern, as the new land taxes would tend to increase the height rather than the area of new structures.

The second volume of "Some Old Devon Churches," by John Stabb, will be published next month by Simpkin, Marshall and Co., Ltd. Though it will contain a greater number of illustrations than the first volume—162 against 126—and considerably more reading matter, the price will remain the same—viz., 7s. 6d. net. The first volume was reviewed in our pages in September, 1908.

Building Intelligence.

BIRMINGHAM. — The Birmingham Council House extension is approaching completion. The new portion covers an area of 11,000sq.yd., and has cost about £200,000. It is a four-story building, surmounted by a dome. It is built on the steel-frame type, and is faced with Darley Dale stone upwards from the upper ground floor, and with Aberdeen granite in the case of the lower ground floor. The main elevation fronts Congreve-street, and has two chief entrances, with marble steps, landings, and dadoes. A bridge to connect the old and the new building has been constructed of steel, faced with stone. The main floors throughout are constructed of rolled steel joists filled in with concrete and finished with granolithic paving. The flooring of the art galleries is to be of oak boards. The principal contract was let to the Building Construction Company, London, and the amount of their contract was £128,000. The foundations up to the lower ground floor were put in by Messrs. Rowbotham. The architects were Messrs. H. V. Ashley and Winton Newman, of Gray's Inn-square, W.C., whose design was selected in competition four years ago. We published the original plan and the chief façade from the competition drawings in our issue of January 4, 1907, a sketch of the Congreve-street front in our number for May 8, 1908, and a four-page plate of the chief elevation in that for May 28, 1909.

WALTON, NORTHANTS. — A new factory is being built at Walton, near Peterborough, for a firm of shopfitters and hardwood joinery manufacturers. The machinery is being unloaded and placed in position. The new building is 200ft. in length and 80ft. wide, whilst the height from the floor level to the top of the ridged roof is 45ft. One workshop goes practically the whole length and breadth of the building, and is covered by a north-light roof composed of ten sections. The iron principals of the roof are carried on iron stanchions, whilst the south slope is composed of Bell's united patent asbestos tiles, and the north slope is glazed. Mr. Alan Ruddle, of Peterborough, is the architect, and Mr. J. Cracknell, of the same city, is the contractor.

The extension of the Old Age Pensions Act has given rise to such a demand for cheap cottages in rural mid-Warwickshire that the authorities are experiencing the greatest difficulty in closing dilapidated buildings.

At Oxford, on Friday in next week, the 31st inst., a Local Government Board inquiry will be held into an application of the corporation for sanction to a loan of £10,000 for the provision of additional city offices, stables at the city police-station, and the conversion of the second assize court into a council chamber.

At Tuesday's meeting of the ferry committee of the Middlesbrough Corporation the borough engineer, Mr. S. E. Burgess, reported that good progress was being made with the construction of the Tees transporter-bridge, and up to the present work to the value of £62 525 had been done. The builders, Sir William Arrol and Co. had written to him stating that the bridge would be completed by the end of July, and in working order early in August.

The executive committee of the Surrey King Edward VII. Memorial has held a meeting at Caxton Hall, Westminster, at which it was reported that subscriptions and promises amounting to £3,300 had been received. The committee abandoned the proposal to erect a statue of the late King, and in substitution will provide a copy of the State portrait of his Majesty by Sir Luke Fildes, R.A., now hanging in Buckingham Palace. This will be hung in the County Hall at Kingston-on-Thames.

The Imperial Trade Correspondent at Victoria, British Columbia (Mr. J. J. Shallcross), has forwarded a report of the Budget speech of the Provincial Minister of Finance, from which it appears that provision is made for the expenditure of some 1,300,000dol. (about £267,000) on the construction and extension of court-houses, schools, an asylum, the Parliament buildings, etc., and of some 860,000dol. (about £176,000) on bridges, including 250,000dol. for the bridge over the Second Narrows, Burrard Inlet.

COMPETITIONS.

OUR ADVERTISEMENT DESIGN COMPETITION. We would remind readers and competitors that designs for the above competition must reach us on or before March 31, when the competition closes. We again specially offer to architectural students a [illegible] for the successful design [illegible] Columns. The [illegible] design [illegible] guineas.

HULL. [illegible] for [illegible] design [illegible] front on the [illegible] and Margaret street, Hull, [illegible] to the Hearing [illegible] prizes, £50 [illegible] Albert Edward [illegible] Hull; second prize, £30 [illegible] Bottomley Atkinson, [illegible] Hull; third prize, £15 [illegible] J. B. Simpson, Customs House Buildings, Waterfront, Hull.

PENISTONE. About sixty complete designs were submitted in the Carnegie Free Library competition inaugurated by the Penistone Urban District Council. An exhibition of plans was held on Saturday last in the National Schools at Penistone. The standard of work submitted by competitors the assessors, Messrs. Sydney E. Eaton and Frederick Wild, report in their official document, to be a very high one, and the competition was very keen. The requirements were: Area of site, 500yd. super., 70ft. wide by 75ft. deep; competitors to leave a 10ft. footway along the W. boundary; lecture room or recreation room, suggested area 624ft. super.; men's reading room, 672ft. super.; women's reading room, 364ft. super.; lending library, 504ft. super.; separate public lavatories for men and women; storage, heating chamber, and caretaker's house (containing parlour, living room, kitchen, wash kitchen, three bedrooms, and bathroom). The assessors' award was as follows: 1, Henry R. Collins, Regent street, Barnsley; 2, Smith and Stockton, Stockport; 3 (equal), Cairns and Warburton, Manchester, and 4, Henderson Robinson, A.R.I.B.A., and Percy Roberts, Sheffield. The materials proposed to be used in the premier design are as follows. Front elevation in Cullingworth stone and small sand faced brilliant red bricks; all floors in cement concrete, finished with red deal floor boards; the entrance vestibules, hall, etc., finished with jointless flooring and Roman terrazzo borders; internal joiners' work in yellow pine, stained and varnished. Ventilation by means of air inlets in the external wall at frequent intervals and extract shafts to roofs. Heating by radiators on the low pressure system.

PENRITH. In our report in our issue of March 10 of the result of the competition for the Penrith Grammar School, we stated incorrectly that the amount to be spent was £10,000 to £12,000. That was an error. The limit of cost was clearly stated in the conditions as £7,000.

ROCHDALE NURSES' HOME. Members and Licentiates of the Royal Institute of British Architects are requested not to take part in [illegible] competition.

SOPHIA, BULGARIA. The "Oesterreichischer Zeitgeist Anzeiger" (Vienna) announces that an international competition will be held of plans for a general building which it is proposed to erect in Sofia for State and municipal offices. The following four prizes will be given for the best plans submitted, in order of merit, viz.: 7,000 francs (£280), 3,000 francs (£120), 2,000 francs (£80), and 1,000 francs (£40). Plans must reach the "Kreis Permanenz Ausschuss" in Sofia not later than April 30. Particulars may be had of the last-mentioned address.

ST. HELENS. The competitive designs for the new fire office buildings which are to provide more adequate housing of the staff of the electricity and gas department have been submitted to the assessor, Mr. F. G. Briggs, F.R.I.B.A., Liverpool, who in his report gives a flattering compliment to the local architects whose designs have been entered. His placings are as follows: 1, Messrs. Brown and Hooker, of Mr. Lightbody; 2, Mr. E. Roughton. The first-named have been appointed architects for the work. The new buildings will be situated at the junction of Warrington New road and Warrington Old road.

CHIPS.

The [illegible] council of Alsager adopted at their last meeting a scheme for the sewerage of the district prepared by their surveyor, Mr. H. V. Lynam. The estimated outlay is £3,150.

The new parish church of Kelmersdale is now completed from the plans of the original architects, Messrs. Austin and Paley, of Lancaster, by the addition of a porch, baptistery, and vestry, to be added as a memorial to the late Earl of Latham.

The death has occurred, from pneumonia, of Mr. Hedley George Hinson, surveyor and waterwork manager to the East Dereham Urban District Council. Mr. Hinson, who was 51 years of age, had held his appointment for the past seventeen years, and was previously road surveyor under the Norfolk County Council at Loddon.

The Merryweather exhibit of motor and horsed steam fire engines and apparatus has been awarded a gold medal at the United Provinces Exhibition, Allahabad, India. These appliances, in addition to forming an interesting exhibit, were also available for service in the event of a fire breaking out. Such a contingency, fortunately, did not arise.

The opening of the Guy Memorial Baptist Church on the Stratford-road at Shirley, Warwickshire, took place on Friday. The building, which was designed by the late Mr. A. V. Ingall, of Birmingham, is in the Gothic style, with open timber roof. It has a nave 66ft. in length, exclusive of chancel, and has an open marble baptistery. The building is 28ft. wide and 50ft. across transepts.

The East Suffolk County Council at its last meeting decided to build a new school at Beccles accommodating 200 children, a new school at Pakefield providing 150 places, and a new school at Stowmarket providing 500 places; to purchase land in Langer-road, Felixstowe, for a new school; and to enlarge the existing schools at Reydon and Ramsholt.

Near by, but quite detached from the workhouse, the Lincoln Guardians have erected a new receiving home for children, at a cost of about £1,600, and on Tuesday week it was formally opened. The building, which fronts on Long Leys-road, is furnished for the accommodation of eight boys and eight girls and the caretakers, and there are two isolation wards in case of sickness. The architect is Mr. W. Mortimer.

The vicar and churchwardens of All Saints', Hereford, have received a report from Mr. J. Oldrid Scott, F.S.A., on the condition of the 14th-century tower of the parish church. The masonry is, Mr. Scott states, much decayed, and has become an increasing danger to the public, although the iron ties erected together with massive buttresses eighty years ago have stayed the settlement of the walls. The spire by which the tower is surmounted is in sound condition. He recommends repairs to be effected at an estimated cost of £2,200 for the first section and £750 for section 2.

Mr. F. Dartnell Thomas held an inquest at Hackney on Saturday on the body of Mr. Philip Silverthorne Brenton, aged 27, who was found on Wednesday night at his lodgings at Torrington-square, dead with a bullet wound on the right side of his head, and holding a revolver. Mr. Richard Charles Whitelev, a Civil Servant residing at New Barnet, said that Mr. Brenton was his cousin, and was studying to become an architect. He wanted to become a Fellow. He had sat for half-yearly examinations during the past two or three years, and his failure to go through had preyed on his mind. A verdict of "Suicide whilst of unsound mind" was returned.

At the meeting of the City Corporation on Thursday in last week it was decided to proceed with the widening of the eastern end of Leadenhall street on the south side to 50ft. by the setting back of fourteen premises on the southern side of the roadway, at an estimated cost of £252,800, subject to the London County Council agreeing to contribute half the net cost of the work. The work of widening the thoroughfare was commenced in 1850 in the vicinity of Aldgate Pump, and has at intervals been continued. The present section will complete the widening from the junction with Fenchurch street to opposite Creechurch lane, from widths varying from 30ft. to 23ft. to a uniform width of 50ft.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. Gordon L. Thorne, 10, Atherley-road, Southampton.

QUESTIONS.

[13025.]—SOUND.—In a church much difficulty is found in making the voice reach the far end. The open space of the transepts seems to take up so much of the sound. From the pulpit to the west end of the church is a distance of 72ft., and from wall to wall in the transepts 70ft. Can anyone suggest an arrangement to put behind the preacher to remedy the defect?—H. B. P.

[13026.]—PAINT FOR CONCRETE FLOOR.—I have a basement floor of concrete, with a smooth finish and very dry. I shall be glad of information as to what is the best paint and mode of using that will wear well as a covering, and not chip off. Colour red, grey, or buff.—X. H. H.

REPLIES.

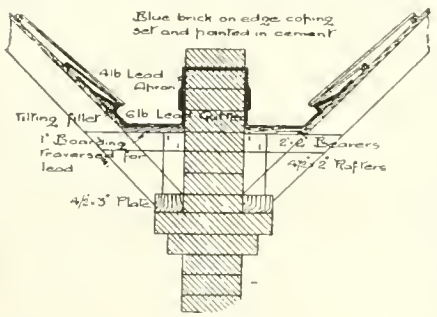
[13022.]—FLOOR COVERINGS.—The difficulty referred to by "K." is a real one. I sometimes fancy—possibly entirely without reason—that there is something in some of the linoleums made to-day that in itself is inimical to the durability of wood. With others it seems as if, while capable of excluding damp from above, they do encourage or facilitate it from below. I have used the patented floor coverings, Lenola, Cork Lino, and Inlaid Lenola, made by Messrs. Catesbys, Ltd., of Tottenham Court-road, with complete satisfaction, and prompted by their advice otherwise. It is only natural that every individual maker should claim all the merits desiderated for his special material, but at Catesbys, in addition to their own excellent productions, you will find the best specimens of other makes of artistic and sanitary floor coverings, and you will get disinterested and courteous hints as to a selection most likely to meet your needs.—S. P. C.

[13022.]—FLOOR COVERINGS.—As long as clients will cover wood-block floors with linoleum so shall we have dry-rot. Cement concrete and a mastic are used to keep down the moisture, and then, with the linoleum on the top, the wood blocks do not get a bit of ventilation. Why do not architects use thick linoleum or cork carpet (¼in. thick) direct on to the floated surface of the cement concrete, and thus save the cost and annoyance of the wood blocks and probable dry-rot? There are fewer joints, and a good parquet pattern might be chosen, as an alternative for certain rooms. "Corketa," or cork asphalte, might be used; then the housewife might put her rugs down without thinking of the awful consequences. For the joisted ground floors adherence to the simplest rules as to ventilation and depth to surface concrete (minimum 15in. below the underside of the timber joists must be seen to, and nothing need be feared. First of all put in the surface concrete as soon as the walls are about 1ft. above the ground; this will enable it to dry quicker, as there will be more air, and that before the joists are fixed; it will also be better for the men working on the job, whilst the concrete can be shot into position from wheelbarrows, the men having so much more elbow room. Next to deal with the ventilation. Provide plenty of air bricks, and thus allow for a through current in all directions, even under the solid floors, by the use of drain-pipes, so placed that there shall be a current of air whichever way the wind blow. You then have the two most essential features: no dampness and no stagnation of air. Dealing with the upper floors. If the client wants them pugged, discard the old-fashioned plaster of mortar, and use slag-wool or patent slabs, in fact, something dry, whilst a few holes through the joists, the same as are necessary for the flat roofs when covered with asphalte and vulcanite, and grating in the external walls will provide the necessary ventilation. "K." need have no fear that recent discussions are going to revolutionise floor coverings. Care, supervision, and foresight only are required.—K. B. Read, Lecturer on Building Construction, Gloucester Technical Schools.

[13023.]—PARTY WALLS.—"Constant Reader" seems to have entirely misconceived the purpose of a party wall, which is to prevent fire spreading from one building to another by direct communication. He speaks of the concession made in most urban districts, as though it was the abandonment of the party wall itself. This is not so, for the wall, which is carried up to the underside of the slates is still

in every sense a party-wall, so long as the other sentence in the by-law is carried out—viz., the covering being solidly bedded on the top of the wall and nothing of a combustible nature being laid across the wall. It stands to reason that if a lead gutter was made to come along the top of a party-wall, the timbering would of necessity cross the wall, which would thus violate the by-law relating thereto. If the gutter or flat did happen to come in that position, it should, of course, be made quite separate for each house, and flashed up against the parapet wall. But what folly to plan a roof so that it requires such manœuvres. Surely the common style of spanning the roof from front to back for the entire length of the terrace is more practical, and it need not look so hackneyed. A proper treatment of such a roof can make it look very well indeed, even on a cheap class of building, and it is certainly a cheaper form of construction.—L. F. Smith, "Westhall," Clarendon-road, Redhill.

[13023.]—PARTY-WALL.—The accompanying sketch indicates the writer's suggestion for forming a gutter between two roofs, as mentioned by "Constant Reader." There is another almost universal by-law which affects this question, and that is that no timber, block, or plug of wood shall be placed in any



SECTION.

party-wall unless the same shall be at least 4½in. from the centre of the wall. As most party-walls are of one-brick thickness at their summit, this, of course, necessitates corbelling out, as shown, to take the bond timber or plate, and it not being permissible to carry any gutter bearers or boarding over the top of the wall, the method shown is obviously one of the best for forming the gutter in two parts, by carrying the party-wall up 9in. between same, with a 5lb. lead cover flashing and all as shown, thus stopping any subsequent dispute as to ownership and payment for repairs, which is very likely to arise in such a case. In the case of an asphalte or lead flat, similar treatment would apply, with the wall stepped to line with roof. Because the by-law states that the slates or roof-covering must be bedded on brickework, so that a 15in. parapet-wall is not required, why try to invent a new method when the latter is decidedly the most advantageous, and, in the case of the gutter, as shown, the parapet wall, which, although it may not be a beautiful feature, often breaks up an uninteresting waste of slating, might not be seen from the ground level. Personally, if gables are required front and back, I should prefer to carry a main roof along the terrace, and let the gables spring from this, when the slating could be bedded on brickwork and the gutters omitted. The querist mentions the trouble occasioned by the driving snow and rain against a flashing on a party-wall carried above the roof level, as still required by many by-laws; but for real trouble commend me to an inaccessible gutter between two roofs, having about two feet of thawing snow therein, or a stopped outlet to a cesspit and a heavy rain. If a gutter is decided upon, snow-gratings should be provided of 3in. by 2in. cut bearers and 2in. by 1in. battens, all well creosoted before being screwed together with brass or galvanised-iron screws. It is also a good plan to provide means of access to the gutters from within the building, if possible, especially if it is of any great height.—Gordon L. Thorne, 10, Atherley-road, Southampton.

[13023.]—PARTY-WALLS.—It is probably inaccurate to say that the by-law adopted by a number of urban district authorities has been superseded, as it will be found the Model By-laws of the L.G.B. have been considerably modified by such local authorities when they applied for an order investing them with urban powers, the object being, in many instances, to admit of the erection of cheap cottages. With regard to the terrace of cottages described roofed with ridges front to back, or with adjoining flat roofs, the most simple method, and which complies with the usual by-law when parapets are not insisted upon, is to bed a rectangular cast-iron gutter in mortar to proper falls, directly upon the brick-work of the party-wall. Such gutters of suitable size and section can be obtained of any of the makers of rainwater goods.—George Norman, 124, Camberwell-road, S.E.

[13024.]—FLOW OF OIL IN PIPES.—The formula for the calculation of the flow of oil in pipes, etc., and tables of the viscosity of oils of various kinds can be found in Redwood and Holloway's "Petro'eum," and also in "The Chemical Technology and Analysis of Oils," by "Lewkowitsch" (3 vols). To give the complete tables and formulæ, with necessary explanation in detail, would occupy two or three columns of this paper.—George Norman, 124, Camberwell-road, S.E.

The salary of Mr. Morris, architect to the Devon County Council Education Committee, has been increased by £50 per annum.

PARLIAMENTARY NOTES.

LONDON SIGNS AND ADVERTISEMENTS.—The Local Legislation Committee of the House of Commons considered on Tuesday the London County Council (General Powers) Bill. Part 4 of the Bill, to which considerable opposition is offered, proposes to give power to the Council to control by regulations the erection of lamps, signs, notice-boards, and advertisements within the administrative county. Mr. Fitzgerald, K.C., in stating the case for the Bill, said that by the proposed provisions the Council would be authorised to impose limitations on the size and weight and extent of projection of signs or notices, and to prevent the disfigurement of thoroughfares and buildings by a large number of signs or notices. At present any person could put up any lamp or sign on his premises without giving notice to anybody, and there was no surety that the erection was securely fastened. The London County Council might be trusted to use their power so as not capriciously to interfere with trade, and in any case there would be a legal appeal. On the æsthetic side of the question he had the support of a letter from the Royal Institute of British Architects, in which the hope was expressed that the Council would be able to check the abuse of advertising, which had become a disgrace to our towns. Evidence was given by Mr. W. E. Riley, F.R.I.B.A., superintending architect to the Council, and the Committee adjourned. Continuing his evidence on Wednesday, Mr. Riley stated that the Council were of opinion that a uniform practice in regard to hanging structures should obtain throughout London. A man should know what the regulations were, and should not have to go to local authorities in every single case for consent. He believed the reason local authorities wanted to have the sanctioning of hanging structures was that they wished to charge a fee for licensing them. New regulations were necessary to deal with, among other things, certain structures on land which had not been dedicated to the public. The County Council could at present only control a building on a forecourt if it were in front of the general line of building. Nothing would be done without considering the views of the local authorities. The Bill intended to forbid the erection of all signs and advertisements except in the case of a man who puts them up on his own premises, and then he was limited as to the size of the advertisement. Advertisements 6ft. long by 2ft. broad and 2ft. overhanging the public way were exempted from the provisions in the measure. He contended that that was an ample space on which to display advertisements. Replying to Mr. Macmorran, K.C., who opposed the clause on behalf of the London Chamber of Commerce, Mr. Riley said he would not be surprised if he were told that thousands of signs in the Strand alone would be affected by the Bill. He admitted that the measure would render many advertisements illegal, because it would forbid the display of letters or other signs on a building except to advertise goods sold by the occupier. The chairman stated that it was the opinion of the Committee that the clause in question required a considerable amount of amendment to make its meaning clear. The Committee then adjourned pending the amendment of the clause.

THE CONTROL OF THE CITY STREETS.—A Various Powers Bill of the City of London Corporation was considered on Wednesday by a Select Committee of the House of Lords, of which Lord Kintore is chairman. By Clause 21 power is sought to make by-laws for the control and regulation of the size of street projections. It was stated by the City engineer, Mr. Sumner, that the present powers of the Corporation in this matter are quite ineffective. He stated that cases had occurred in which a trader, being served with notice to remove an offending sign within fourteen days, took it down on the thirteenth day, and replaced it on the fifteenth day. It then became necessary for the sign to be again reported upon to the Court of Common Council, and, after the lapse of several weeks, another notice had to be served on the owner. On the thirteenth day after its reception, the sign would again be taken down, to reappear a day later. It is now proposed by the Corporation that, in the event of a projection being set up in contravention of the City regulations, a penalty not exceeding 40s. be imposed, with a continuing penalty of 20s. for every day during which the projection remained. The Corporation also seek power to remove any offending projection, and recover the expense of such removal from the owner. The clause was allowed on the understanding that the regulations are approved by the Local Government Board, but it was declined to exempt railway property. Considerable discussion took place with reference to a clause providing that all refuse from shops, depots, clubs, hotels, restaurants, laundries, and other similar premises, should be regarded as trade refuse. Objection was taken to the extra expense which this provision would entail upon hotel and restaurant proprietors and laundry owners, the Great Eastern Railway Company taking a prominent part in the opposition, and eventually the Committee decided that the clause must be struck out. Another clause rejected proposed that the owners of vehicles should be subject to the summary procedure now only applicable to drivers with respect to damage done to lamps and other Corporation property. By Clause 16 it was proposed to exclude from the City all street traders, except those who have regularly traded in the streets of the City for at least three years' previously to January 1, 1911. By Clause 18 an extension of the existing powers of the Corporation in regard to street noises is proposed so as to include "musical instruments." The clause was passed, and the Committee adjourned.

STATUES, MEMORIALS, &c.

THE LONDON MEMORIAL TO KING EDWARD.—The General Committee of the Mansion House Fund for setting up a London memorial to King Edward will meet at the Mansion House on Monday next to receive a report from the executive committee on the subject of the site, form, and cost of the memorial. The executive committee is in favour, on the advice of the advisory committee, of a site for the statue in the Mall, directly opposite Marlborough House. The scheme embraces, in addition to a statue of the King, the demolition of the present bridge across the lake in St. James's Park and the erection of a more ornamental structure. His Majesty the King and Queen Alexandra have approved the site. The committee suggest that the sculptor shall be the Australian, Mr. Bertram Mackennal, A.R.A., who has supplied the members with a plan showing his ideas. He proposes to erect a large seated figure of "Peace." On each side of the super-base would be two processional groups, comprising eight or nine figures, and illustrating the "Arts of Peace," advancing towards the central figure. On a centre pedestal will be erected a bronze statue of King Edward, in Garter robes, 14ft. high. The height of the entire memorial, as seen from the Mall, will be from 45ft. to 50ft. At the back of the pedestal, facing the park, a figure of Britannia will rise on a level with "Peace." A flight of steps will connect the memorial on its park side with the avenue between it and the bridge. Mr. Edwin L. Lutyens, F.R.I.B.A., is the architect suggested to design and carry out the bridge and the architectural features of the scheme, which will include paved terraces with balustrades, vases, and stone seats. It is estimated that the cost of the central monument will be £30,000, and the bridge £20,000. The work will occupy probably five years. This scheme has been unanimously approved by the executive and advisory committees, which have recommended its adoption by the general committee.

CHIPS.

The death has occurred, suddenly, at his house in Lansdowne-crescent, Worcester, of Mr. Joseph Henry Garrett, the chief road-surveyor for Worcestershire.

Mr. J. R. Hadfield, town surveyor, Camborne, has been elected surveyor and sanitary inspector to the urban district council of Uttoxeter, in the stead of Mr. R. W. Marshall, resigned. There were sixty-four candidates for an appointment worth £140 per annum.

The Architectural Association Athletic Club is holding a smoking concert on Tuesday next, March 28, at eight o'clock, at the Pillar Hall, Victoria Station Restaurant. All members of the A.A. and friends are welcome. Tickets, 2s. 6d. each, may be obtained from Mr. C. G. Boutcher, 40, Great James-Street, Bedford-row or at the A.A. office.

Under the Wimbledon Common Extension Fund, about 40 acres have already been bought to save the land from the builder. There still remains a tract of about 130 acres, which will soon come into the market, and for its acquisition £60,000 is still required. The municipal and other authorities have promised £14,000 towards the latter sum, subject to the sanction of the Local Government Board.

The contract for the erection at Aberystwith of the first portion of the National Library of Wales, the foundation-stone of which will be laid by the King on July 15, has been let to Messrs. H. Willcock and Co., of Wolverhampton, who built the Edwards-Davies Memorial Laboratory at Aberystwith. The price is over £50,000. Between £30,000 and £40,000 of this has already been raised. The total cost of the completed building will be over £100,000.

LEGAL INTELLIGENCE.

ALTERATIONS TO WINCHESTER HOUSE. [illegible] The Estimate Committee of the House of Lords [illegible] Building Act met the [illegible] respecting further the appeal of the [illegible] and Securities Insurance [illegible] in the matter of [illegible] Act to provide [illegible] appeal, and to [illegible] litigation to [illegible] which it was [illegible] Archbishop [illegible] to carry out [illegible] test was [illegible] suit the Estimate [illegible] £300. The [illegible]

A SURVEYOR'S [illegible] Division of [illegible] Mr. [illegible] the Master [illegible] Peace, [illegible] Middlesex [illegible] and December 20th, [illegible] he has [illegible] Lane, Lambeth, for £2,400, of which £2,300 was to be left on mortgage and £100 to be paid in deposit. Plaintiffs stated that the date fixed for completion was January 3, 1910, but defendant had failed to complete the contract. Defendant appeared in person, and said that he entered into the contract subject to an agreement being arrived at with regard to the definition of the boundaries, but such definition had never been made. Plaintiffs denied this, and eventually his Lordship gave judgment for the plaintiffs, with costs.

ASSESSMENT OF MAIN SEWERS. The House of Lords, consisting of the Lord Chancellor, Lord Ashbourne, Atkinson, Shaw and Mersey, gave on Tuesday judgment on the appeal in the West Kent Main Sewerage Board Assessment Committee of Dartford Union and Others Consolidated Appeals. The action raised the important question whether main sewers were, like gas and water mains, liable to be assessed to the rates levied in the parish within which they were situated. The Court of Appeal, affirming orders made by the Divisional Court, answered the question in the affirmative. The Sewerage Board appealed, but as will be seen below, the appeal was dismissed. Lord Atkinson, who read the unanimous judgment delivered, said that the sewers had been constructed under the provisions of several West Kent Main Sewage Acts, and ran through the parishes of Bexley, Dartford, and Crayford. In the first named parish, the sewers were entirely underground, in both the other parishes a considerable portion of the sewers was laid overground, the remaining portions underground and partly in private property. But the main ground relied on by the appellants was that the Commissioners of Sewers were first appointed as long ago as the reign of Henry VIII., attempts since then, and there had been many, to rate the Commissioners of Sewers, the predecessors of the Metropolitan Board of Works, to the relief of the poor had failed. In 1840, when the question was raised, it was plainly decided that the Court ought not to depart from so established a principle of taxation, and further that there were "no visible profits to the Board as occupiers other actual or constructive, which made the occupation beneficial to the Commissioners. Therefore, once what their Lordships had to decide was whether this House ought still to be deterred upon the difficulties which had arisen in practical operation, from sweeping away the [illegible] exemption." Lord Atkinson thought that it was [illegible] to [illegible] a [illegible] error after it was known [illegible] had been shown in this case, that the [illegible] and [illegible] principle were unworkable and [illegible], to their practical application, [illegible] would be wrong. In his view it should now be held that [illegible] and [illegible] were [illegible] where [illegible] the occupation [illegible] there was [illegible] within the meaning of authorities [illegible] with rating, and that for the reasons the decision appealed from should be affirmed, and the appeal dismissed, with costs. On the motion of the Lord Chancellor the appeal was dismissed accordingly.

FRAUD ON A QUANTITY SURVEYOR. At Bow-street on Monday, William Horace Nevell, of Dunstord-avenue, Wimbledon Park, was charged with obtaining money by false pretences from Mr. William Symonds, an architect and surveyor, of John-street, Adelphi. The prosecutor stated that he knew Nevell about five years ago when he held a responsible position in an architect's office. In December last Nevell called upon him, and represented that he had commenced to practise for himself. He produced drawings bearing signatures of two well-known noblemen, and [illegible] understood that the work was [illegible] approved quantities [illegible] the proposed work. Upon the strength of these and other representations Nevell obtained from the witness sums of money amounting in all to about £45. A [illegible] and that the drawing produced to the [illegible] were stolen from the office of a firm having [illegible] contractors where Nevell was [illegible] employed. The prisoner, who had been [illegible] convicted of illegal pawning, was sentenced to six months' imprisonment in the second division.

WATER SUPPLY AND SANITARY MATTERS.

DINNINGTON SEWERAGE WORKS. The sewage disposal works of Dinnington Colliery in the parish of Mason, Northumberland are one of the oldest works on the bacterial system in the North of England. They were designed by Mr. Harry W. Taylor, A.M.I.C.E., of Newcastle-upon-Tyne, and have been uniformly successful and satisfactory to the county authorities who have the control of such matters. Due to considerable colliery developments of recent date the Castle Ward Rural District Council are desirous of knowing whether the works are adequate to properly purify the sewage from the now greatly increased population, and at their last meeting gave instructions to Mr. Taylor to report fully upon the matter.

Mr. W. S. Lithgow, of High Hesket, has been appointed surveyor for the eastern district of the Penrith Rural District Council.

Mr. Evan Parry has been appointed electrical engineer for public works by the Government of New Zealand at a salary of £800 per annum.

The East Suffolk County Council have appointed Mr. J. T. James as assistant to the county surveyor. Mr. James has been in the service of Mr. C. H. Jack, county surveyor of Herefordshire.

The London County Council, at their meeting on Tuesday, decided to carry out the widening of East India Dock-road at an estimated cost of £98,000, towards which the Poplar Borough Council has agreed to contribute £3,000 and the widening of Norwood-road, Dulwich-road, Water-lane, Dalberg-road, Morval-road, and Effra-road, Brixton, at an estimated cost of £30,000. Both widenings are rendered necessary by proposed tramway extensions.

Polling took place on Wednesday for a vacancy in the representation of St. John's Ward on the Westminster City Council, and resulted in Mr. E. Howley Sim, A.R.I.B.A., a past vice-president and hon. secretary of the Architectural Association, the nominee of the Westminster Constitutional Association, being elected. He received 990 votes as against 539 polled for the Labour candidate, Mr. J. R. Penfold.

A largely attended meeting of the townspeople of Henley-on-Thames was held on Wednesday to take a vote on the proposal of the Governors of the Henley Royal School to construct buildings on higher and more suitable ground at Drawback, close to the St. Mark's Estate. There was a large majority in favour of the scheme when the vote was taken. The site has been already selected, and the Hon. W. F. D. Smith has contributed £2,000 towards the cost.

A Select Committee of the House of Lords presided on Monday the preamble of an important Bill promoted by the Midland Railway Company, under which powers were sought for the construction of new works on various portions of the company's system. The chief feature was the proposal for the construction of a new line through Bradford by a viaduct across the city, which would give a shorter and more convenient route for the traffic on the main line going North. At present the main line runs through Leeds.

The Standing Orders Committee of the House of Lords met on Tuesday, Lord Balfour of Burleigh in the Committee presiding, and considered the petition of the London County Council for dispensing with the Standing Orders which had not been complied with in respect of the proposed tramway from Cricklewood to the Marble Arch, included in the Tramways and Improvements Bill of this Session. The petition was opposed by the Paddington Borough Council, and the urban district council of Willesden both of whom refuse consent on the west, the latter authority asking for the widening of Edgware-road at a cost of £25,000. Consent for the transmission had been given on the east side. The committee were unanimously of opinion that this was essentially a case in which the Standing Orders should be dispensed with. The Bill will therefore proceed.

Our Office Table.

On Saturday afternoon, March 18, by kind permission of Sir Henry Tanner, F.R.I.B.A., the students of the building department of the Croydon Polytechnic, accompanied by Mr. John Crewdson, their lecturer in building construction, visited the extension to the Royal Courts of Justice in the Strand, London. The large party was conducted over the building by Mr. Barber (the clerk of works) and the general foreman. The building is designed in the Gothic style, to harmonise with the existing block, which was designed by the late G. E. Street. Over 80,000cu.ft. of Portland stone are to be used. Much of the stonework in the windows and entrances is elaborate in detail, and the stone groin vaulting in the main corridors is richly moulded, the construction proving of great interest. The students were much interested in the large number of drawings which the clerk of works was good enough to exhibit.

Under the auspices of the Hawick Archæological Society, excavations have been carried out on the site of Southdean Church, on the battlefield of Otterburn. Within the walls of the old church the Scottish leaders met in council on the eve of the fight in 1388. The excavations have revealed the base of the tower and the lower parts of the walls of the actual building that was there in 1388. The more ornate chancel, of which the foundations have been unearthed, is some hundred years later. An interesting font was found in situ, carved fragments of elaborate sedilia, two early grave slabs, and a late Mediæval super-altar in almost perfect condition. The Hawick committee have taken the necessary steps for the preservation of all that has been found. The lower part of the tower has been made a shelter for the carved stones, the churchyard is to be surrounded by a fence, the interior of the building has been filled with gravel, and a commemorative inscription has been set up which will be unveiled in the early summer.

At a general assembly of Academicians and Associates of the Royal Academy on Wednesday evening, Mr. Alfred Parsons, A.R.A., the popular landscapist, was elected a Royal Academician. The new R.A. is a native of Beckington, Somersetshire, and is 63 years of age. From 1865 to 1867 he was a clerk in the Savings Bank Department of the Post Office. In 1867 he adopted painting as his profession, and first exhibited at the Academy in 1871. His "When Nature Painted All Things Gay" was bought by the Chantrey Fund in 1887. Mr. Parsons is well known in America, and is a friend of Mr. Abbey and Mr. Sargent. He has illustrated books—one with Mr. Abbey, and another with Mr. F. D. Millet—and has done illustrations for *Harper's Magazine* and other publications. He was elected an Associate in 1897.

The Local Government Board have given authority for the preparation of two further town-planning schemes under the Housing, Town Planning, etc., Act, 1909. The schemes are to be prepared by the corporation of Birmingham and the urban district council of Ruislip-Northwood. In the case of Birmingham, sanction had previously been given to the preparation of a scheme in relation to over 2,300 acres in the parishes of Quinton, Harborne, Edgbaston, and Northfield, and the further scheme is to apply to an area of about 1,450 acres in the parish of Aston, on the east side of the city. In the case of Ruislip-Northwood, the scheme—which gave rise to the recent competition for plans reviewed and illustrated in our pages—is to extend to a little over 5,900 acres, a small part of which is outside the district and in the neighbouring parish of Rickmansworth Rural, in the rural district of Watford. For this undertaking the plans of Messrs. A. and J. Soutar, of Westover-road, Wandsworth, which were reproduced in our issue of January 6 last, were awarded the first premium of £150 by the assessors, Sir Aston Webb, R.A., and Mr. Raymond Unwin.

"An Investigation of Built-up Columns

Under Load," by Arthur N. Talbot and Herbert F. Moore, is issued as bulletin No. 44 of the engineering experiment station of the University of Illinois. In the course of this investigation, laboratory tests were made on steel and wrought-iron built-up columns, such as are used in bridges and other structures, to determine not only their strength, but also the way in which the compressive stresses vary over the cross-section of the channels or other component parts of the column and throughout its length. The amount of stress in lattice bars and its variation from bar to bar was also measured. The distribution of stress over the cross-section of a lattice bar was studied. Field tests were conducted on the columns of a railroad bridge under the load of a locomotive and train, and the distribution of stresses over various parts of the columns was measured. The investigation shows that the variations from the ideal column which result from shop and erection processes may be more important than the influence of length, and that on account of such causes the stresses at one or more points in a column may be as much as 50 per cent. in excess of the average stress. This investigation may be expected to have an important bearing on structural engineering practice. Copies of Bulletin No. 44 may be obtained gratis upon application to W. F. M. Goss, director of the engineering experiment station, University of Illinois, Urbana, Ill.

Competitive plans are to be invited shortly in connection with a sewerage scheme for the urban district council of Benfleet-side.

The Grays Urban District Council have granted an honorarium of £25 to the surveyor, Mr. A. C. James, for extra work in the preparation of estimates.

Mr. Benjamin Walmsley, of Wallington House, Cardigan-road, Leeds, builder, who died on December 14, aged 65, left estate of the gross value of £139,730, with net personalty nil.

The urban district council of Wrotham, Mid-Kent, agreed on Monday to raise the salary of their surveyor, Mr. Elliott, from £130 to £150 a year, in addition to a house, gas, and water.

Mr. Ernest William Hill, land agent to the Hertfordshire County Council, has been appointed land agent and surveyor for the county small holdings and allotments by the Worcestershire County Council at a salary of £200 per annum, with fees averaging £75 per annum, and travelling expenses, with office and staff.

A meeting of the directors of the Arbroath Infirmary was held on Monday, when the committee reported that Mr. Hugh Gavin, architect, estimated the cost of the proposed addition to and alterations on the Infirmary buildings, as shown on sketch plans prepared by Dr. Mackintosh, Western Infirmary, Glasgow, at £8,000. Although outside their remit, the committee reported further that to build an entirely new hospital on the present site, making use of the existing materials, would cost, according to Mr. Gavin's estimate, at least £14,000. They had £3,250 in hand, and the committee recommended that an appeal should be made for £7,000 in subscriptions. The committee's report was adopted.

The House of Commons Committee which has been considering the proposal to bring Caversham within the boundaries of Reading, decided on Wednesday to pass the preamble of the Bill, except that part of Caversham which is formed by Mr. Crawshay's agricultural estate should not be included in the scheme. Instead of being required to construct a new vehicular bridge over the Thames, the corporation of Reading is to improve the present one with its approaches and the streets in the vicinity, so as to afford satisfactory means of communication between Caversham and the borough. In addition, the corporation is to provide a new footbridge at or near the site of Clapper's Bridge.

The estate has now been sworn at £1,101,489 gross, with net personalty amounting to £1,039,800, of the late Sir John Aird, first baronet, of Queen Anne's Gate, engineer and contractor, Conservative M.P. for North Paddington 1887-1905, who died on January 5, aged 77. He left several bequests to employees, including £2,000 each to John Edmund Plummer and Robert Swanson Robb (£1,000 in each case being for their executorship), and £1,000 each to William Liddle and Charles Powell. The residue of his property, after other bequests, he left to his sons, Sir John Aird and Mr. Malcolm Rucker Aird, in equal shares, except that the share of his son Malcolm in his residuary estate is to be not less than £100,000.

MEETINGS FOR THE ENSUING WEEK.

Friday (To-day). — Architectural Association. Members' Smoking Meeting, 18, Tufton-street, S.W. 8 p.m.

Institution of Civil Engineers. "The Uses of Chemistry in Engineering," by James Swinburne, F.R.S., M.Inst.C.E. 8 p.m.

Birmingham Architectural Association. "The B.A.A. Excursion to Holland," by A. E. MacKewan.

Saturday (To-morrow.)—Society of Architects. Visit to City-road Model Dwellings (Sutton Estate). 3 p.m.

Edinburgh Architectural Association. Visit to U. F. Church, Offices, to the Dome of St. George's Church, and to the College of Art.

Monday. — Royal Institute of British Architects. Business Meeting. 8 p.m.

Royal Society of Arts. "Applications of Electric Heating" (Cantor Lecture No. 4), by Prof. J. A. Fleming, Ds.C., F.R.S. 8 p.m.

Royal Sanitary Institute. "Building Sites and Local Physical Conditions," by Henry Adams. 7 p.m.

Tuesday.—A.A. Athletic Club. Smoker and Revel. Pillar Hall, Victoria Station Restaurant. 8 p.m.

Institution of Civil Engineers. Discussion on the "Electrification of a Portion of the Suburban System of the London, Brighton, and South Coast Railway," and reading of papers on "The Improvement of Highways to Meet Modern Conditions of Traffic," by Jonah Walker Smith, M.Inst.C.E.; and "Recent Development in Road-Traffic, Road Construction, and Maintenance," by Henry Percy Maybury, M.Inst.C.E. 8 p.m.

Wednesday.—Carpenters' Hall Lecture. "The Decorative Uses of Sculpture," by Prof. W. R. Colton, A.R.A. 7.45 p.m.

Royal Society of Arts. "Art Education in Jewellery and Goldsmithing," by G. B. Heming. 8 p.m.

Thursday.—A.A. Camera, Sketch, and Debate Club. "That Socialism Means the Extinction of Fine Architecture," by H. W. Wills, A.R.I.B.A. 7.30 p.m.

Friday (March 31).—Leicester Society of Architects. "Architectural Sketching," by B. J. Fletcher; "The Planning of Domestic Buildings," by Shirley Harrison. 8 p.m.

Institution of Civil Engineers. "The Uses of Chemistry in Engineering," No. 2, by James Swinburne, F.R.S., M.Inst.C.E. 8 p.m.

Saturday (April 1).—A.A. Visit to Royal Academy of Music, Marylebone-road. 2 p.m.

TRADE NOTES.

Messrs. Widnell and Trollope, surveyors, have removed to Broadway-court, Broadway, Westminster, S.W. Telephone, Victoria 1923.

Under the direction of Mr. J. Simmons, architect, of Doncaster, the Boyle system of ventilation (natural), embracing the latest patent "Air-pump" ventilators and air-inlets, have been applied to St. James's Church, Doncaster.

The Cottage Hospital, Runcorn, has recently been supplied with Shorland's double-fronted patent Manchester stoves, with descending smoke flues and patent exhaust roof ventilators, by Messrs. E. H. Shorland and Brother, Ltd., of Failsworth, Manchester.

Messrs. Lewis Solomon and Son, architects and surveyors, late of 16, Union-court, Old Broad-street, E.C., in consequence of the recently-formed partnership, find it necessary to move to more convenient offices. On and after the 20th inst. their address will be Moorgate Station Buildings, 63, Finsbury-pavement, E.C.

Mr. Chas. Fitzroy Doll, F.R.I.B.A., F.S.I., J.P., has taken his eldest son, Mr. Christian C. T. Doll, M.A.Cantab., into partnership, and the firm will be known as C. Fitzroy Doll and Son. Mr. C. C. T. Doll was educated at Charterhouse and Trinity College, Cambridge. After serving his articles with his father he was selected as the architectural student at the British School at Athens. Later he assisted Mr. A. J. Evans, F.R.S., F.S.A., etc., with the excavations of the Palace and Tombs, etc., at Knossos, Crete. Amongst other works, he designed and superintended the erection (by native workmen) of Mr. Evans's house at Knossos.

The Imperial Trade Correspondent at Toronto (Mr. Field) reports that a transept (with a seating capacity of 2,500) and a nave are to be added to the existing portion of St. Alban's Cathedral, Toronto, at a cost estimated at 300,000dol. (about £62,000). The architecture is to be Early English. The edifice will be cruciform, with a central Tower. The material to be used is white stone.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and al communications respecting illustrations or literary matter should be addressed to the EDITOR of the Building News, Effingham House, 1, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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Received.—O. and Co.—T. S. and Son.—W. and Co.—W. H. S. and Son.—T. and H.—E. B. D. and Son.—Talls.—H. P. P. S. Ltd.—Rt. Hon. Visct. F.—M. A. A.—L. N. and Co.—J. P. M. and Co.—P. and G., Ltd.—G. P. Ltd.—W. and R. L.—B. M. D. C.—

J. R. S.—No.

X. L.—Very doubtful.

Nominal.—Rather outside our sphere.

Veidt.—You might let us know the result.

Doubtful.—The stone you name is not one we care to specify. Ham Hill stone is a much better one.

R. G.—We know nothing of the people you name. See our "Directory Pages" under "Timber" for more up-to-date firms.

P. C.—We think if some licensees searched at the Patent Office, or looked up our own volumes of the later sixties when there was quite another boomlet in concrete, they would think twice before paying anything.

Oram.—If the foreman's statement can be substantiated your case is clear. But if some clever counsel pulls him to pieces in the witness-box, and throws dust into the eyes of the jury, you will probably lose. Is it worth fighting?

E. M. Parkes (Northwich).—Among the illustrations of Chester Cathedral that have appeared in our pages during recent years are the following:—General view, south-east, from the city wall, April 16, 1897; choir stalls (Pugin sketches, by James McLachlan), March 15 and June 7, 1901; boss in Lady-chapel (carving of Virgin and Child), Sept. 24, 1909; Duke of Westminster memorial, by Charles J. Blomfield, F.R.I.B.A., and F. W. Pomeroy (elevation and details by C. J. Blomfield), May 10, 1901; vestibule of Chapter-house, April 16, 1897.

LATEST PRICES.

IRON.

Steel Joists, Belgian and German (ex steamer, London) Per ton	£5	12	6	to	£	17	6
Steel Joists, English		10	0	,,	6	15	0
Wrought-Iron Girder Plates	7	0	0	,,	7	5	0
Steel Girder Plates	7	2	6	,,	8	2	6
Bar Iron, good Staffs	6	5	0	,,	8	10	0
Do., Lowmoor, Flat, Round, or Square	20	0	0	,,	20	0	0
Do., Welsh	5	15	0	,,	5	17	0
Boiler Plates, Iron—							
South Staffs	8	0	0	,,	8	15	0
Best Snedshill	9	0	0	,,	9	10	0

Angles 10s., Tees 20s. per ton extra.

Builders' Hoop Iron, for bending, &c., £8 15s. to £9.

Builders' Hoop Iron, galvanised, £14 to £15 10s. per ton

Galvanised Corrugated Sheet Iron—

6ft. to 8ft. long, inclusive gauge	No. 18 to 20. Per ton.	No. 22 to 24. Per ton.
	£13 0 0	£13 10 0
Best ditto	13 0 0	14 0 0

Wire Nails (Points de Paris)—

3 to 7	8	9	10	11	12	13	14	15	B.W.G.
63	89	93	99	103	11-	119	126	136	per cwt.

	Per ton.				Per ton.
Cast-Iron Columns	£6	10	0	to	£8 10 0
Cast-Iron Stanchions	6	10	0	,,	8 10 0
Rolled-Iron Fencing Wire	8	5	0	,,	8 10 0
Rolled-Steel Fencing Wire	8	5	0	,,	8 10 0
,, ,, ,, Galvanised	7	15	0	,,	8 5 0
Cast-Iron Sash Weights	5	0	0	,,	5 5 0
Cut Floor Brads	9	15	0	,,	—
Corrugated Iron, 24 gauge	16	0	0	,,	—
Galvanised Wire Strand, 7 ply, 14 B.W.G.	14	5	0	,,	—

B.B. Drawn Telegraph Wire, Galvanised—

0 to 8	9	10	11	12	B.W.G.
£10 5 0	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.

Cast-Iron Socket Pipes—					
3in. diameter	£6	2	6	to	£6 7 0
4in. to 6in.	6	0	0	,,	6 5 0
7in. to 24in. (all sizes)	5	7	6	,,	6 0 0

[Coated with composition, 5s. 0d. per ton extra; turned and bored joints, 5s. 0d. per ton extra.]

Pig Iron—	Per ton.				
Cold Blast, Lilleshall	110s.	0d.	to	117s.	6d.
Hot Blast, ditto	70s.	0d.	,,	75s.	0d.

Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.) :—

Gas-Tubes	75 p.c.
Water-Tubes	72½ ,,
Steam-Tubes	67½ ,,
Galvanised Gas-Tubes	65 ,,
Galvanised Water-Tubes	62½ ,,
Galvanised Steam-Tubes	57½ ,,

OTHER METALS.

Spelter, Silesian Per ton	£22	17	6	to	£23	0	0
Lead Water Pipe, Town	17	0	0	,,		—	
,, ,, ,, Country	17	15	0	,,		—	
Lead Barrel Pipe, Town	18	0	0	,,		—	
,, ,, ,, Country	18	15	0	,,		—	
Lead Pipe, Tinned inside, Town	19	0	0	,,		—	
,, ,, ,, ,, Country	19	15	0	,,		—	
Lead Pipe, Tinned inside and outside Town	21	10	0	,,		—	
,, ,, ,, ,, Country	22	5	0	,,		—	
Composition Gas-Pipe, Town	20	0	0	,,		—	
,, ,, Country.	20	15	0	,,		—	
Lead Soil-pipe (up to 4½in.) Town	20	0	0	,,		—	
,, ,, ,, Country	20	15	0	,,		—	
[Over 4½in. £1 per ton extra.]							
Lead Shot, in 28lb. bags	24	15	0	,,		—	
Copper Sheets, sheathing & rods	70	0	0	,,	70	10	0
Copper, British Cake and Ingot	58	5	0	,,	58	15	0
Tin, Straits	177	5	0	,,	177	15	0
Do., English Ingots	178	0	0	,,	178	10	0
Do., Australian	177	0	0	,,	177	10	0
Do., Bars	179	0	0	,,	180	0	0
Pig Lead, in 1cwt. pigs	14	7	6	,,		—	
Sheet Lead, Town	16	10	0	,,		—	
,, ,, Country	17	5	0	,,		—	
Genuine White Lead	21	0	0	,,		—	
Refined Red Lead	19	0	0	,,		—	
Sheet Zinc	32	5	0	,,		—	
Old Lead, against account	12	5	0	,,		—	
Tin per cwt.	11	0	0	,,		—	
Cut Nails (per cwt. basis, ordinary brand)	0	10	6	,,		—	

TIMBER.

CONSTRUCTIONAL.

Per St. Petersburg Standard (100—12ft. by 11in. by 1½in.)

Yellow Pine Deals, Quebec, 1st quality	£34	0	0	to	£42	0	0
,, ,, ,, 2nd ,,	24	0	0	,,	26	0	0
,, ,, ,, 3rd ,,	15	10	0	,,	18	0	0
Spruce Deals: St. Johns	8	0	0	,,	11	0	0
,, ,, Miramichi	7	5	0	,,	8	10	0
,, Boards: Swag	7	0	0	,,	8	0	0
Red Deals: Archangel 1st quality	20	10	0	,,	21	10	0
,, ,, ,, 2nd ,,	15	0	0	,,	17	0	0
,, ,, ,, 3rd ,,	11	0	0	,,	12	0	0
,, ,, St. Petersburg—							
,, 1st quality	16	0	0	,,	17	0	0
,, 2nd ,,	13	0	0	,,	14	10	0
,, ,, Wyburg & Ulealborg	10	0	0	,,	12	0	0
,, ,, Gefle, Gothenburg, and Stockholm	10	0	0	,,	17	0	0
White Deals: Crown	10	0	0	,,	12	0	0
,, ,, Seconds	9	10	0	,,	10	0	0
Flooring: White and Planed—							
1st and 2nd quality mixed	9	0	0	,,	9	5	0
1st, 2nd, and 3rd quality mixed	8	5	0	,,	8	10	0
Red Planed, 1st quality	11	5	0	,,	11	10	0
Pitch Pine: Prime Deals and Boards	17	0	0	,,	20	0	0
Lignum Vitæ	5	10	0	,,	12	0	0

Per foot super, as 1in.

Yellow Pine Logs (waney board)	0	2	9	,,	0	4	3
Pitch Pine Logs	0	1	6	,,	0	1	10
Birch: Quebec Logs	0	2	0	,,	0	2	6
Oak: Austrian Wainscot	0	7	0	,,	0	8	0
Mahogany: Gaboon	0	6	1½	,,	0	6	2½

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (50c.ft.)	£20	0	0	to	£21	10	0
,, Java ,, ,,	15	0	0	,,	18	0	0
	Per cubic foot.						
Oak Planks: U.S.A., imported	0	1	9	to	0	2	6
,, Boards ,, ,,							
,, ,, ,, Prm.	0	2	4	,,	0	2	9
,, ,, ,, Mdm.	0	1	10	,,	0	2	2
Sequoia (Californian Redwood)	0	3	0	,,	0	3	6
Birch: Quebec logs	0	1	8	,,	0	2	2
,, ,, sawn planks	0	1	0	,,	0	1	2
Oak: Austrian Wainscot	0	6	0	,,	0	7	0
Walnut: Prime boards & planks	0	5	0	,,	0	6	0
,, Mdm. ,, ,,	0	3	4	,,	0	3	6
Greenheart: Hewn logs	0	3	6	,,	0	4	6
Cedar: Cigar box	0	3	6	,,	0	4	6
Satin Walnut: Imp. sawn boards, prime	0	2	3	,,	0	2	6
Orham: Imp. sawn boards, prime	0	1	10	,,	0	2	
	Per foot of 1in.						
Mahogany: St. Domingo, Cuba, and Honduras	0	0	5½	to	0	0	6
,, African, Assinee, &c.	0	0	4½	,,	0	0	9
,, Lagos and Benin	0	0	3½	,,	0	0	4½
,, Sekondi and Cape Lopez	0	0	2½	,,	0	0	3½
,, Gaboon	0	0	1½	,,	0	0	0
Satinwood: West Indian	0	0	10	,,	0	2	2
Rosewood Per ton	7	0	0	,,	12	0	0
Lignum Vitæ ,,	4	0	0	,,	11	10	6

STONE.*

Red Mansfield, in blocks per foot cube	£0	2	4		
Darley Dale, ditto	,,	...	0	2	3
Red Corsehill, ditto	,,	...	0	2	2
Closeburn Red Freestone, ditto	,,	...	0	2	0
Ancaster, ditto	,,	...	0	1	10
Greenshill, ditto	,,	...	0	1	10
Chilmark, ditto (in truck at Nine Elms)	,,	...	0	1	9
Beer, ditto	,,	...	0	1	6
Hard York, ditto	,,	...	0	2	10
Ditto ditto 6in. sawn both sides, landings, random sizes per foot sup.	0	2	8		
Ditto ditto 3in. slab sawn two sides, random sizes	,,	...	0	1	3

* All F.O.R. London.

Bath Stone, delivered on rail at quarry stations per foot cube	0	1	0		
Delivered on road waggons, Paddington Depot	,,	...	0	1	6½
Ditto ditto, Nine Elms Depot	,,	...	0	1	8½
Beer Stone, delivered on rail at Seaton Station	,,	...	0	1	0
Ditto, delivered at Nine Elms Station	,,	...	0	1	6

Portland Stone, in random blocks of 20ft. average :—

	Brown Whit Bed.				White Base Bed.		
Delivered to railway depot at the quarry per foot cube	£0	1	5½	...	£0	1	7½
Delivered on road waggons at Paddington Depot ...	,,	...	0	2	1	...	0 2 2½
Ditto, Nine Elms Depot ...							
Ditto, Pimlico Wharf ...							

BRICKS.

(All prices net.)

Hard Stocks	£1	6	6 per 1,000 alongside, in river
Rough Stocks and Grizzles	1	6	0 ,, ,, ,,
Picked Stocks for Facings	2	10	0 ,, delivered at railway station.
Flettons	1	6	0 ,, ,, ,,
Pressed Wire Cuts	1	18	0 ,, ,, ,,
Red Wire Cuts	1	14	0 ,, ,, ,,
Best Fareham Red	3	12	0 ,, ,, ,,
Best Red Pressed Ruabon Facing	5	0	0 ,, ,, ,,
Best Blue Pressed Staffordshire	3	15	0 ,, ,, ,,
Ditto Bullnose	4	0	0 ,, ,, ,,
Best Stourbridge Fire Bricks	3	14	0 ,, ,, ,,
2½in. Best Red Accrington Plastic Facing Bricks	4	13	0 ,, Net, delivered in full truck loads in London.

GLAZED BRICKS.*

HARD GLAZES. (PER 1,000.)

White, Ivory, and Salt Glazed. Best.	Seconds.	Best. Buff and Cream.	Other Colours.	Second Colours.
Stretchers—				
£10 17 6	£9 7 6	£12 7 6	£16 7 6	£10 17 6
Headers—				
10 7 6	8 17 6	11 17 6	15 17 6	10 7 6
Quoins, Bullnose, and 4½in. Flats—				
13 17 6	12 17 6	16 7 6	19 17 6	14 7 6
Double Stretchers—				
16 7 6	14 17 6	19 7 6	22 17 6	16 7 6
Double Headers—				
13 7 6	11 17 6	16 7 6	19 17 6	13 7 6
One side and two ends, square—				
17 7 6	15 17 6	20 7 6	24 17 6	17 7 6
Two sides and one end, square—				
18 7 6	16 17 6	21 7 6	25 7 6	18 7 6
Splays and Squints—				
15 17 6	14 7 6	20 7 6	23 7 6	15 17 6

Plinth and Hollow Bricks, Stretchers and Headers—

5d. each	4d. each	6d. each	6d. each	5d. each

Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres—

5d. each	4d. each	6d. each	6d. each	5d. each

Rounded Internal Angles—

4d. each	3d. each	5d. each	5d. each	4d. each

MOULDED BRICKS.

Stretchers and Headers—

8d. each	8d. each	6d. each	8d. each	8d. each

Internal and External Angles—

1/2 each	1/2 each	1/2 each	1/2 each	1/2 each

Cill Bullnose, Stretchers and Headers—

5d. each	4d. each	6d. each	6d. each	5d. each

	Per 1,000		
Majolica or Soft Glazed Stretchers and Headers	£21	17	6
,, ,, ,, Quoins and Bullnose	26	17	6

Compass bricks, circular and arch bricks of single radius £6 per 1,000 over above list for their respective kinds and colours } Not exceeding 9in. × 4½in. × 2½in.

Camber arch brick, any kind or colour, 1s. 2d. each

Stretchers cut for Closers and Nicked Double Headers, £1 per 1,000 extra.

* These prices are carriage paid in full truck loads to London stations.

	s.	d.	
Thames and Pit Sand	7	0	per yard, delivered.
Thames Ballast	5	6	,, ,,
Best Portland Cement	28	0	per ton, ,,
Best Ground Blue Lias Lime	19	0	,, ,,

Exclusive of charge for sacks.

Grey Stone Lime	11s. 6d. per yard, delivered
Stourbridge Fireclay in sacks	27s. 0d. per ton at rly. stn.

SLATES.

	In.	In.	£	s.	d.	
Blue Portmadoc	20×10	...12	12	6	per 1000 of 1200 at r.stn.	
,, ,,	16×8	.. 6	12	6	,,	,, ,,
Blue Bangor	20×10	..13	2	6	,,	,, ,,
,, ,,	20×12	..13	17	6	,,	,, ,,
First quality	20×10	..13	0	0	,,	,, ,,
,, ,,	20×12	..13	15	0	,,	,, ,,
,, ,,	16×8	.. 7	5	0	,,	,, ,,

Eureka unfading	£	s.	d.		
green 20×10	..15	17	6	,,	,,
,, ,, 20×12	..18	7	6	,,	,, ,,
,, ,, 18×10	..13	5	0	,,	,, ,,
,, ,, 16×8	..10	5	0	,,	,, ,,
Permanent green 20×10	...11	12	6	,,	,, ,,
,, ,, 18×10	.. 9	12	6	,,	,, ,,
,, ,, 16×8	.. 6	12	6	,,	,, ,,

TILES.

	s.	d.	
Plain red roofing tiles	42	0	per 1000 at rly. stn.
Hip and Valley tdes	3	7	per doz. ,, ,,
Broseley tiles	50	0	per 1000 ,, ,,
Ornamental tiles	52	6	,, ,, ,,
Hip and Valley tiles	4	0	per doz. ,, ,,
Ruabon red, brown, or brindled			
do. (Edwards)	57	6	per 1000 ,, ,,
Ornamental do.	60	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	0	,, ,, ,,
Selected "Perfecta" roofing tiles :—Plain tiles (Peake's)	46	0	per 1000 ,, ,,
Ornamental do.	48	6	,, ,, ,,
Hip tiles	3	10½	per doz. ,, ,,
Valley tiles	3	4½	,, ,, ,,
"Rosemary" brand plain tiles	48	0	per 1000 ,, ,,
Ornamental tiles	50	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	6	,, ,, ,,
Staffordshire (Hauley) Reds or Brindled tiles	42	6	per 1000 ,, ,,
Hand-made sand-faced	45	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	6	,, ,, ,,
"Hartshill" brand plain tiles, sand-faced	50	0	per 1000 ,, ,,
Pressed	47	6	,, ,, ,,
Ornamental do.	50	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	6	,, ,, ,,

OILS.

Rapeseed, English pale, per tun	£28	15	0	to	£29	5	0
Do., brown	,,	...	26	15	0	,,	27 5 0
Cottonseed, refined	,,	...	29	0	0	,,	30 0 0
Olive, Spanish	,,	...	39	10	0	,,	40 0 0
Seal, pale	,,	...	21	0	0	,,	21 10 0
Cocoanut, Cochin	,,	...	46	0	0	,,	46 10 0
Do., Ceylon	,,	...	42	10	0	,,	43 0 0
Do., Mauritius	,,	...	42	10	0	,,	43 0 0
Palm, Lagos	,,	...	32	5	0	,,	33 5 0
Do., Nut Kernel	,,	...	35	0	0	,,	35 10 0
Oleine	,,	...	17	5	0	,,	19 5 0
Sperm	,,	...	30	0	0	,,	31 0 0
Lubricating U.S. per gal.			0	7	0	,,	0 8 0
Petroleum, refined	,,		0	0	6½	,,	0 0 6½
Tar, Stockholm per barrel			1	6	0	,,	1 10 6
Do., Archangel	,,		0	19	6	,,	1 0 0
Linseed Oil per gal.			0	4	2	,,	—
Baltic Oil	,,		0	4	6	,,	—
Turpentine	,,		0	6	0½	,,	—
Putty (Genuine Linseed Oil) per cwt.			0	11	0	,,	—
,, Pure Linseed Oil, "Stority" Brand ,,			0	10	0	,,	—

VARNISHES, &c.

	Per gallon.		
Fine Pale Oak Varnish	£0	6	0
Pale Copal Oak	0	10	0
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of churches	0	14	0
Fine Elastic Carriage	0	12	6
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	16	0
Finest Pale Durable Copal	0	16	0
Extra Pale French Oil	1	1	0
Eggshell Flatting Varnish	0	16	0
White Copal Enamel	1	4	6
Extra Pale Paper	0	12	6
Best Japan Gold Size	0	10	0
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	0
Berlin Black	0	16	0
Knotting	0	10	0
French and Brush Polish	0	10	0

GLASS IN CRATES.

	15oz.	21oz.	26oz.	32oz.
English Sheet Glass: Fourths	1¾d.	2¾d.	3¾d.	4¾d.
Thirds	2¼d.	3¼d.	4¼d.	5d.
Flinted Sheet	2¾d.	3¾d.	6d.	6¾d.

	⅛in.	3/16in.	¼in.
Hartley's English Rolled Plate:	2¼d.	2¾d.	3¼d.

	White.	Tinted.
Figured, Rolled, and Repoussine:	3¼d.	5d.

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New Roman Catholic Cathedral of the Sacred Heart, Newark, N.J. Design by Messrs. W. and G. Audsley, Architects.

National Drawings: The Evolution of the Chair. By Mr. Charles Ridgway.

R.I.B.A. Silver Medal Drawings, 1911. Details of Edington Church, Wiltshire. By Mr. T. F. W. Grant, A.R.I.B.A.

The Clay Building, Brunswick-street, S.E. Mr. G. F. Collinson, F.R.I.B.A., Architect.

Reinforced Concrete Design.

TWO CASTLES BY THE SAME ARCHITECT.

A Welsh guidebook generally starts by assuming that the chief end of man is to climb as many mountains as possible; and to the popular tourist, the merit of climbing them is exactly in proportion not to the difficulty, but to the height. Hence Snowdon, where the difficulty is small, has many more pilgrims than Cader Idris, which is less easy; and this, again, has more than Plinlimmon, where much of the trouble is said to consist in avoiding bogs and springs. Snowdon is said to be 3,571ft. high; Cader Idris, according to the Ordnance Survey, is 3,100ft. to the top of its highest peak; and Plinlimmon is stated to be 2,469ft. In a year when multitudes of people will doubtless be attracted to North Wales by the investiture of the Prince of Wales at Carnarvon, the mountains will doubtless be abundantly figured and described. But mountains are not the only sights to be seen in Wales. There are hundreds of lakes, large and small, from Bala, four or five miles long, down to scores of others, many of them too small to be shown on a guidebook map. The castles, if we count ancient British ones amongst them, are nearly as numerous as the lakes; but when one gets beyond Llandudno, old parish churches become few, though there are still some large cathedrals—for instance, St. David's and Bangor, besides the much-restored Llandaff and the minute St. Asaph's. Llandaff, however, is in South Wales, near Cardiff, while Carnarvon is in the northern and, perhaps, less-known section of the Principality.

Many people, at the coming festival, will arrive at Carnarvon either from London or Lancashire, by way of Chester; and many more from Birmingham by way of Shrewsbury. Chester is a town worth seeing. Its modern work, though not always elaborate, keeps up the old tradition of picturesqueness. The days are hardly forgotten in it when the Welsh, not rarely, were its invaders, and under many of the old houses were subterranean ways intended for escape from them. Starting from Chester, on the way to Carnarvon, the line in a mile enters Flintshire, and for a considerable distance runs nearly parallel with the River Dee. About fourteen miles from Chester it passes the ruins of Basingwerk Abbey and the station of Holywell, where a holy well, enclosed by a Late Gothic chapel, is still to be seen. Rhyl is a populous, but not beautiful, place, thirty miles from our starting-point; and here we cross the two rivers joined in one,—Clwyd and Elwy. Here there is a branch line to St. Asaph and Denbigh. So far there has not been much to see on the way from Chester, except the Dee and its marshes, amongst which in Withering's time, more than a century ago, Primula farinosa used to flourish; and where, on the banks of the dykes, the passenger with a botanical eye may still note, as he flies past, what seem to be conspicuous white-flowered water-rockets or cresses. Many of the other salt-marsh plants which used to grow in similar places by the Thames before factories did away with flowers, may be seen there, too; but it is somewhat uncertain work to identify marsh-plants fifty yards off from a train travelling fifty miles an hour.

Till one gets as far as Rhyl there is not very much, either natural or artificial, to note: some factories, chapels, and here and there a church. But with the first glimpse of Penmaenmawr impressive scenery begins, and impressive buildings, too. Conway, with its castle, its river, and its bridges, is a place to remember, though it must have been more harmonious still before the bridges were built. From Llandudno Junction the "mineral line" to Bettws-y-Coed and Blaenau Festiniog branches off, and runs almost beside the Conway river, which has not yet quite lost its reputation for pearl-producing mussels. The curfew bell still rings in Conway, as it did before Henri de Elreton designed this castle and the Carnarvon one—two very different groups of buildings, of which, perhaps, Conway is now the more beautiful. In the church is a stone supposed to be dated in Arabic figures 1066, as to which some doubts may exist, seeing that inscriptions as early as this were generally dated by letters of the Roman alphabet. In the churchyard, also, a myth seems to be in course of rapid formation, for visitors are shown the family grave of the little cottage girl whom Wordsworth says he met at Goodrich Castle, and who assured him that "We are seven." Perhaps Wordsworth was mistaken, or perhaps the caretaker of the church was; but, in any case, what is pointed out as the family gravestone (or grave-slate) has been pulled to fragments by relic-seeking vandals. The Plas Mawr, in Conway High-street, deserves a careful examination. Its date is about A.D. 1580, and it contains some interesting mantelpieces and other sculpture. The mullioned windows are covered with stone pediments of low pitch; the walls have quoins at their angles, and the gables generally are coped with stone "corbie-steps." By the use of deep jambstones projecting from the walls, a number of the windows, though they do not appear as bays outside, have practically the internal effect of bay windows; and there are some small projecting lights, circular on plan, in the upper stories. Much of the internal plaster ornament looks like *stucco duro*. The Castle Hotel, where artists for many years past have left memorials of themselves, is a comfortable one, not far from the Plas Mawr. The castle is everywhere beautiful; but the best view is, perhaps, one from the river. At the railway station you are close to it, and in the spring have the sight and the violetlike scent of the yellow wild wallflowers, which here, as at Pembroke Castle, do their best to cover the walls.

Practice makes perfect; and at Conway Castle, in 1284, Henri de Elreton, in most people's opinion, outdid all earlier work in Welsh castle-building. How he managed to make such a picturesque building so permanent remains as a puzzle for the modern architect; but the 13th-century architect and the 20th-century one had such different ways of going to work that it is only natural that they should have arrived at very different results.

From Conway to Llandudno is a very short journey; but it lands you in a very different place. At Llandudno nearly everything is to be found which people of taste take their holidays (*pace* Lindley Murray) to get away from: shops, motors, dust, dirt, finery, and smoke. "Non raggiamo di lor"; it is pleasanter to note and believe, if we can, that, not long ago, the splendid gentian-blue Veronica hybrida was growing on the Great Orme's Head; though, if anyone has caught a glimpse of it in flower, we dare not suppose that it is growing there still. Antiquities (except geological ones) are no more known than wished for at Llandudno; but at Penmaenmawr, a stage nearer to Carnarvon, the mountain with its trap quarries and its tramways is an antiquity that impresses even the least scientific. Llanfairfechan is a pleasant seaside place, and Aber, with its waterfall and its stonecrop-covered cottages, a more romantic one, and after passing this we come to the next town of architectural interest, namely, to Bangor, and catch a glimpse of the modern Penrhyn Castle by the way. From Bangor railway-station the High-street goes nearly east, and passes close to the cathedral. Beyond the east end of the close, the Garth Road runs down to the sea, and to the steamer which at frequent intervals takes passengers over to Beaumaris. The voyage only occupies a few minutes; but it affords excellent views of the neighbouring mountains. Beaumaris Castle is

worth [illegible] and the scenery [illegible] which people [illegible] and here [illegible] fully [illegible] Here [illegible] into [illegible] All [illegible] Bangor [illegible] and the [illegible] which we [illegible] and [illegible] Menai Straits [illegible] and there [illegible] But these are only at their best when the tide is high, and to reach them one has to trespass a little on private fields and some quarries. In proceeding by rail to Carnarvon, we follow the east side of the Menai Strait, and pass the two Menai bridges—that is, the tubular bridge which carries the railway and the suspension bridge which carries the road. On the way to Carnarvon is a station called Port Dinorwic, where George Borrow found people discussing the sea serpent, and told me a rather tall story from a Welsh book about its having climbed on to a vessel in the Menai Strait. Borrow when he reached Carnarvon, went to the Castle Inn. But where all the visitors will lodge after the approaching ceremony, it is difficult to conjecture—many of them, perhaps, as far off as Llandudno; some, perhaps, at Bangor, and others, perhaps, not nearer than Criccieth or even Barmouth. There are plenty of railways from place of their destination—mostly Swansea Southwards where also good accommodation may be found; but Carnarvon itself is not largely provided in this way. We need not describe the castle, and in fact, few persons need know how much or how little the changes now going on will alter it. It is better built perhaps, for a castle than that of Conway—it is less finely situated than those of Harlech and [illegible] and it has given its name to a kind of coal—which for nearly fifty years past has been known to architects as Carnarvon arch.

MODERN ORGAN BUILDING.*

Which of the works now on the organ [illegible] library shelves is somewhat difficult to realise. When the present one published—or what place it is to occupy in the literature of the organ now so rich the eighteenth about—is every mind and hands. Starting at the earliest reliable point we have the magnificent tomes entitled "L'Art du Facteur d'Orgues" by Dom Bedos de Celles, a Benedictine monk of the Congregation of Saint Maur, published from 1766 under the authority of the Académie des Beaux. The [illegible] and [illegible] [illegible] [illegible]

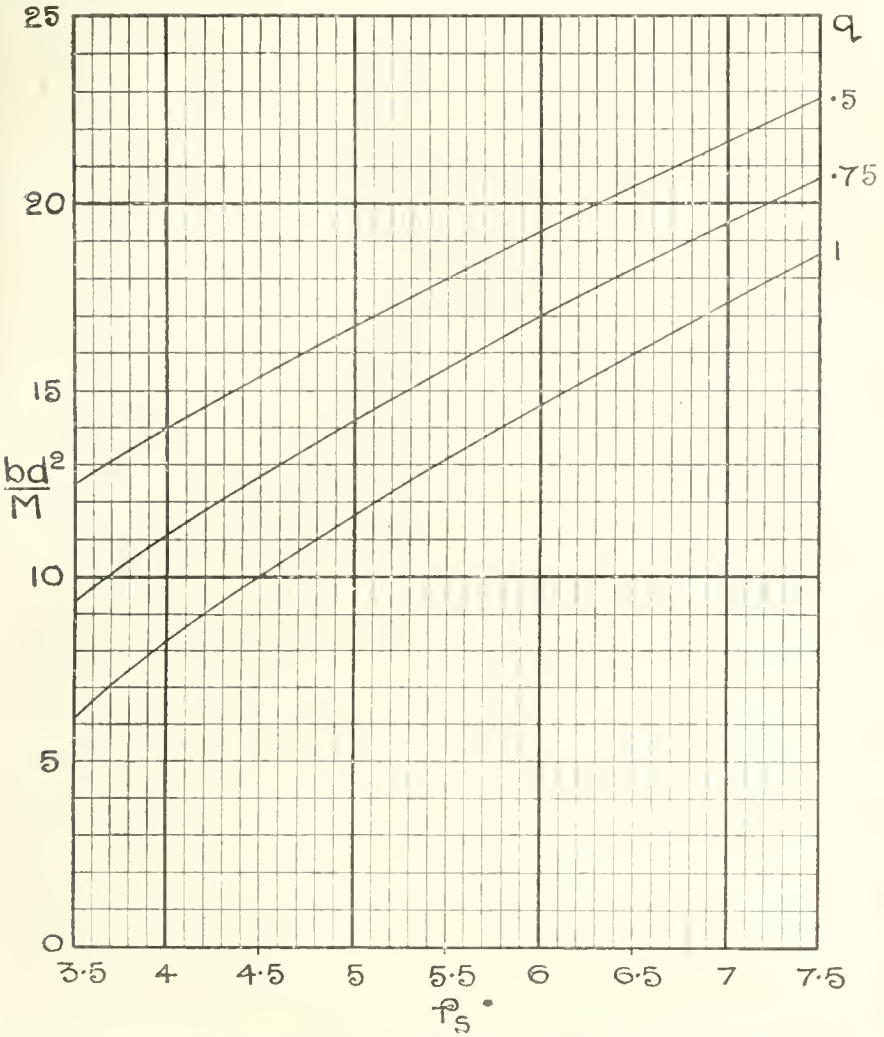


Diagram 10.—Rectangular Beams with Double Reinforcement. $f_c = \frac{1}{4}$ ton per square inch, $r = 15$. To obtain tensile stress in steel f_s, when ratio q of compressive to tensile reinforcement, $C_s \div A_s$, is fixed, multiply breadth b by square of depth d, and divide by maximum bending moment M, then, using the curve for required value of q, read f_s on base line, and insert in preceding formulæ for A_s, C_s, etc.

In the following formulæ, the centre of gravity of the compressive reinforcement is assumed to be coincident with the centre of gravity of the equivalent resistance area for the concrete; therefore—

$$y = \frac{d(2rf_c + 3f_s)}{3(rf_c + f_s)}$$

and— $$f_s' = 2 \cdot 3f_s(r - 1).$$

TOTAL MOMENT OF RESISTANCE.

The total moment of resistance will be the sum of the moments due to the concrete and the compressive reinforcement, therefore—

$$R = \frac{d(2rf_c + 3f_s)}{3(rf_c + f_s)}\left[\frac{2}{3}C_s f_s(r-1) + \frac{bdrf_c^2}{2(rf_c + f_s)}\right]$$

AREAS OF REINFORCEMENT.

Total tension = total compression, therefore—

$$A_s f_s = \frac{2}{3}C_s f_s(r-1) + \frac{bdrf_c^2}{2(rf_c + f_s)}$$

Also—

$$R = \frac{A_s f_s d(2rf_c + 3f_s)}{3(rf_c + f_s)}$$

If a beam is required to resist a given bending moment M, R must equal M, therefore—

$$A_s = \frac{3M(rf_c + f_s)}{df_s(2rf_c + 3f_s)} \quad \ldots\ldots\ldots(22)$$

$$C_s = \frac{3A_s f_s}{2f_s(r-1)} - \frac{3bdrf_c}{4(r-1)(rf_c + f_s)} \quad \ldots(23)$$

C_s may be required to bear a certain ratio to A_s, for instance, if $C_s = qA_s$:—

$$qA_s = \frac{3A_s f_s}{2f_s(r-1)} - \frac{3bdrf_c}{4(r-1)(rf_c + f_s)}$$

and—

$$\frac{M}{bd^2} = \frac{rf_c^2 f_s(2rf_c + 3f_s)}{2[3f_s - 2q(r-1)f_c](rf_c + f_s)^2} \quad \ldots(24)$$

The centre of gravity of C_s will be—

$$\frac{drf_c}{3(rf_c + f_s)}$$

from compression surface of beam.

For slabs the foregoing equations become

$$A_s = \frac{3M(rf_c + f_s)}{tf_s(2rf_c + 3f_s)} \quad \ldots\ldots\ldots(25)$$

$$C_s = \frac{3A_s f_s}{2f_s(r-1)} - \frac{9trf_c}{(r-1)(rf_c + f_s)} \quad \ldots(26)$$

$$\frac{M}{t^2} = \frac{6rf_c^2 f_s(2rf_c + 3f_s)}{[3f_s - 2q(r-1)f_c](rf_c + f_s)^2} \quad \ldots(27)$$

The centre of gravity of C_s will be—

$$\frac{trf_c}{3(rf_c + f_s)}$$

from compression surface of slab.

By fixing values of r, f_c, and q, curves have been plotted giving the relation of bd^2 M or t^2 M to f_s, and also to A_s bd or A_s t, from which A_s is easily found, or it can be calculated by inserting the necessary values in equation (22). In these cases $C_s = qA_s$.

REDUCED WORKING FORMULÆ AND DIAGRAMS 10 AND 11 FOR RECTANGULAR BEAMS WITH DOUBLE REINFORCEMENT.

$f_c = \frac{1}{4}$ ton per square inch, $s_c = 60$lb. per square inch, $s_s = 5$ tons per square inch, $r = 15$, $w_c = 140$, $w_s = 490$. Cost of concrete, including timber forms, 1s. per cube foot, cost of steel £3 per cube foot.

It is assumed that when double reinforcement is required, b and D are fixed—

$$c = 2\tfrac{1}{2}\text{" to } 3\tfrac{1}{2}\text{"}$$
$$d = D - c$$

Approximate weight of beam per lineal foot $.0005\,bD$ tons.

$$A = \frac{M(4f_s + 15)}{df_s(4f_s + 10)}$$

$$C = 3 \cdot 7A_s f_s - \frac{45bd}{56(4f_s + 15)}$$

Centre of gravity of C_s to be—

$$\frac{5d}{4f_s + 15}$$

from upper surface of beam.

For beams carrying a uniformly distributed load, stirrups will be required if A is greater than—

$$\frac{9bL}{112f_s}$$

For any other system of loading, they will be required if V is greater than—

$$\frac{3bd(2f_s - 5)}{56(4f_s + 15)}$$

Cost of beam without stirrups—

$$L[.007\,bD + .42(A_s + C_s)] \text{ shillings}$$

Cost of stirrups for beam—

$$.007\,M\,\frac{4f_s + 15}{2f_s + 5} \text{ shillings}$$

EXAMPLE 9.

Taking, for comparison with Example 1, p. 373, Article III., a beam with the same span and load, but limiting its size to, say, 10in. wide by 20in. deep, and fixing the stress in steel for tensile reinforcement at $7\frac{1}{2}$ tons per square inch, then L = 10ft., W = 2 tons per foot, m = 8, b = 10in., D = 20in., d = D − c = 20 − $2\frac{1}{2}$ = $17\frac{1}{2}$in., and f_s = $7\frac{1}{2}$ tons.

Approximate weight of beam—

$$= .0005 \times 10 \times 20 \times 10 = 1 \text{ ton}$$

Superload—

$$= 2 \times 10 = 20 \text{ tons}$$

Total load—

$$= 1 + 20 = 21 \text{ tons}$$

Bending moment—

$$M = \frac{21 \times 10 \times 12}{8} = 315 \text{ tons-inches}$$

Then by reduction of equation (22)—

$$A_s = \frac{315 \times 45}{17.5 \times 7.5 \times 40} = \frac{27}{10} = 2.7\text{sq.in.}$$

and four 1in. diameter rods might be used.

$$C_s = \frac{3 \times 2.7}{7} \cdot 7.5 - \frac{45 \times 10 \times 17.5}{56 \times 45} = 5.55\text{sq in.}$$

and four $1\frac{3}{4}$in. diameter rods might be used.

Centre of gravity of—

$$C_s = \frac{5 \cdot 17.5}{45} = 1.94,$$

say 2in. from upper surface of beam. As—

$$\frac{9bL}{112f_s} = 1.07,$$

which is less than A_s, stirrups are required.

From Diagram 1, p. 301, Article II., for d = $17\frac{1}{2}$in. and f_s = $7\frac{1}{2}$ tons, diameter of circular section stirrups = $\frac{3}{8}$in., and from Diagram 2 on same page N a A_s = 7, which multiplied by A_s gives N a = 18.9. If number at each position n = 4, then number of positions N = 5 (in each half of the beam), and their respective distances can be found as in Example 1.

Approximate cost of beam without stirrups, allowing for 12in. bearing at each support—

$$= 12[.007 \times 10 \times 20 + .42(2.7 + 5.55)]$$
$$= 58.38 \text{ shillings}$$

Approximate cost of stirrups—

$$= .007 \times 315 \times 45 \cdot 20 = 4.96 \text{ shillings.}$$

Total cost—

$$= 58.38 + 4.96 = 63.34 \text{ shillings} = £3\ 3s.\ 4d.,$$

as against £2 4s. 1d. for the beam in Example 1—an increase of nearly 50 per cent., thus showing that where the size of a beam is not limited, single reinforcement is much more economical.

EXAMPLE 10.

Again taking the span and load as in Example 1, and size of beam as in

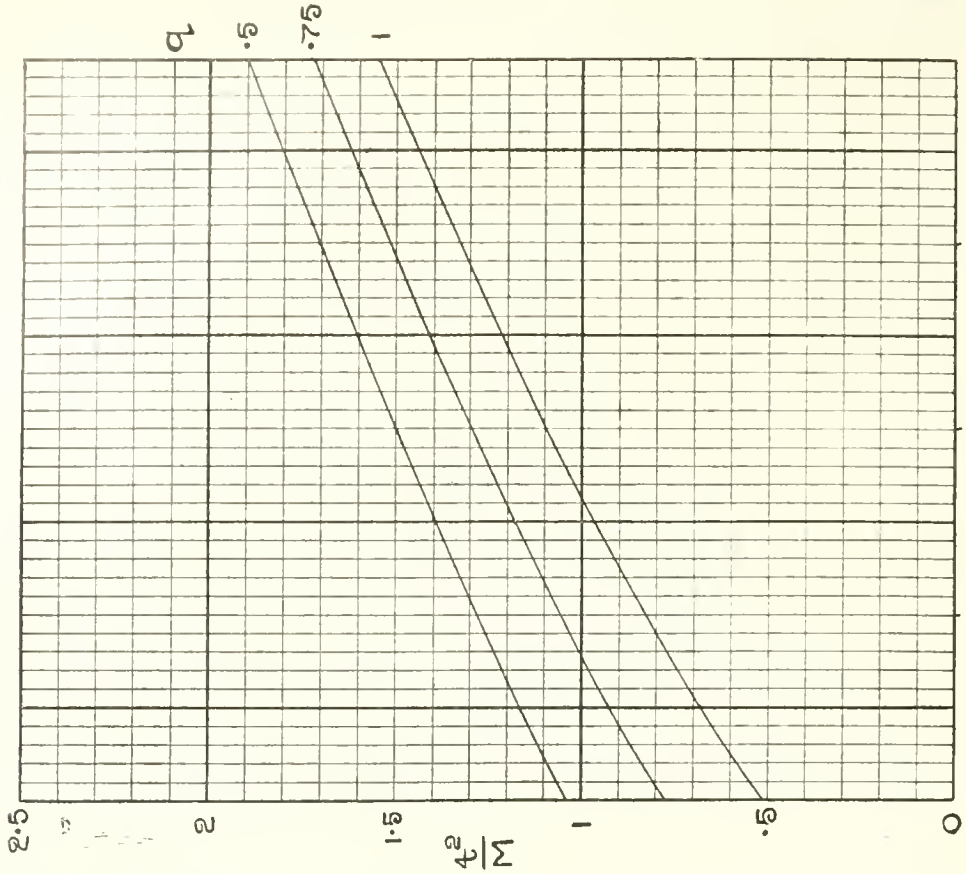


Diagram 12.—Slabs with Double Reinforcement in One Direction. $f_c = \frac{1}{4}$ ton per square inch, $r = 15$. To obtain tensile stress in steel, f_s, when ratio q of compressive to tensile reinforcement, C / A_s, is fixed, divide d by M, then using the curve for required value of q, read f_s on base line, and insert in formulæ for A_s, C_s, etc.

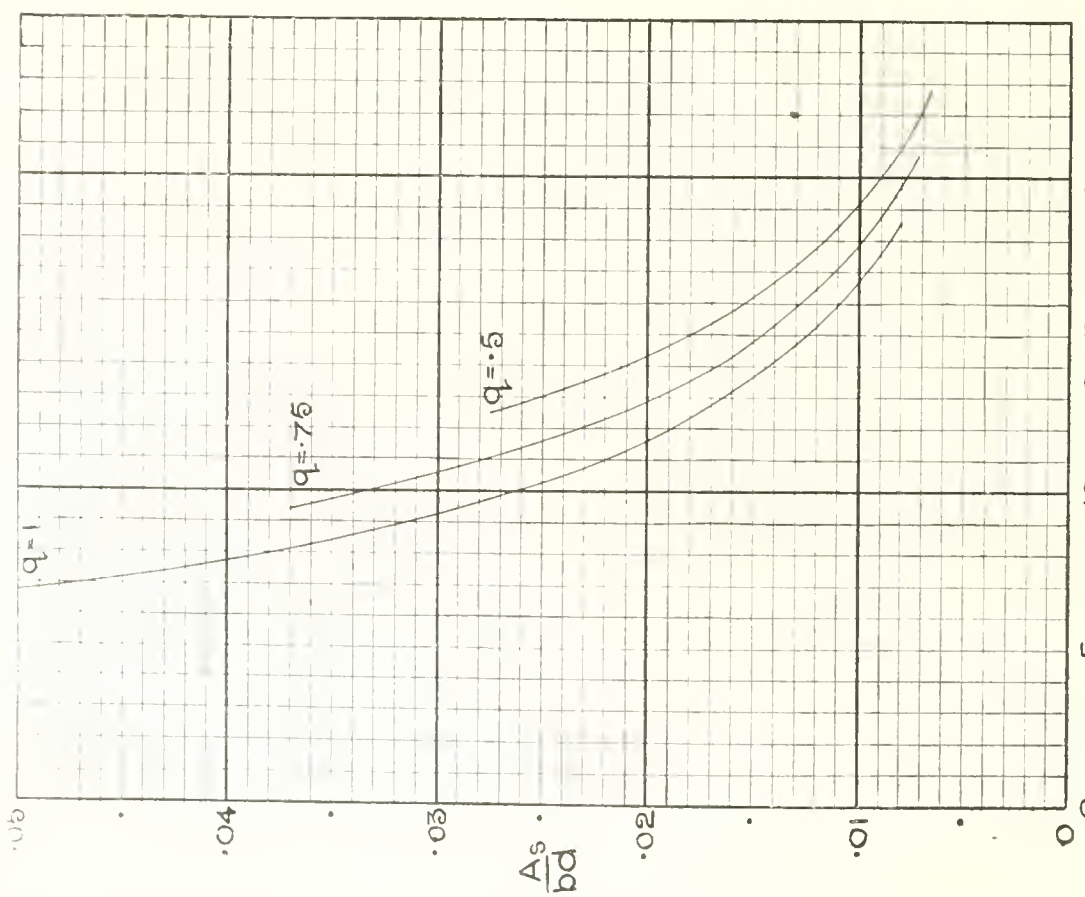


Diagram 11.—Rectangular Beams with Double Reinforcement. $f_c = \frac{1}{4}$ ton per square inch, $r = 15$. To obtain area of steel A_s when ratio q of compressive to tensile reinforcement, C / A_s, is fixed, find $b d^2 / M$ as before, then using curve for required value of q, read $A_s \div bd$ on left hand, and multiply by $b d$.

[illegible] by first making the areas of compressive and tensile reinforcement equal [illegible] A_s or $q = 1$. Then, using the [illegible] moment M, already found in last [illegible]

$$\frac{bd^2}{M} = \frac{10 \times 17.5 \times 17.5}{315} = 9.72,$$

[illegible] Diagram 10, using curve 1 [illegible] 4.4 tons per square inch.

[illegible] Diagram 11 in the same way [illegible] = .025 and A_s = 4.8 sq. in.

or by calculation as before

$$A_s = \frac{315 \times 32.6}{17.5 \times 4.4 \times 27.6} = 4.8 \text{ sq. in.}$$

As [illegible] A_s, four 1¼ in. or three 1½ in. diameter rods might be used for each.

Centre of gravity of—

$$C = \frac{5 \times 17.5}{32.6} = 2.7,$$

say 2¾ in. from upper surface of beam.

[illegible] 112 f being again less than A_s, stirrups are required; and if rectangular section be used, by reduction of equation (19), p. 303, Article II.

$$r = \frac{1.5\,d}{8f + 30} = \frac{1.5 \times 17.5}{35.2 - 30} = \frac{26.25}{65.2} = .4$$

Assuming n = ¾ in.—

$$N n = \frac{2 \times 4.8 \times 4.4 \times 32.6}{15 \times .25 \times 17.5} = 21$$

If $n = 3$, $N = 7$, or if $n = 4$, N should be made 6, the distances being found as before.

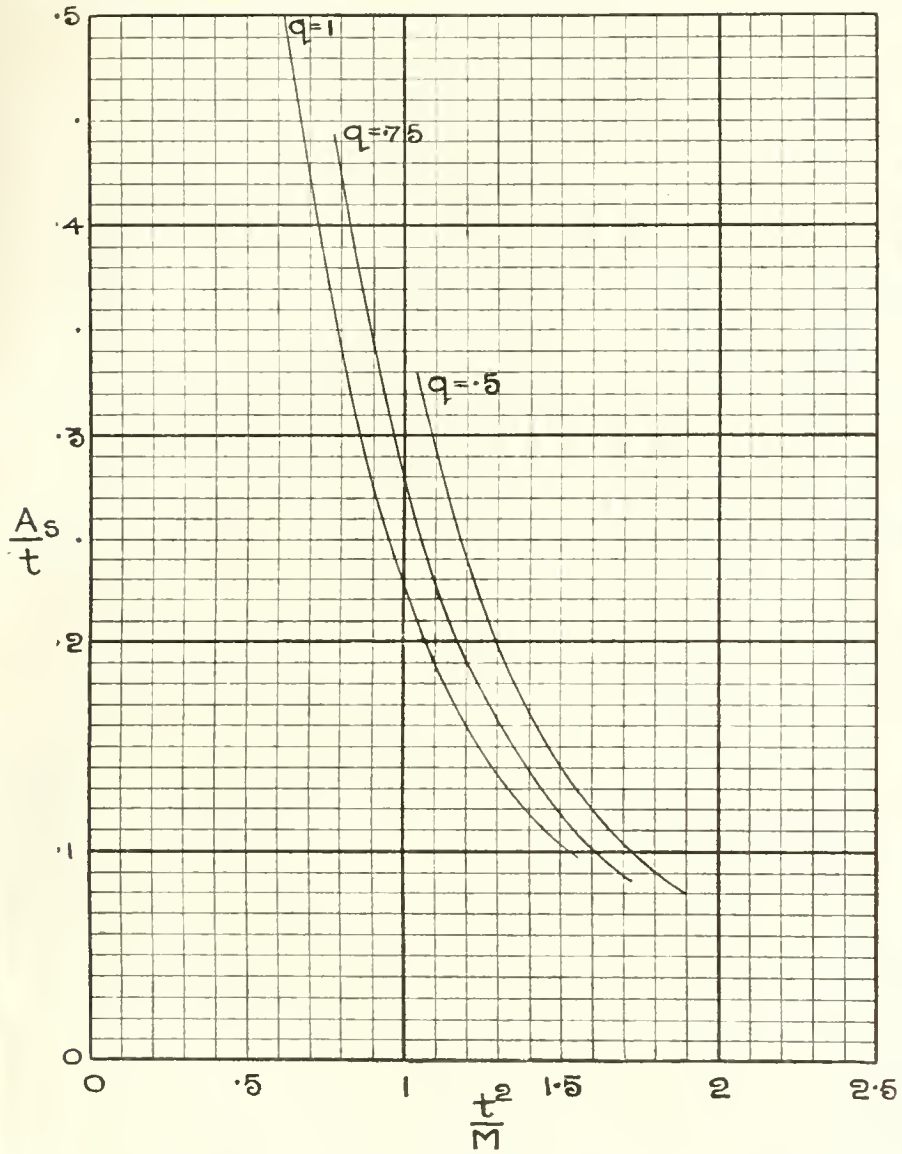


DIAGRAM 13.—Slabs with Double Reinforcement in One Direction. $f_s = \frac{1}{4}$ ton per square inch, $r = 15$. To obtain area of steel A_s when ratio q of compressive to tensile reinforcement, C_s A_s, is fixed, find $\frac{t^2}{M}$ as before, then using curve for required value of q, read A_s/t on left hand, and multiply by t.

Approximate cost of beam without stirrups, allowing for 12in. bearing as before—

$$= 12[.007 \times 10 \times 20 + .42(1.8 + 4.8)] = 65.18 \text{ shillings}$$

Approximate cost of stirrups—

$$= .007 \times 315 \times (32.6 - 13.8) = 5.21 \text{ shillings}$$

Total cost—

$$= 65.18 + 5.21 = 70.39 \text{ shillings} = £3\ 10s.\ 5d.,$$

an increase of 7s. 1d. on the last case, and £1 6s. 4d. more than Example 1.

REDUCED WORKING FORMULÆ AND DIAGRAMS 12 AND 13 FOR SLABS WITH DOUBLE REINFORCEMENT.

$= \frac{1}{4}$ ton per square inch, $s_c = 60$lb. per square inch, $s_s = 5$ tons per square inch, $r = 15$, $n_c = 140$, $n_s = 490$. Cost of concrete, including timber forms, 1s. per cube foot; cost of steel £3 per cube foot.

It is assumed that when double reinforcement is required, T is fixed.

$$c = 1\tfrac{1}{2}\text{in. to } 1\tfrac{1}{2}\text{in.}$$
$$t = T - c.$$

Approximate weight of slab per square foot—

$$.11\,T \text{ cwts.}$$

Considering a 12in. breadth of slab—

$$A_s = \frac{M(4f_s + 15)}{tf_s(4f_s + 10)}$$

$$C_s = \frac{3}{7}A_s f_s - \frac{135t}{14(4f_s - 15)}$$

Centre of gravity of C_s to be—

$$\frac{5t}{4f_s + 15}$$

from upper surface of slab.

For slabs carrying a uniformly distributed load stirrups will be required, if A_s is greater than $\frac{27\,L}{28\,f_s}$.

For any other system of loading they will be required, if V is greater than—

$$\frac{9t(2f_s + 5)}{14(4f_s + 15)}$$

Cost of slab per square foot without stirrups—

$$.081\,T + .42(A_s + C_s) \text{ shillings.}$$

EXAMPLE 11.

Comparing in this case with slab in Example 5, p. 406, Article IV., and fixing the total thickness at, say, 9in., L = 10ft., m = 10cwt. per square foot, m = 12, T = 9in., $c = 1\frac{1}{4}$in., $t = 7\frac{3}{4}$in., and, making A_s and C_s equal areas, $q = 1$.

Approximate weight of 12in. breadth of slab—

$$= .11 \cdot 9 \times 10 = 9.9\text{cwt.}$$

Superload—

$$= 10 \times 10 = 100\text{cwt.}$$

Total load—

$$= 9.9 + 100 = 109.9\text{cwt.} = \text{say } 5.5 \text{ tons}$$

Bending moment

$$M = \frac{5.5 \cdot 10 \times 12}{12} = 55 \text{ tons-inches}$$

$$\frac{t^2}{M} = \frac{7.75 \times 7.75}{55} = 1.09$$

Then from Diagram 12—

$$f_s = 5.5$$

and from Diagram 13—

$$A_s/t = .19 \text{ and } A_s = 1.47$$

or by calculation—

$$A_s = \frac{55 \times 37}{7.75 \times 5.5 \times 32} = 1.49$$

Centre of gravity of—

$$C_s = \frac{5 \times 7.75}{37} = 1.04$$

say 1in. from upper surface of slab.

As $C_s = A_s$, $\frac{5}{8}$in. diameter rods at $2\frac{1}{2}$in., or $\frac{3}{4}$in. diameter rods at $3\frac{1}{2}$in. centres, might be used for each.

$$\frac{27\,L}{28\,f_s} = 1.75$$

which is greater than A_s, so that no stirrups are required.

Approximate cost of slab per square foot—

$$= .084 \cdot 9 + .42 \times 2.98 = 2 \text{ shillings}$$

as against 1s. 4d. in Example 5, making exactly 50 per cent. extra cost for the double reinforcement, for which the 25 per cent. reduction in weight of slab would by no means compensate, although the gain of $3\frac{1}{2}$in. in the height of a story might possibly be of some importance.

(*To be continued.*)

ERRATA IN ARTICLE IV.—At end of Example 5, p. 407, for $A_s = 9.78$, read $A_s = 9t - 78 = 1.3$, and add "spacing of $\frac{1}{2}$in. diameter rods = $1\frac{3}{4}$in., or of $\frac{5}{8}$in. diameter rods = $2\frac{3}{4}$in."

Also insert L (span of slab in feet) under Diagram 6, p. 406.

NEW METHOD OF BONDING LAYERS OF CONCRETE.

The problem of securing a perfect and durable bond between successive layers of concrete, is solved, according to the *Cement World*, by a new method. It is the discovery of Mr. J. A. Jamieson, of Montreal, Que., and is said to have been employed with highly satisfactory results in a variety of work, including the construction of a reinforced concrete elevator and a reinforced concrete conduit $10\frac{1}{2}$ft. in diameter and 8,000ft. long, working under 33ft. head.

The surface of the concrete, approximately horizontal, is allowed to stand until water which may have flushed to the top has disappeared. When this result is attained, and while the mass is still moist, the entire surface is covered with a 1 to 1 dry mixture of cement and sand, to a thickness of about $\frac{1}{2}$in. If necessary, this is protected with tarpaulins or boards. The moisture on the fresh concrete produces a partial set in the dry mixture. This is true of the particles in direct contact with the green concrete, the effect diminishing rapidly, and the upper portion of the dry mixture remaining unaffected. The next layer of concrete is applied without removing the dry layer, the moisture in the fresh concrete completing the set through the half-inch dry layer, and producing a decided bond of the two courses. Briquettes made of cement mortar in two parts and joined by this method developed a strength more than half as great as others made of the same material in a single piece.

REINFORCED CONCRETE BUILDINGS IN LONDON.—IV.

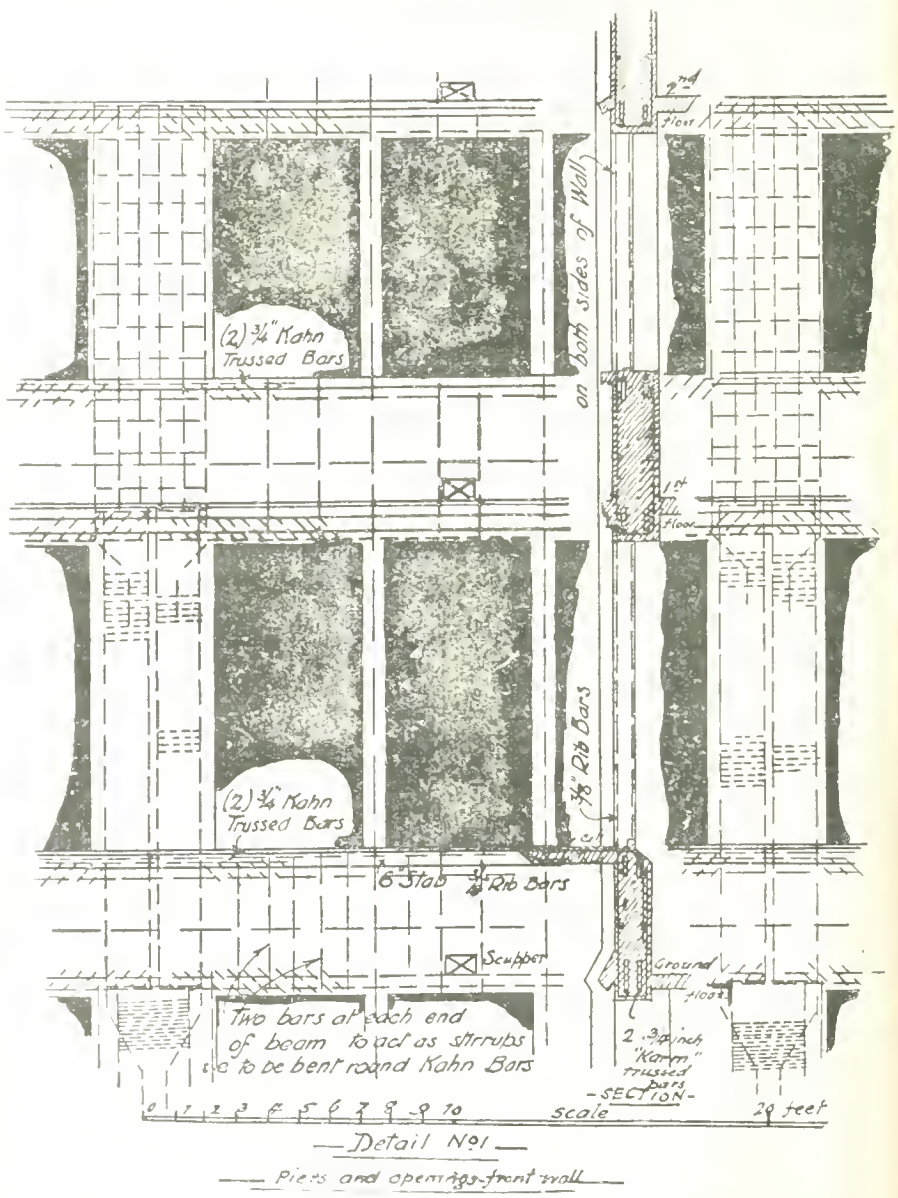
By WM. G. SHIPWRIGHT, M.C.I.

THE CLAY BUILDING, BRUNSWICK-STREET S.E.: MR. G. F. COLLINSON, F.R.I.B.A. ARCHITECT.

The building which is being erected for Messrs. R. Clay and Sons, Limited, affords some interesting examples of design in reinforced concrete.

The structure, which consists of two stories and a basement, has been constructed entirely in reinforced concrete. The front

THE CLAY BUILDING, BRUNSWICK STREET, S.E.—Mr. G. F. Collinson, F.R.I.B.A., Architect.


2nd Floor
1st Floor
(2) ¾" Kahn Trussed Bars
on both sides of Wall
⅜" Rib Bars
(2) ¾" Kahn Trussed Bars
6 Stab ⅜" Rib Bars
Scupper
Ground Floor
Two bars at each end of beam to act as stirrups & to be bent round Kahn Bars
2 ¾ inch "Kahn" trussed bars
SECTION
0 1 2 3 4 5 6 7 8 9 10
scale
20 feet

—Detail No1—

—Piers and openings front wall—

...or seen from the elevation, is ... series of bays, supported on piers ... intervals of 20ft along the front ... house piers are constructed, as shown ... No 1, with vertical "rib" bars ... together with horizontal lacing in the ... whilst a lattice reinforcement of ... at about 5in centres, form ... of construction employed above. ... spanning the three light window ... between the main piers are con... from 15in to 18in in thickness, and ... with two ¾in "trussed" bars ... booms, whilst the com... resistance is assisted by a com... line of "rib" bars, con... construction being obtained by ... "trussed" bars 9ft long placed ... ring on the piers, augmented ... longitudinal reinforcement. A ... "rib" bars provide an ... resistance and being bent ... and compres... beam render the construc... absolutely homogeneous ...

... the ground floor ... projection of 2ft 6in ... Detail No 1 are formed ... reinforcement at the outer ... vertical "rib" bars of the ... round, carried along the ... upper surface, turned round ... and returned some 18in on ... and made ...

... pilasters forming ... on the ground ... reinforced with ¾in ... placed at 24in centres, ... concrete curve, ... horizontal re...

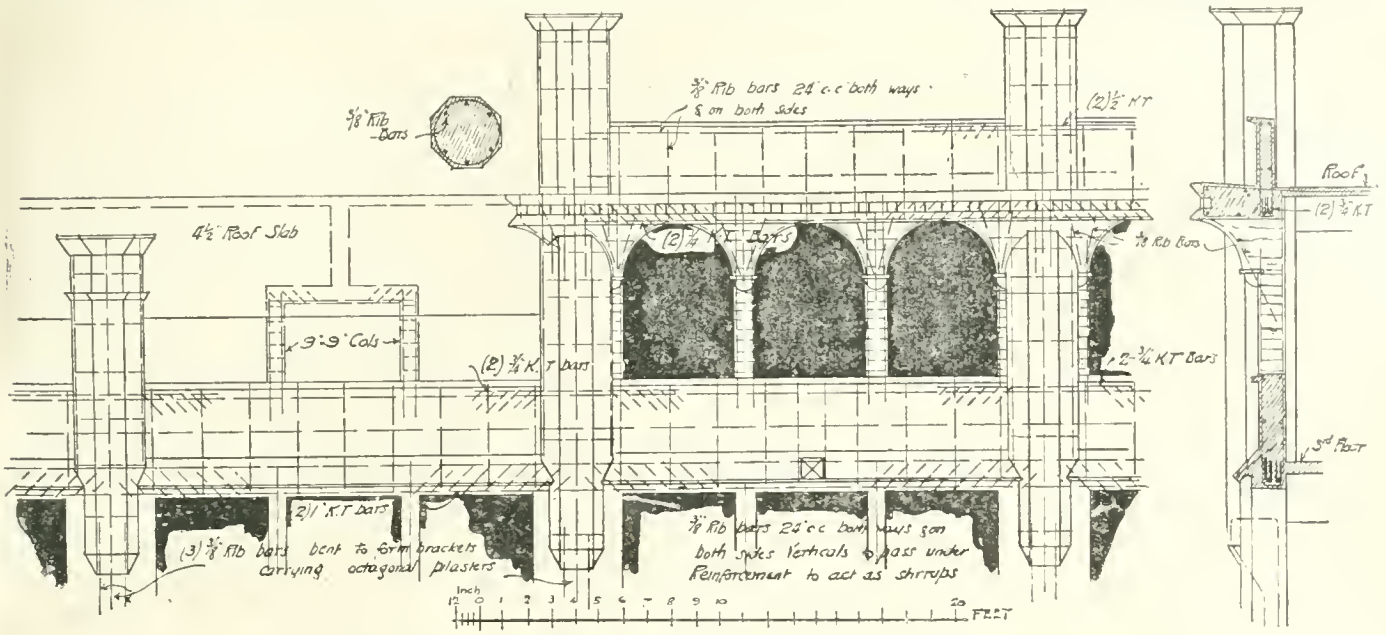
... each are 9in by ... with two ¾in ... the general ... piers is 9in ... with ¾in ... placed in ...

... upon being ... about 6in ... shown in ... Detail No 1, which ... each ... vertical "rib" ... and bond 18in ... horizontal lines ... the main piers to the apex of the ... to form the splayed projec... ... concrete on the front ... reinforcement of ¾in ... 24in centres, and also provided ... ¾in horizontal rods ... window ... projecting ... form an interesting ...

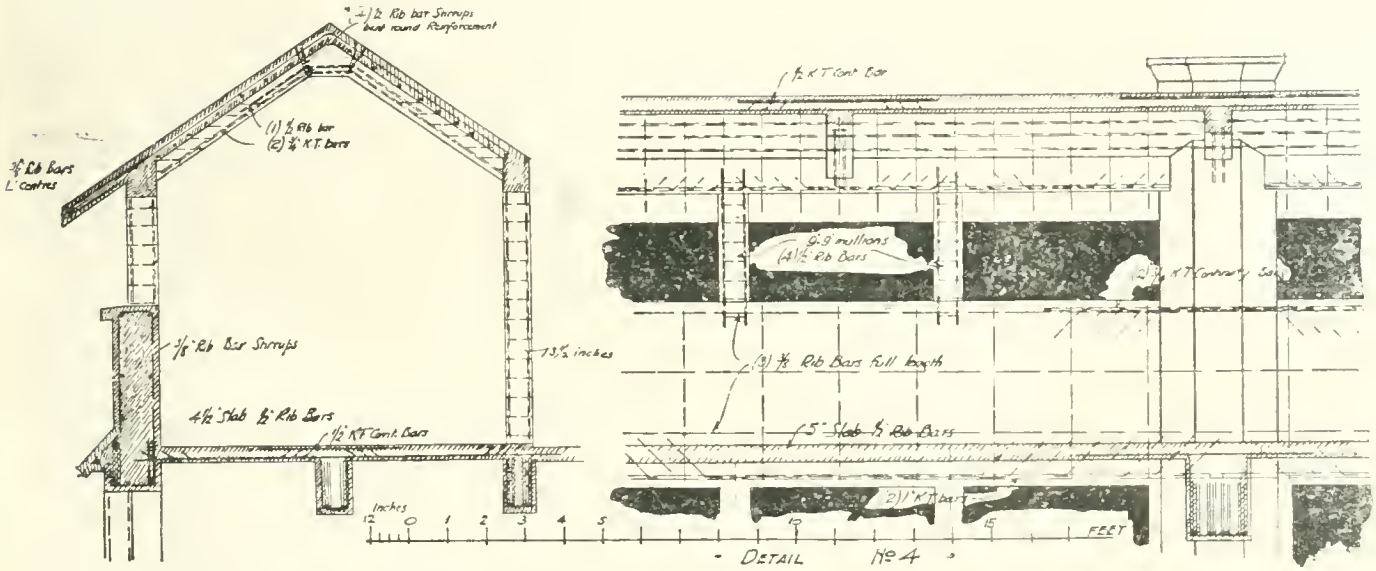
... 15in by 12in is ... provided with four ¾in "rib" ... vertical reinforcement, these being ... for a horizontal reinforcement of ¾in ... bars arranged at 12in centres, as ... extra precaution to support the somewhat ... weighty superstructure.

The cornice, which exceeds 1ft in thick... ness, is constructed with a longitudinal re... inforcement of ¾in "rib" bars, aug... mented on the torsional side by two ¾... bars, to carry weight of the parap...

Three-eighth inch "rib" bars plac... at 9in centres, bent round the whole of t... longitudinal reinforcement, and carried ba... into the roof, provide an efficient anchorag... and a stirrup reinforcement of ¾in. bars ... 24in centres secures homogeneity betwe...


5/8 Rib Bars
5/8 Rib bars 24" c.c both ways & on both sides
(2) 1/2" KT
4½" Roof Slab
3'-9" Cols
(2) 3/4 KT Bars
(2) 3/4 KT Bars
2-3/4 KT Bars
Roof
(2) 3/4 KT
5/8 Rib Bars
3rd Floor
2/11 KT Bars
(3) 3/4 Rib bars bent to form brackets carrying octagonal plasters
5/8 Rib bars 24" c.c both ways on both sides Verticals to pass under Reinforcement to act as shrrups
Inch
FEET

DETAIL No 2 - FACADE CENTRAL FEATURE . 3RD FLOOR LEVEL


1/2 Rib bar Stirrups bent round Reinforcement
(1) 5/8 Rib bar
(2) 3/4 KT Bars
3/4 Rib Bars 12" Centres
1/2 KT Cont Bar
9-9 mullions (4½" Rib Bars
5/8 Rib Bar Stirrups
73½ inches
(3) 5/8 Rib Bars full length
4½" Slab 1/2 Rib Bars
1/2 KT Cont. Bars
5" Slab 1/2 Rib Bars
2/11 KT Bars
Inches
FEET

DETAIL No 4

THE CLAY BUILDING, BRUNSWICK STREET, S.E.—Mr. G. F. Collinson, F.R.I.B.A., Architect.

the longitudinal reinforcement of the parapet and cornice. The arched heads are formed with ⅜in. "rib" bars bent to the required curve, and similar bars are employed to support the overhang.

The roof slopes, shown in detail No. 4, is 4½in. in thickness, reinforced with ⅜in. "rib" bars at 1ft. centres. The overhanging eaves are reinforced with extra ⅜in. "rib" bars, ½in. "trussed" bars providing continuity of construction.

The slabs forming the slopes are supported on a series of 9in. principals, placed at 10ft. centres, and reinforced with ¾in. and ½in. bars, with ½in. stirrups at the angles. The beams supporting the principals are reinforced on the tension side with ⅜in. bars, and carried on 9in. square mullions, reinforced with four ½in. "rib" bars bound with eighth-inch wire at 6in. pitch. The sill is provided with six ½in. "rib" longitudinal bars, and similar vertical bars at 2ft. centres. The domes, which are 11ft. in diameter, are formed in fin. concrete, with radial and circumferential reinforcement of ⅜in. "rib" bars.

The whole of the façade, which has been cast and finished completely in the reinforced concrete, is an interesting example of this construction applied to elevational work; the effective execution of a more ornate treatment than is usually applied to this class of work, on which we congratulate the architect, providing another instance of the possibilities in design which this combination of material affords.

(To be continued.)

THE NEW R.S.A. GALLERIES, EDINBURGH.

The reconstruction of the Royal Institution on the Mound at Edinburgh, from designs by Mr. W. T. Oldrieve, F.R.I.B.A., of H.M. Board of Works, to serve henceforth as the home of the Royal Scottish Academy, is now completed, and the academicians will enter into possession in a few days. The sending in day for pictures will be Monday week, April 10, and the exhibition will be open to the public on Saturday, May 6. The Royal Institution was built in 1823 from designs of Mr. W. S. Playfair, of Edinburgh, and was enlarged from the same architect's plans ten years later. As now reconstructed by Mr. Oldrieve, five galleries are devoted to the exhibition of oil pictures; there is a sculpture hall, and at the north end rooms for water-colours and architecture, as also a tea-room. The sculpture gallery is 81ft. 3in. by 24ft. 1in.; the two picture galleries opening from it are each 40ft. 4in. by 33ft. 5in.; the large Diploma Gallery, the width of the building, is 81ft. 3in. by 36ft. 6in.; the south-west gallery is 40ft. 1in. by 33ft. 6in., and the south-east gallery 40ft. 4in. by 33ft. 6in. At the north end of the building are the architecture room, 34ft. 4in. by 28ft.; and the water-colour room, 39ft. 2in. by 27ft. 6in. The principal staircase, with marble steps, is arranged in two short flights, and leads to the sculpture hall, which occupies the full width of the building. The staircase is lined with Callaloe stone and panelled. At the statue gallery level the staircase opening is enclosed by a balustrade and open arcading on its east and west sides, and on the north, at the tea-room, it takes the form of a balcony. The sculpture hall, the walls of which are lined and panelled with Callaloe stone, shows on each side of its entrance two Ionic columns. The frieze is in white plaster, with the names of famous sculptors in gold letters on the panels; the coving leading up to the roof-light is in a sky-blue tint, and a lunette over the double opening, giving access to the picture galleries, is in burnished gold. The floor is of cream-coloured French marble, with green bands. The ornamentation of the other galleries is of a simple Greek character; the coving is done in dull gold. The walls are covered with a pattern leather paper in low-toned gold and crimson. The woodwork is painted a brown tint, the dado is of walnut, and the flooring of oak parquetry. All the galleries are lighted by cupolas on the roof. The entrances to all the galleries are at the angles of the rooms,

[illegible] interference [illegible] [illegible] [illegible]

Limoges must be taken as a sufficient example. With reference to the art of Italy, I think it may be said that Italian artists never took kindly to the Gothic idea of the human figure represented merely as a symbol (as it were a letter in the alphabet); but in even their early work felt and represented the strivings of the individualistic spirit within; although the work of Nicola Pisano and his school approximated to the texture scheme of the Gothic sculptors, there is yet a feeling for form and movement which differs from these, and in the work of Ghiberti, Donatello, Verrocchio, Lucca della Robbia, Rossillino, and many more, and, above all, Michael Angelo, the details become lost in the grand effort to realise to the fullest the conception of the mighty spirit moving in the divinely formed body; the work arriving at a stage when it is its emotional aspect, rather than its architectural, that enforces attention. As our subject is, however, Sculpture in relation to Architecture, and having viewed a number of illustrations, it may be well to consider the question of general principles, for in reviewing these various works we seem to need a guide to consecutive thought other than that supplied by the purely historical aspect. Yet, in approaching this, the question at once arises as to who shall define art, for the spirit of art is as intangible as a dream—may be it is a dream—of which may be said in the words of Shelley—

> On an unimagined shore,
> Under the grey beak of some promontory,
> She met me in such exceeding glory
> That I saw her not. —Epipsychidion.

Though the spirit of art is indefinable, and may be considered as a vision apprehended not by any means by the eye alone, the efforts to realise this vision, which result in works of art, are found to conform to certain general rules, with reference to which, in reading a musical book lately, I found a definition of the qualities a work in that form of art should possess, which seem to me to the point. It commenced by saying Form, Expression, Feeling, and Variety were essential. Form, the shape presented to the mind; Expression, the prominence given to some sounds and the subordination of others; Feeling, the character of the effect produced; and Variety, to prevent the work becoming mechanical, and so lifeless. It further states a melody should display, amidst all its features and phases, an all-pervading unity and relationship among its several parts. The text then proceeds in criticism of a certain arrangement, as wanting in design in its form, regularity in its expression, stability or clearness in its feeling, and method in its variety. These directions seem so admirably adapted to the art of the sculptor and carver, that they might well have been written expressly for him except that being written about musical composition they make no mention of the artist's hand. I do not suggest that the musical world in any way overlooks this, the human exeentant element, but that in the graphic and plastic arts it necessarily occupies a very important place indeed. In these examples, Certosa at Pavia, I think it can be claimed that the all-pervading unity and relationship is preserved, and that the less important elements are treated with due subordination, that the varied textures and minor ornamentation are treated in an interesting and able way indicating great ability in design and very skilful execution. Much the same as to general design and importance given to some, and the subordination of other portions, can be said of the Altar from Vicenza. I think, however, that in the two doorways from Como, we find a more marked distinction in design; the artist seems to be possessed of a more varied palette, the rhythm is felt throbbing more harmoniously throughout, and there seems more room left for the imagination to play in. And here, it may be remarked, that a work may be so obviously finished that, no point arising to call for comment, we simply pass it by, and are much more interested in the less complete. I think this brings us to the question of Variety. Lord Bacon in one of his essays remarks: "There is no beauty but hath some quality of strangeness in it." I think it may also be said that we do not recognise beauty in that which is altogether strange, and it is the just proportion of strangeness harmonised with that which is familiar which constitutes the charm. How is this charm of the familiar and the new to be obtained? By a search through the realms of Nature by developing a helpful imagination, and by acquiring the power to imitate, together with the power to invent, and to express, or rather to reveal, your discoveries with a skilful hand. Imitation alone is not sufficient; it must be balanced and controlled. In the Gothic period the direct imitation of leaves, as in Early Decorated, soon ceased to satisfy, and developed into the more rhythmical Perpendicular. In the Renaissance period the most satisfactory arrangement of ornament was found to be (where direct imitation was used at all) to obtain the necessary architectural quality by a considerable dominance of conventional form, and this occurs even in the extremely free treatment of Grinling Gibbons. The principles applying to the figure are not identical with those of ornament, but in the Greek work I think the contention that the earlier and less realistic work is the best fitted for architectural purposes can well be maintained. And in the Gothic period the unity of the whole could not have been preserved except the sculptors' convention permitted the lights and shadows to be of the right size and shape and to occur in the right place, three things of which imitation can take no heed. On this question of harmonistic treatment, which really embraces the question of distance effect also, M. Camille Mauclair writes in his work on Rodin: "This theory, to which Rodin approved of my giving the name of 'deliberate amplification of surfaces,' is simply the critical principle of Greek sculpture, which has been entirely misunderstood by the Academic School. That school, which is supposed to honour the Greeks, is really false to their spirit and their teaching. Moreover, this principle, which belongs to all primitive statuary that was made for the open air, is to be found among the Egyptian and the Assyrian. It calls in question the Academic Tradition, whereby exactitude is confounded with truth." This deliberate arrangement of surfaces is well borne out in the examples that have been shown this evening, and the Wellington Memorial, probably the finest monument in existence, is a further example of great care devoted to the arrangement, design, and treatment of light and shade bearing surfaces, practically coinciding with the Rodin view. In the Michael Angelo example it will also be found that the dominant feature is the light-bearing surface finely defined by the broad grouping and design of the shadows, and, indeed, this may be accepted as one of the most important elements in the means of expression of the art. This may be considered as rather appertaining to the craftsmanship. Of course, craftsmanship is, after all, only the servant, something more is required in a work of art, something on which the human mind can work; for in all real art it is essential that underlying the mere representation the working of the directing mind and the touch of the executing hand should be evident. In certain work the skill of the hand is alone sufficient to justify the work; in the Roman stucco, for instance, how great a charm is imparted by the hand traces left upon them. In the work of Rodin, how much does it owe to the same cause, and in the work of Michael Angelo how do those parts so called unfinished yield traces of his consummately skilful hand moving as directed by his mighty brain—it brings the thing home to us, and seems to place us in immediate touch with the artist working at those grand conceptions which for four hundred years have filled so large a space in the history and development of art, and, to use a hackneyed phrase, which expresses, nevertheless, a profound truth, supplies the "touch of Nature that makes the whole world kin."

A Local Government Board inquiry has been held at Tottenham into the application of the urban district council for sanction to borrow £2,432 for the erection of a central cooking depot at the rear of the council buildings.

THE CEMENT GUN.

Perhaps no exhibit now being shown at the Cement Show in Toronto is awakening greater interest on the part of engineers and contractors than that ingenious piece of concrete machinery known as the "cement gun." Briefly stated, this machine consists of an engine and compressed-air tanks, with tank for the dry material, cement, and sand. The fact that the aggregates are mixed dry is the chief distinction between this process and former experiments, which have had to do with wet mixtures. Two lines of hose, one carrying the dry-mixed cement and sand, and the other water, converge in a brass nozzle, where the cement, sand, and water come into contact, the flow of water being governed by a faucet attached to the hose. The gun shoots the contents with great force, the nozzle being held about 2½ft. from the surface to be covered with cement or stucco. The machine acts with such force and precision as to make a perfectly mixed and dense waterproof concrete or mortar, apparently impossible to achieve except where great air-pressure is used. It is entirely automatic, and its precision is in marked contrast with hand-work, where the personal equation is such an important factor. A surface with interstices will be entirely filled instead of being bridged over, as is frequently the case with trowel-work. The machine will cover a square yard of surface with concrete 1in. thick in about two minutes. The concrete will be of a maximum density. In the construction of massive concrete, the stone could be first placed, and mortar or binding material applied by the machine. How satisfactory and economical it might be in work of this character was not so apparent, in a recent demonstration, as its wonderful utility in ordinary construction—such, for example, as stucco work, small buildings or fences requiring but an inch or two of dense and impervious cement mortar. To illustrate its utility in this field, an ordinary roll of chicken wire was bent into the form of a post, and upon the inside was placed ordinary sheathing paper. The hose was played over this form, and there quickly resulted a strong and perfectly satisfactory hollow waterproof concrete post, 8in. or 10in. in diameter, and with a uniform thickness of perhaps 2in. The same process of construction was applied to small structures, making what might be termed indestructible tents or buildings of thin concrete. One of these buildings, a most flimsy affair in the way of preliminary studding, wire, and paper, was filled with shavings and boards, and afterwards set on fire, the mass burning to ashes, but without heating the thin walls upon the exterior surface. The machine will undoubtedly bring about a veritable revolution in the construction of very small buildings, fences, posts, stucco work, and kindred operations, as it eliminates the use of forms and scaffolding, only ladders being required where it is impossible to use the machine with the workman on the ground. As stated, the water is added in the nozzle, the surface first receiving a thin coat of cement grout, followed in turn by additional cement and sand, until the required thickness of surface is obtained. By holding the nozzle stationary, a 5in. cone will soon protrude from the surface.—*The Contract Record.*

THE INCREASING COST OF HOUSE-PAINTERS' MATERIALS.

As the season of activity in the painting trade approaches, the dearness of some of the principal materials will, says a correspondent of the *Manchester Guardian*, be seriously felt. The present price of turpentine (about 74s. per cwt.) is exceedingly high, and compares with the low rate of 26s. 6d. per cwt. touched in 1909. In 1905 63s. 6d. was recorded; but since then there has been nothing approaching the present price. The upward movement began about the middle of 1909, and was at first regarded as a natural reaction from the extremely low prices previously ruling as the result of a glutted market. The higher prices have been brought about mainly through a falling off in the output. The three principal sources of supply are the United States, Russia, and

OBITUARY

[illegible] C.V.O., C.B.E., F.S.A.

[illegible] Director of the Victoria and Albert Museum, and previously to the [illegible] Museum, New York, died on [illegible] Court, [illegible] years [illegible] 1846 [illegible] the [illegible] Mr. Edward Maunde Thompson, C.B., [illegible] Director, through his [illegible] Secretary, organ[illegible]. He entered the Art Training School, South Kensington, in 1862, where he [illegible] much [illegible] as a student, [illegible] as an architect; he was employed in H.M. Office of Works on the new Houses of Parliament, the South Kensington Museum buildings, and afterwards at the Legation at Teheran. In 1869 he was commissioned to superintend the making of reproductions of works of art in Italy, and there was employed in the collection of art objects both in the Near East and in Southern Europe. His appointment as architect and agent to the Indian Commission of the Paris Exhibition of 1878 resulted in his selection to arrange that part of the old India Office [illegible] which was transferred to South Kensington in 1880, the remainder going to the British Museum or to Key South Kensington received the models, and, to fill the numerous gaps in this, Mr. Caesar Clarke [illegible] then visited India. So discriminating did he expend the sums placed at his disposal that, on his return in 1883, he received the appointment as Keeper of the Indian Museum, then first constituted as a branch of the South Kensington Museum. He held this office until 1892, when he was promoted to be Keeper of the Art Collections, becoming Assistant Director in 1893, and Director in 1896, a post which he held until 1909, when, it was understood, by financial considerations he unexpectedly resigned it for the Directorship of the Metropolitan Museum of New York, as successor to Major Cesnola. There he won golden opinions; but his health gave way under the great strain of his new duties, and after holding the appointment for less than five years, he retired and returned to this country. His work as an architect included many temporary exhibition buildings, Alexandra House for Students of Music, and the School of Cookery at South Kensington. His Fellowships of the Royal Institute of British Architects dated from 1888. He will be remembered as an able and popular writer and lecturer on a wide range of subjects connected with industrial and Oriental arts, from carpets and embroidery to armour and had the facility of winning the esteem and affection of his subordinates.

Mr. William Harris, who practised in Birmingham from 1847 till 1895 as a surveyor, but was more widely known as the founder of the Birmingham Liberal Caucus, died on Saturday at 5, Vicarage road, Edgbaston, from bronchitis and heart failure, in his eighty-fifth year. Mr. Harris was a native of Cheadle, and at the age of fifteen was articled to Mr. Isaac Newey, architect and surveyor, of Birmingham. At the termination of his articles at the age of twenty-one he commenced business upon his own account in Newhall street. In 1876 he was joined in partnership with Mr. Henry Martin, and three years later the firm was extended by the admission of his son, Mr. Arnold Harris. The firm was then known as Harris, Martin, and Harris; but in 1880 Mr. Martin retired. Mr. Harris himself retired in 1895. The most notable work with which Mr. Harris's name will ever be associated was that of the Borough and Rural Districts Drainage Board. Mr. Harris married, as his second wife, the widow of Mr. John Henry Chamberlain, the eminent Birmingham architect; Mrs. Harris survives him.

The death occurred on March 12, at St. Louis, U.S.A., of Mr. Charles W. Clark, of the firm of Messrs. Kent, Hall, and Charles W. Clark, well-known architects, whose offices are at Security Buildings in that city. He was born in West Virginia and was educated at the University of Illinois, where he took [illegible] [illegible] Exhibitions. He had been in practice at St. Louis for about thirty years, and during the great World's Fair there in 1904, he was in charge of the Government topographical exhibits. In conjunction with his partner, Mr. Fully, he carried out many important buildings, and a number of churches in St. Louis and its neighbourhood. At the time of his all too early death, the firm, amongst other important commissions, were engaged in the enlargement of Christ Church Cathedral, originally built from the designs of the late Mr. Leopold Eidlitz in 1857. This was not only the first Episcopal Cathedral to be built in the United States west of the Mississippi River, but bears the goodly reputation of being the finest Gothic ecclesiastical building erected in middle of last century, next to Trinity Church in the Broadway at New York. Amongst the additions at present being made to the interior of the fabric is an immense reredos of Caen stone, fifteenth century in character, 34ft. high, designed by Messrs. Fully and Clark, much on the same lines as are the high altar screens in St. Alban's Abbey and Winchester Cathedral. This ornate reredos is now nearing completion in the studios of Messrs. Harry Hems and Sons at Exeter. Mr. Clark, a gentleman of great ability, and of most charming personality, was the direct descendant of Benjamin Clark, who was first mate upon the "Mayflower," which carried the Puritan Fathers (102 in number) across the Atlantic in 1621. On arriving in America, they founded a colony at New Plymouth, and Clark, resigning his position on the ship, cast in his lot with them. The funeral of the deceased architect took place upon March 15, when he was cremated. Death was due to pneumonia. Mr. Clark was 57 years old at the time of his death. He was a member of the American Institute of Architects, and leaves a widow and an unmarried daughter, as well as a very wide circle of friends, to mourn his loss.

The salary of Mr. W. H. Taylor, surveyor to the Aylesbury Urban District Council, has been increased by £40 to £225 per annum.

Knaresborough Urban District Council having erected a new council chamber and suite of offices, at a cost approaching £3,500, these were formally declared open on Thursday in last week by the chairman.

On Monday a Local Government Board inquiry was held at Gosforth, into an application by the urban district council for permission to borrow £1,252 for street improvement works in Elmfield road and Woodbine road.

The funeral of the late Mr. Joseph Henry Garrett, who since 1889, had been chief surveyor for Worcestershire, took place on Thursday in last week at Worcester. Those present at the public service and at the graveside included many representatives of the county council and the county offices.

Mr. R. H. Bicknell, M.I.C.E., an Inspector of the Local Government Board, on Wednesday week held an inquiry in the council chamber relative to the application of the urban council to borrow £3,960 for the purpose of purchasing land at Walter's Farm and Lodge Oak Lane (at present held on lease by the council), for sewage disposal and allotments.

New municipal buildings are now in course of construction at Torquay, the contract price being £31,500. This building forms the remaining wing of the Carnegie Library erected in 1905 and was designed and is being erected under the supervision of Mr. Thomas Davison, architect, of London. It comprises a block of buildings in local limestone and Beer stone dressings, and provides accommodation for all the official departments of the corporation, council chamber, committee rooms and a public hall (42ft. long by 60ft. wide).

The Great Eastern Railway Company are about to increase the platform accommodation at Ipswich Station, and to construct four lines of rails as far as the new East Suffolk junction in order to allow room for Norwich and East Suffolk to be started simultaneously. The lengthening of the platforms involves the reconstruction of the bridge over Ancaster-road, while the bridge which carries the London road over the two sets of lines will have to be extended so as to accommodate the additional lines. Other improvements comprise the raising of the down platform and the construction of a bridge for luggage furnished with electric lifts.

CURRENTE CALAMO.

Mr. Dudley Ward was very plausible in the House of Commons on Monday, and the Lord Mayor at the Mansion House was justified in his protest against the screaminess of some of the criticism without knowledge of the plans of the Committee charged with the erection of the King Edward Memorial; but it will be just as well to watch carefully what *is* to be done. Silly sneers at architects and sculptors, like those of the Mayor of Chelsea, and his equally stupid attacks on monuments like the Albert Memorial and Mr. Alfred Gilbert's fountain in Piccadilly-circus, however, will not help the real end to be aimed at, which should be the preservation of the Park from further onslaughts of the sort it suffered at its western end in connection with the Victoria Memorial.

We were assured then that "only a few trees near Stafford House" would be destroyed, while, as a matter of fact, the Mall has been denuded of its avenues. On the face of it, there is really little actual objection to be offered to the straightening of the footpath and the substitution of a decent stone bridge across the lake for Digby Wyatt's iron structure, which is hardly such a thing of beauty as to be desired as a joy for ever. But the not unreasonable fear of those who love the Park is that the "path" may presently develop into a broad carriage-road, and the bridge blossom out into the centre-piece of a succession of "paved terraces, large vases, and stone seats, costing £20,000," such as Lord Carlisle dreads.

Our own present objection to the plan of the Memorial Committee is that it cuts too big a square out of the Park for the site of the statue itself, which, indeed, might just as well stand out in the centre of the Mall. Anyhow, the path is to open behind the statue, so there is no need to take more grass than is absolutely needed. If public opinion insists on this, there will not be much to grumble about, and no cause to waste time in clamouring for "competitions," when already a quite satisfactory choice of architect and sculptor has been made by the Committee.

Unless, indeed, we open a subscription for a silk rope for Mr. Lutyens, *pour encourager les autres* who are tarred with the rest by Mr. Henry Labouchere, in *Truth*, as obsessed with "the architect's idea of an improvement." Mr. Labouchere kindly assures us that "An Act ought to be passed making it a criminal offence to employ any architect in a London park for any purpose whatsoever. I would not object to a clause providing that any architect found guilty of preparing a plan for the improvement of a park should be hanged. That, however, will take time."

The hanging, or the passing of the Act, we wonder? Either way, let us hope the unfortunate victim of latent popular zeal in the sacred cause of sylvan beauty may be respited till it is actually known what his "plan" is, and whether he or his clients have sinned. The lynching of a Memorial Committee by a mob of protesters against "duplicates of Trafalgar Square," which Mr. Labouchere seems to fancy was an architect's crime, may yet more or less pleasantly reawaken the memory of the destruction of the Hyde Park railings, if the Red Terror comes!

The gilded Victory which now crowns the Victoria Memorial, in front of the dingy Palace, impresses one most viewed from the Park railings on the left of the Mall. She is splendidly poised on her globe, and we think when the whole below is visible, Mr. Brock's work will get the full praise it deserves. Some of the dailies appear quite happy in the conviction that the gilt and the white marble will soon tarnish. One would fain hope that it may not be many years ere London has learnt how to banish the smoke fiend that destroys her art treasures, and that the fame of the creator of the Victory may be coeval with that of the great Queen immortalised so worthily, if, indeed, less indelibly than in the heart of the English people.

The reasonable and temperate demand of the well-known architects and artists who have signed it, that before any scheme for re-organising the Royal College of Art is proceeded with which would affect its present constitution or its relation to national art education, a Royal Commission should be appointed to take into consideration the co-ordination of the methods of art education pursued by different bodies, aided by public funds or otherwise throughout the country, will, we hope, be acceded to by the Premier. It is too true that the real educational purpose of the art treasures in the Victoria and Albert Museum seems likely to be forgotten, and that it will become more and more a mere attraction for sight-seers. The need in England—if only that she may better meet foreign competition—is the more systematised co-ordination of graduated art training in art, with a view to industrial needs, such as other and wiser nations have secured. With that end in view, something must be done to insure and expand the educational use of the collections at South Kensington for the benefit of the students of the School of Design—now called the Royal College of Art—as an adjunct to which their original nucleus was formed at the instance of the Prince Consort.

Much as Marlborough House, in the last "fifties," housed the rather heterogeneous beginnings of our national science and art museums, so, by the King's thoughtfulness, the State rooms of Kensington Palace are placed at the disposal of the trustees of the projected London Museum, for the exhibition of the collections already and hereafter to be acquired. The trustees have received from a generous donor, who wishes to remain anonymous, a sum which enables them to lay the foundations of a museum on the lines of the Musee Carnavalet in Paris, and appeal to the public to make contributions by way of gifts or loans. We trust the appeal may be generous, and that its result may very soon compel the erection of an adequate permanent museum—dare we say it?—not necessarily one more at Kensington!

All good wishes and complete success to the National Trust's endeavour to save the precious mile and a quarter meadow walk by the bank of the Wandle, near Wimbledon. If it is not done we shall soon see the last of "the cress-set rivulet in which the sand danced and the minnows darted above the Springs of Wandel," and their memory only will be enshrined in "Præterita." Nearer London the stream already is a mere sewer, and there are those already hugging the evil certainty to their souls that as Wimbledon extends its red and yellow elegant villas down to the old river, the Wandle must be "turned into a culprit"!

We congratulate both the Metropolitan Water Board and those who have made it listen to them on its abandonment of the more objectionable scheme for making new reservoirs on the banks of the Thames. It is equally refreshing to find a readiness in a public body to listen to reason, and persistence enough on the part of those aggrieved to expedite that willingness. It is true that any well-advised body ought from the first to have seen that its new reservoirs meant spoiling the beauty of the river and increasing the risk of floods in the river valley; but it is probable that a private undertaking would have defied remonstrance, and that only the costly and possibly unsuccessful invocation of the always uncertain law could have made it see the error of its ways.

Until the General Provisions of the Local Government Board are issued, much of the Town-Planning literature now teeming must to a considerable extent be more or less provisional. As good a specimen as we have seen is "Town-Planning Schemes," by E. C. Bentley, LL.B., and S. Pointon Taylor, A.R.I.B.A. (London: Geo. Philip and Son, Ltd., 5s.) We are hardly so emphatically of opinion as the authors that "town planning is a difficult and complicated matter." It will be found so, no doubt, if amateur town planners or local bodies, armed with books of instructions, set to work to air their crotchets; and perhaps by some architects as well, who are content to assimilate their knowledge secondhand. In every case the safeguard will be the superintendence of a really efficient architect, free from fads and not too much wrapped up in more or less cognate schemes, some of which will probably be more or less engineered under cover of general zeal.

The eminent sanitarians who lately have rediscovered the delights of dirt, will be charmed to learn that their gospel was preached by no less an authority than Michael Angelo's father. Someone has found a fragment of a letter in which the pater thus counsels his son: "Above all things, take care of your head; keep it tolerably warm, and never wash yourself. Get a rub down, but no washing." I do not know whether the great Michael Angelo took his father's advice, but he lived to be nearly eighty-nine years of age. Probably then, as in the earlier days of hermits and saints, only the carnally fastidious objected to being "a rhyme modern etiquette never allows ye," as Barham put it.

The corporation of Southampton have decided to purchase for £4,200 the interesting buildings known as Tudor House and King John's Palace. The properties adjoin each other, the site acquired including land between St. Michael's-square, the West Quay, and Blue Anchor-lane, and are near the remains of the Town Wall. It is probable that the Tudor House will be utilised as a public museum.

An extension to the London Homœopathic Hospital in Great Ormond-street, W.C., to be known as the Sir Harry Tyler wing, is being added, from plans by Mr. E. T. Hall, F.R.I.B.A., and will be opened in June next. It contains three wards, with balconies overlooking Queen-square, and the enlarged waiting-hall. The basement includes a small operating-room, fully-fitted dressing-rooms for men and women, surgeons' and physicians' rooms, dental, electric, and X-ray rooms. The erection and equipment of the new wing have cost £30,000.

PROFESSIONAL AND TRADE SOCIETIES.

ARCHITECTURE AND THE DECORATIVE ARTS IN GERMANY.—Under the auspices of the Edinburgh Architectural Association, a lecture on "Architecture and the Decorative Arts in Germany" was delivered by Dr. Otto Schlapp in the rooms of the association, 117, George-street, Edinburgh, on the 22nd inst. Mr. James B. Dunn, F.R.I.B.A., president, occupied the chair. After some introductory remarks on the evolution of styles in Germany through Romanesque, Gothic, Renaissance, Baroque, Rococo, Bourgeois, Neo Classic, Neo Gothic, the chaotic and eclectic style of 1850-80, and the modern development suggested by the rise of industrialism and of engineering, Dr. Schlapp pointed out the English and Belgian influence on modern German architecture—the influence of Ruskin, Morris, Voysey, Baillie Scott, and Mackintosh. The lecturer then described the art movements in the chief German centres—Munich, Dresden, Darmstadt, Vienna, and Berlin—and finally discussed the possibility of creating a new style in architecture and in the applied arts expressive of the conditions of our modern life.

A CAVE-DWELLING AT WOOKEY HOLE.—Messrs. H. E. Balch and H. D. R. Troup gave the results of the investigation of a Late Celtic and Romano-British cave-dwelling at Wookey Hole, near Wells, Somerset, before the Society of Antiquaries at Burlington House on the 23rd inst. The authors have demonstrated that the entrance-gallery of the great cave of Wookey Hole (through which flows the subterranean River Axe, and which is removed only by the width of the ravine from the Hyæna Den, explored by Professor Boyd Dawkins fifty years ago) was in use as a cave-dwelling for an extended period before and during the Roman occupation. The removal of an insignificant deposit of superficial material disclosed floor refuse of the Roman age which extends to an average depth of 6in., and contains all the usual types of pottery, pins, needles, articles of bone and bronze, human remains, and coins ranging from Vespasian to Valentinian II. Some eighty coins are included in the list, and they cover practically the whole period. Below this is a deposit in which is to be found no trace of Roman influence, save that one silver coin of Marcia, 124-103 B.C., occurred near the top. Throughout the whole depth of the excavation relics of the domestic life of the cave inhabitants have occurred, exhibiting decorative art in pottery and in bone. There were also found a silver earring accompanying the left frontal bone of a girl, an ornament of bronze leaves, a bronze chain, and a bronze penannular brooch. Similar brooches in iron occurred in the upper deposits. Many iron articles were found, as well as fragments of an urn bearing impricked markings in definite groups, and bowls and a spade of wood.

ELECTRIC CRANES.—At a meeting of the Manchester Association of Students of the Institution of Civil Engineers held on Friday evening a paper was read by Mr. P. T. Maybury on "Electric Cranes," which are of great and increasing value to every engineer, and the design of which involves, he said, the solution of many problems in constructional, mechanical, and electrical engineering. The British engineer was not the first, Mr. Maybury explained, successfully to apply the electric drive to power cranes. The French had examples in use as early as 1883, and the Swiss were early users of them. Practically all up-to-date shops in the United States had adopted the electric drive by 1893, while the British engineer still preferred to keep to his rope and shaft driven cranes, which were then perhaps more reliable, if less efficient. To-day, however, it was generally recognised that electric cranes should be used in all cases where heavy or bulky articles had to be handled economically and with despatch.

INSECTS' DESTRUCTION OF TIMBER.—Dr. R. Stewart MacDougall delivered on Monday night a Keith lecture on "The Insect and Fungus Enemies of Timber," under the auspices of the Royal Scottish Society of Arts, at 117, George-street, Edinburgh. Professor Gemmell presided. Dr. MacDougall said that the loss might be due to attacks on the plants when these were in the nursery stage, as with the pine weevil, which every year in Britain, by biting pieces out of the bark, ruined many thousands of nursery pine, spruce, and larch. Or the damage might be done by other enemies which bored into the bark of grown trees, and tunnelled between the wood and the bark. Two very dangerous enemies of this kind in Britain were the elm bark beetle and the pine beetle. The various species of these bark and wood-borers were very like one another to the naked eye or the chance observer, but the forester could tell the species often by its habits. Certain species confined themselves to one kind of tree; others were found on several trees of related species. In fighting these injurious bark-borers it should be kept in mind that these beetles laid their eggs very willingly in unbarked trees that were lying in the wood. A severe blow-down by a gale was sure to be followed by an onset of these beetles if the trees were allowed to lie. They should be removed, or if labour difficulties made rapid removal of the blown or felled trees from the wood impracticable, then the logs should at least be barked, and this would mean protection for them. An excellent measure against these beetles when present was to fell a sickly tree here and there, and allow it to lie as a trap. The insects chose such traps for their breeding, and with the length of the life cycle of the species known, the trap trees could always be barked before the new brood issued. Amid other help from nature, the woodpecker among birds was of service. Sometimes the surgery of the woodpecker was misplaced, and telegraph and telephone poles which showed holes ought to have the holes filled up, so as to remove temptation from the woodpecker to make the hole bigger.

NORTHERN ARCHITECTURAL ASSOCIATION.—The annual meeting of this association was held on the 22nd inst. at 6, Higham-place, Newcastle, the president (Mr. H. C. Charleswood) occupying the chair. Mr. Charles S. Errington (hon. secretary) presented the annual report of the council for the fifty-seventh session, which showed that there were 92 members, 95 associates, and 46 students—a total of 233, as against 237 in the previous year. The council had carefully considered the representations made to them by local lead manufacturers with a view to local architects specifying sheet lead, lead pipes, and white-lead manufactured in the North-country, and it was felt that the proposal had much to commend it. The attention of the council having been drawn to the fact that the Ecclesiastical Commissioners publish a stereotyped set of plans, specifications, and quantities for parsonage houses, which the council considered detrimental to architectural practice, urgent representations were made to the Royal Institution on the matter, and the Ecclesiastical Commissioners had been urged to discontinue this procedure. The financial statement showed that the ordinary income amounted to £164 11s. 7d., and after all expenses had been met there was a balance in hand of £29 7s. 9d., as against £9 18s. 1d. the previous year. The reports were adopted. Mr. Marshall moved that a committee be formed to revise the rules and report the draft of the amendments to the association. He also thought the services of some professor should be obtained to assist the students in their work. The resolution to appoint a committee was agreed to. The meeting re-elected Mr. Charles Wood president, Mr. W. Milburn vice president, Mr. C. S. Errington hon. secretary, Mr. R. Burns Dick hon. treasurer, and Mr. J. Bruce hon. librarian.

NOTTINGHAM ARCHITECTURAL SOCIETY.—Major A. W. Brewill, F.R.I.B.A., the architect for the new buildings now being erected on Derby road to accommodate the various branches of the local territorials, invited the members of the Nottingham Architectural Society to inspect the buildings on Monday afternoon. Major Brewill first showed the plans and general arrangements, and then conducted the party over the portion now erected, pointing out the various features and methods of construction. The ground floor, which is to house the gun-carriages, is 100ft. long and 80ft. wide, and it is essential that very few columns to carry the floor above should be used. The architect has therefore adopted a system of reinforced concrete. The method of arranging the steel bars to reinforce the concrete floor and columns was examined, and at the close of the visit Mr. Harry Gill thanked Major Brewill for arranging the visit. Among those present were Messrs. W. R. Gleave, S. G. Walker, F. W. Gregory, W. A. Hickson, and the hon. secretary, Mr. Fred M. Royle.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—At the business meeting held on Monday evening the following candidates for membership were elected by show of hands under Bylaw 10—viz.:—As Fellows (3): Thomas Geoffry Lucas, John Brightmore Mitchell-Withers (Sheffield), William Henry Watkins (Bristol). As Associates (53): Alexander Adam (Glasgow), Leonard Barnish (Liverpool), Richard Thomas Beckett (Chester), William Beswick (Chester), Stanley Birkett (Manchester), Henry Edgar Bunce, Charles Frederick Butt, George Ralph Carter (Leicester), James Hubert Chaundler, Frank Louis Whitmarsh Clonx, William Victor Coates, (Grimsby), Kenneth Arthur Cockrill Gorleston, Leslie Douglas Coombs (Special Examination) (Dunedin, N.Z.), William Harold Crauford, Philip Wolf Davis, George Drysdale (Special Examination), Thomas Glynne Evans (Liverpool), Ernest Budge Glanfield (Special Examination), Edwin Stanley Hall, M.A.Oxon, Percy William Hathaway (Special Examination) (Rochdale), Leonard Keir Hett, William Thomas Higgins (Stony Stratford), Claude Vivian Hodges (West Bromwich), Thomas Harold Hughes (Aberdeen), Francis Seymour Hulbert, B.A.Cantab., Cyril Montagu Jones, Percy Kingsford Kipps, Thomas Arthur Lodge, Jun., Maurice Lyon, B.A., Leslie Mansfield, John Gray Martin (Oldham), Kenneth William Matheson, Bernard Frank Matthews (Southsea, Hants), Ernest Josiah Edwards Moore (Cardiff), Francis Edwin Spencer Munt, Joseph Peascod (Special Examination), William Jackson Pywell (Brighton), Norris Bathgate Robertson (Leicester), John Frank Schofield, Norman Fraser Shunks (Manchester), John Alan Slater, M.A.Cantab., Frank William Smith (Newark-on-Trent), Cecil Alfred Leonard Sutton (Nottingham), Edwin John Tanner, Charles William Ward Thompson (Special Examination) (Chatham), Sydney Tugwell (Special Examination) (Bournemouth), Marshall Eyre Walker, Herbert Arthur Welch, George Taylor Wellburn (Special Examination) (Redcar, Yorks), Joseph Horace Lyneham Wheatley (Petersfield), Herbert John Wilson (Peterborough), Arthur Winch (Leeds), Edward Leslie Wright (Cardiff).

YORK AND YORKSHIRE ARCHITECTURAL SOCIETY.—On Wednesday, the 22nd inst., Mr. W. E. Barry, A.R.I.B.A., of Hull, read a paper on "Garden Suburbs" before the above society. He first reviewed the possible effect of the Town Planning Act in the suburbs of our large cities, and drew a contrast between what was being done on the Continent of late years and what was being done here. Describing the general principles to be borne in mind when any garden suburb scheme is formulated, he said the natural beauties of the site—the trees, hills, and hollows—should be preserved, and not ruthlessly destroyed as they are in nine cases out of ten. As many roads as possible should run east and west, in order to secure to each house its share of sunshine. Avoid long, straight streets; guard against overcrowding the houses and cottages on the land; abundant open spaces to be reserved for fresh air and recreation, and generally endeavour to bring the quiet life of the country, the trees, and the colour and scent of the flowers within reach of the dweller in town. Mr. Barry went on to describe a few of the "new suburbs" now being formed—such as Letchworth, Hampstead, Earswick—and went fully into the detail and planning of the garden suburb at Hull which has been

laid out by him and his partner, Mr. Runton. The paper was illustrated by numerous lantern-slides, and plans of the different suburbs mentioned by Mr. Barry were arranged in the hall for inspection. Mr. C. H. Channon, F.R.I.B.A., proposed a vote of thanks, which was seconded by Councillor Dr. Sanderson Long and supported by Messrs. Burleigh, Scaife, and Dyer. The next meeting will be on April 19, when a paper will be read by Mr. Harold E. Henderson on "The Domestic Architecture of the Yorkshire Dales."

WATER PURIFICATION.—At the Bristol Conference of the Royal Sanitary Institute Colonel Molter presiding), Mr. J. A. MacPherson, chief engineer of the Bristol Waterworks Company, read a paper on "Modern Methods of Purification." Mr. MacPherson said it had been demonstrated that water underwent great improvement by being impounded in storage reservoirs before filtration. The best authorities asserted that if the storage was of sufficient duration it destroyed the microbes of water-borne disease. In this matter the Bristol Waterworks Company was specially well provided, having double storage for a large portion of its water. That from the Yeo Valley was stored in the Blagdon reservoir first, and then pumped to impounding reservoirs at Barrow, where it was again stored, together with the other waters there impounded. All river waters, and that from many gathering-grounds, should, even after the beneficial effects of storage, be filtered before delivery for supply. The filters were ten in number, and extended over 7¾ acres. The company had made many experiments with regard to sand, and the bulk of that which it now used was obtained from pits in the lower green-sand at Leighton Buzzard.

Building Intelligence.

GLASGOW.—The Institution of Mechanical Engineers at Storey's Gate, Westminster, adjoining the premises of H.M. Office of Works, and separated only by Prince's-street from the new site for the Institution of Civil Engineers, is about to be extended from plans by Mr. James Miller, A.R.S.A., F.R.I.B.A., of Blythswood-square, Glasgow, who is also the architect of the Civil Engineers' new premises. The whole front of Princes-street, including the Storey's Gate Tavern, is to be occupied by the flank of the Mechanical Engineers' house, and this flank will be formed with a raised colonnade of pillars, which, with the heavy stonework adopted, will agree in style with the Civil Engineers' building. The present tower on the Mechanical Engineers' building is to be entirely abolished, and a new one of a different style of architecture erected immediately over the site of the tavern. In this way the frontage to Great George-street will be modified so as to tone down the contrast in the three buildings. The new tower at the corner of Princes-street and Birdcage-walk will contain a grand staircase and lift giving access to all the floors. This sets free the space occupied by the present tower and staircase, and on each floor this space will become available for the extension of existing rooms or the provision of fresh accommodation. Thus in the basement the additional space will be utilised for the extension of the social-room, and on the ground floor for the extension of the present entrance-hall. The space set free on the mezzanine floor will not be added to the present reading-room, but will be formed into a lounge. A similar lounge will be provided on the first floor, adjacent to the library. This lounge will occupy the space up to the third floor. The third floor will be extended over the present tower, and will form an addition to the existing drawing and other Institution offices. The fourth floor, with its extension, is letable.

IPSWICH.—The plan of the sanatorium designed by Messrs. Bisshop and Cautley, architects, Museum-street, Ipswich, has been finally passed by the executive committee. It faces south, which is not directly across the valley towards Ipswich, but along the valley in the direction of Bucklesham-road. The administrative building is one of two stories, and while the open-air gallery on the ground floor is at the back, or on the north side, on the first floor the gallery is at the front, or on the south side. The windows will not be of glass, as ordinarily, but will consist of green venetian shutters or jalousies. Along the front of the first floor will be an iron balustrade, and the gallery behind. In front of the ground floor will be a broad concrete terrace, 10ft. wide, with four or five steps down to the gravel. Behind, and approached by two paths—one leading from the women's section of the patients' block, and another leading from the men's section—are the administrative buildings, where there is a large dining-room, at each end of which is a verandah. Behind the dining-room are the kitchen and the rooms devoted to the staff, while not far away to the east is the laundry, engine-room, boiler-house, etc. The buildings will have a red brick base, roughcast above, and with roofs of red tiles. All that will be done on the site, in addition to the erection and furnishing of the buildings, will be its enclosure and the making of the main drive from Foxhall-road to the buildings. All the rest of the work pertaining to the laying out of the grounds will be done by the patients, and will be a gradual process.

LICHFIELD.—The War Office has at length determined to rebuild the old barracks and other military buildings in the United Kingdom, and a start in this direction is to be made at Whittington. The new barracks will be designed to accommodate a battalion of infantry on a peace footing, and will be four stories high. Their total cost is estimated at £25,000, and of this sum £8,000 is to be spent during the forthcoming financial year. The ground floor will contain the eight dining-rooms — one for each company—together with the sergeants' mess, the corporals' mess, the canteen, the recreation-room, the orderly room, the offices, kitchens, etc. Above these will be the dormitories, divided into separate cubicles, each company having its own corridor. Bath-rooms will be provided upon every floor, and in sufficient numbers to meet the requirements of a whole battalion. A constant supply of hot and cold water will be maintained. The officers' quarters, together with their mess, will be situated in a separate block. £15,000 is the estimated cost of these buildings, of which £5,000 is to be spent within the next twelve months.

LIVERPOOL.—The new building which has been erected for the reception and treatment of out-patients at the Royal Infirmary was formally opened on Wednesday by the Earl of Sefton. The site is at the north-west corner of the hospital, at the junction of Pembroke-place and Brownlow-street. The building, furnishing and equipment have cost about £30,000. The department has been designed externally in harmony with the main block of the infirmary. It is constructed of fireproof materials. Care has been exercised to secure as much light as possible in every room and corridor, and to obtain effective ventilation.

NEWCASTLE-ON-TYNE.—The old Gaiety Music Hall, in Nelson-street, was reopened on Wednesday as a variety and picture hall. From the plans of Mr. Percy L. Browne, architect, of Pearl Buildings, a new entrance and fireproof staircase have been made, the staircases from Nelson-street have been enlarged and improved, the gallery has been restepped, the pit has been refloored and sloped, the dressing-rooms have been rebuilt, a new stage has been made, there is a new proscenium, the ceiling has been redecorated, and the whole place has been upholstered and painted. The general contractors were Messrs. Franklin and Sons, Newcastle. The hall holds an audience of 1,000.

A new German Lutheran church in Nile-street, Hull, on the site of the old building, was opened the other day. The church was designed by Mr. O. Hillcross, Hull, upon whom the German Emperor has conferred the Order of the Crown.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. George Norman, 85, The Grove, Hackney, N.E.

QUESTIONS.

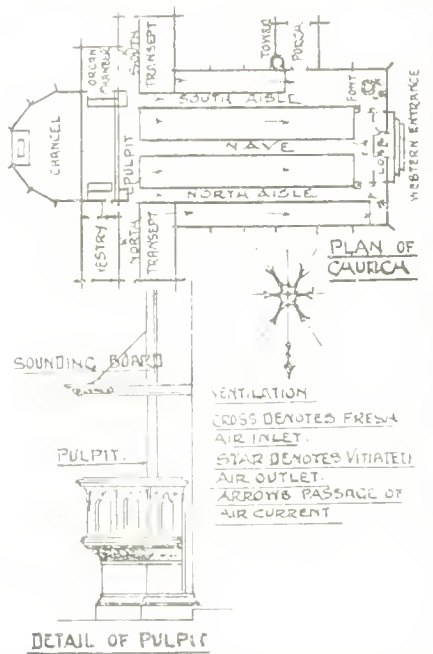
[13027.]—THE CORONATION STONE.—What is the geological origin of the Coronation stone,—the Stone of Destiny? Mr. Francis Bond, in his new volume, "Wood Carving in English Churches," refers to it as having been said to have been the one on which Jacob's head rested at Bethel; from whence it travelled to Egypt, and thence to Spain, Ireland, and lastly Scotland. Edward I. found the stone in 1296 at Scone Abbey, where the Scotch kings had always been crowned on it, and carried it to London. I cannot doubt that its origin has been geologically established; but I have been unable to find any information on this point, and shall be grateful to readers who can give it. I have seen it asserted somewhere I cannot find, that it originally came from Ireland, and was removed in 513 to Argyllshire by Fergus, son of Eric. The monkish legend of Jabob's pillow may be easily dismissed. Is it probable that it was quarried from the rocks near Scone? Surely it must be known.—W. H. Robinson, Walsall.

[13028.]—ROADWAY.—A roadway is required into premises where space is valuable. The traffic will consist of the largest railway delivery waggons. The road is to have a single track, with a turning space at the top sufficiently long to allow of one waggon standing in it while another waggon turns and drives out. What should be the width of the track between kerbs, and the length and width of the turning space, also between the kerbs? How much clearance should be left in the turning space between kerb and adjoining buildings, to allow for the tail overhang of a waggon turning?—R. W.

[13029.]—EXPANSION AND RESILIENCE.—An iron bar, 18ft. long, 1½in. diameter, is heated to 400deg. F.; nuts on its ends are then screwed up, so as to bear against the walls of a house which have fallen away from the perpendicular. Find the pull on the walls when the bar has cooled to 300deg. F. Coefficient of expansion of iron .0000068 per degree Fahrenheit. (2) A bar of 2in. round iron, 3ft. long, is turned down to 1in. diameter over the centre foot length. Compare its resilience—first, with that of the original bar; second, with that of a uniform bar of the same weight.—"Student."

REPLIES.

[13025.]—SOUND.—In answer to "H. E. P.'s" query as regards the difficulty of hearing the preacher in a church, it is usually found necessary to act to a great extent experimentally, and I, therefore, as no details are given, and no mention made of any devices which have been tried and have failed, can only give the lines on which experiment might be conducted, having regard to what has been done elsewhere to remedy the same defect. It is not mentioned where the pulpit is situated, or whether its position can be altered, but unexpectedly satisfactory results have been gained in "difficult" churches by experiment with a temporary pulpit in different positions, and at different heights. In cases where there are transepts, and difficulty is felt in filling the nave, a point in the chancel may sometimes be found where just so much assistance is given by the chancel walls to send the voice down the nave without cutting it off from the transepts. If it has not already been done, a sounding-board might be tried. It seems agreed, and confirmed by experiment, that a large amount of air above and behind the speaker is injurious, and a sounding-board is advantageous in cutting off a great mass of the air in the upper part of the church from the direct influence of the preacher's voice. Considering how simply a temporary sounding-board can be made and how easily fixed, this is probably the first expedient which should be tried in an attempt to improve the speaking in a "difficult" church, especially where it may be inconvenient to move the pulpit. The wood for a sounding-board should be cut thin, be thoroughly well seasoned and fixed in as few pieces as possible. The sounding-board should be large, and experiment made to determine the best height and position for it. If hung horizontally it will be most likely to be of use, if placed well over the speaker; but if allowed to drop a little at the back (inclined at about 20deg.), a position in which its efficiency will be likely to be increased, it may then be safely kept further back. As regards reflectors placed behind the preacher, a



DETAIL OF PULPIT

the [illegible] now hear the preacher quite distinctly. Since the fixing of the sounding board the ventilating scheme has been altered by introducing the air along the line of the transepts (see plans) and exhausting at the west end of the church, which has further yielded up into a marked way to the hearing of ones voice from the pulpit whether sitting in the nave, aisle, or transept. The plan herewith illustrated is shown merely as a practical guide, based on experience, so that anyone can judge for himself whether the church in question is of similar design, and if so, the type of hitherto heterogeneous are to be recommended, to completely remedy the defect.—Chas. V. Lovelace, 19, Nhos road, Denmark Park, London.

[13961] SOUND.—The old fancy of a jug in front of the pulpit is not such that under good acoustic condition the voice could not be conveniently heard without reinforcement. There are several material detail which are not given by "H. B. P." If the speaker's voice can be heard well, reaching, inbounding, or proclaiming when the church is empty, then the decay of sound is probably not due to absorption by the cushions or the heating part of the congregation, but more probably to the height of the roof. If a sounding board or behind the pulpit, much of the sound is lost before it reaches the audience. In order to the above cases of the intensity of sound from the pulpit the neighbourhood of opposite bodies, which is speech above, or behind, the speaker, a sounding surface of wood or other material is erected as a reflector, to strengthen the sound in the direction of the audience. I would suggest the position of a sounding board about 3ft. 6in. long and 2ft. 6in. wide. They are usually finished octagonal or circular in shape. The board should be made of perfect hardwood battens, straight grained and dry, 1in. thick. The ends are to be quite flat, the upper to be 6in. from the back, and 6in. wide, panel equally 1in. in depth, 1in. thick, also a suitable moulding of similar dimension round the other on top. The whole glued together, with no screw or nail. When prepared and hung from a suitable suspending point, about 8ft. 6in. to 9ft. clear from the floor and in front of the pulpit it may be fixed by making with the church. It will give some which it will indicate the note to be aimed at. 6. the lowest vibration range. If necessary, the board can be "tuned" by planing down the ribs or adding additional ones. It is assumed that such a sounding board does not exist. If the one mentioned is preferred, a larger, rectangular reflecting board, of similar construction, can be suspended by each [illegible]

[13962] PAINT FOR CONCRETE FLOOR.—I cannot recommend a paint, nor a stain which will wear well as a covering for a concrete floor, but I suggest that the floor be thoroughly cleared of all dirt, and washed with water. Before it dries off, apply a tint made from mineral oxide and water. For red, use red oxide; for buff, use yellow and red oxide mixed; for grey, it will not be necessary to use any stain. Then, when the floor is thoroughly dry, apply three or four coat of a solution one part water glass (sodium silicate) and three parts water. The floor must be allowed to dry thoroughly between each coat, and washed off with water also, to remove any of the sodium silicate that has not entered into chemical combination with the alkalies in the concrete. This solution must be used quickly immediately it is made, and applied with a large "distemper" brush evenly. This treatment will give the floor an insoluble and hard surface, and the stain which should be applied after testing for tint on a small piece of the floor) will be fixed.—George Norman, 56, The Grove, Hackney, N.E.

[13963] PAINT FOR CONCRETE FLOOR.—The following specification will give satisfaction. First, prepare the surface of the concrete floor by well sizing over with dilute hydrochloric or sulphuric acid (5 per cent. strength applied with fibre brushes), to neutralise the free alkali, afterwards well washing off with clean water. A size consisting of alum, acetic acid (1 strength, 33 acid to 100 water), and water, in the proportion of 1lb., 1 pint, and 2 gallons respectively will also be found suitable. It is important that this preparing of the concrete surface is properly and thoroughly executed for a successful and lasting finish to be had. The neutralising of the alkali first gives the necessary key for the priming coat, binding the two well together, and thus preventing the likelihood of the subsequent coats of paint cracking or peeling off, provided the method of procedure as herewith specified is adhered to throughout. Secondly, it prevents any action taking place between the cement and paint, which thereby stops the paint from being bleached in places, otherwise the will finally show itself upon the surface in patches, gradually increasing until the whole is completely discoloured. When perfectly dry (allow at least 24 hours), prime the surface with a good thick coat of red-lead paint, and when dry, the second and third coat, finishing with the desired colour. Red-lead forms with linseed oil a hard elastic surface that adheres to the concrete surface with great tenacity. Owing to the wear and tear upon a floor, and the variations in temperature to which it is likely to be subjected, red-lead paint is therefore superior to any other for the reason just mentioned. The finishing coat for either of the shade mentioned should consist of: 7lb. white lead and from 1lb. to 1½lb. of colour, according to depth required, ground fine in oil, and thinned with two pint mixture varnish, quarter pint of gold size, quarter pint of driers, and a half gallon of turpentine. For red, use either oxide or Indian, dark red; 1½lb. Venetian red and 1lb. Spanish ochre, buff, yellow ochre mixed with permanganate brown to [illegible] pleasing shade. For grey, use either [illegible] Bridgwick Chas. A. Longley, 27, Evelyn-road, Denmark Park, London.

[13964] PAINT FOR CONCRETE FLOOR.—N. B. H. should apply two coat of the following paint the floor being quite clean and dry previously. 1. Dissolve common glue in broken line in turpentine until of the consistency of treacle. 2. Form oxide of zinc into a paste with boiled linseed oil. 3. While rubbing the glue gradually to the oxide of zinc, until the whole of the consistency of paint suitable for use. All red, black or oxide of iron to be used but.—G. Wimbourn.

[13965] PAINT FOR CONCRETE FLOOR.—Paint is hardly the covering for a concrete floor, as the traffic is sure to damage the surface, whilst in a basement this would be much more noticeable, [illegible] amount of the heavier footgear worn by the occupiers, that is, say, a bedroom, and nothing would look up worse than a large painted surface. In the selection of a floor covering so much depends upon what is going to be made of the basement. For a cheap covering, Cork Lino, Linoka, and other similar articles are the best, having few joints, perfectly hygienic, easily cleaned. A wide variety of patterns are obtainable, whilst the Inland Linoka give practically everlasting wear. If the basement is to be used for domestic purposes Cork Lino is the best covering, if for a shop, leave the concrete as it is. Such is the advice of a practical builder in this district.—K. H. Read, Lecturer on Building Construction, Gloucester Technical Schools.

[13966] PAINT FOR CONCRETE FLOOR.—The following is by Mr. Charles Macnichol, of Washington, D.C., and appeared in the BUILDING NEWS some time back, the extract from which I have kept. It refers to cement and concrete alike. He think the failure manifest in the past is due to the painter's lack of knowledge of oil being proof against the alkali in cement, and of the chemicals necessary for the neutralisation of the excess alkalies. His method is as follows: It consists in applying to the surface a solution of zinc sulphate and water, mixed in equal parts by weight, and using an ordinary brush. Applied after the cement is dry. The surface is allowed from forty-eight to seventy-two hours for drying, and is then as safe to paint as an ordinary plaster wall. A similar treatment is required for concrete because, when Portland cement sets a certain amount of lime is set free in a hydrated condition as calcium hydroxide. This being a strong alkali, tends to saponify the oil in the paint coating, and thus destroy it. The application of the zinc sulphate destroys the alkalinity, and changes the calcium hydroxide into a mixture of calcium sulphate and zinc oxide. This method has the advantage of stopping the pores of the concrete, and thus effects a saving in paint. Another writer of experience—and it is to these we must go—says: "Among the many methods of preparing concrete for painting is to coat the surface with a solution of 10lb. of carbonate of ammonia to 1 gallons of water. The solution is applied with a brush once, and left to dry. Insoluble calcium carbonate is formed on the surface and a large amount of ammonia is liberated. This leaves a perfect surface for painting." This writer also refers to the zinc sulphate mentioned earlier, saying that when paint is applied it becomes incorporated with it, and gives lasting and durable qualities. The zinc sulphate has no known injurious effect upon concrete or cement surfaces, and, consequently, there is no disintegrating chemical change set up. The zinc sulphate method has been extensively used in all classes of buildings.—Leonard F. Smith, Westhall, Clarendon-road, Redhill.

STATUES, MEMORIALS, &c.

THE QUEEN VICTORIA MEMORIAL. The memorial to Queen Victoria in St. James's Park executed by Mr. Thomas Brock, R.A., is being cleared of scaffolding. It is of white Carrara marble, with the exception of the figure of Victory forming the apex of the monument, and some small subsidiary details, which are of gilt bronze. Mr. Brock's design was approved by the King in June, 1902, and in May, 1909, the lower portion of the memorial was opened to the public view. That section comprised the marble basins, the retaining walls, the sculptured panels, the granite paving, the steps, the plateau, and the bronze electric lamps. Each basin measures 190ft. in length by 24ft. in width and 2ft. in depth. The central feature of the memorial consists of a large base supporting a square pillar, on the front of which is placed a colossal statue of Queen Victoria. On the remaining sides of the pillar are statuary groups representing "Motherhood," "Justice," and "Truth," modelled to the scale of 16ft. 6in. The pillar is crowned by the figure of Victory, with outspread wings. We illustrated the entire scheme for the memorial, by Sir Aston Webb, R.A., at the time of the settlement of the competition, in our issue of November 1 and 8, 1901.

The London County Council (Tramways and Improvements) Bill was read a second time in the House of Commons on Monday.

A site in the High-street, Redcar, at present occupied by the Globe Hotel, has been selected for a drill hall for the F (Redcar) Company 4th Batt. A.P.W.O. Yorkshire Regiment. Mr. W. Wardman, architect of Redcar, has prepared the plans.

Mrs. Rosa Newell, the daughter and one of the executors of the late Mr. George Edward Dering, of Wilwyn, has presented to the British Museum his collection of pre-Roman antiquities found some years since during the diversion of the high road from near Mr. Dering's house at Wilwyn. They include bronze ewers and pans, bronze heads, silver cups, and clay amphoræ.

The work of widening Crabbery-street, Stafford, has been commenced and some old buildings near the market hall are being pulled down. All the new buildings will be uniform in character, with ground-floor shops, and stone mullioned windows in the floors above. It is expected that the alterations will be completed by October.

Our Illustrations.

NATIONAL SILVER MEDAL DRAWINGS BY SYDNEY W. CLATWORTHY, ILLUSTRATING HISTORIC ORNAMENT.

Each of the fifteen individual objects represented on this plate has its own descriptive note, besides a general abstract account on the carvings; the allusions, however, to the relative size under each reduced drawing refer to the scale of the original drawings, and so do not apply to our reduced illustration; but inasmuch as figured sizes are given, this is of little consequence, though the fact has to be noted. The illustration is one of a pair which we have in hand, and for which drawings Mr. S. W. Clatworthy, of Warrington, was awarded a National Silver Medal at the last competition. All the examples are ivories, and the series commences with the 4th century and ends with the 14th century.

DESIGN FOR THE CATHEDRAL OF THE SACRED HEART, NEWARK, NEW JERSEY, U.S.A.

This illustration is from the drawing of the front elevation of the design submitted for the cathedral by Messrs. W. and G. Audsley. Only four firms were invited to submit designs, and the authors of the design here illustrated were the only Protestant architects, the three others being, naturally, Roman Catholics. The design is in French 13th-Century Gothic, carried out with remarkable purity and spirit. The drawing is the work of Mr. G. A. Audsley, and is one which leaves absolutely nothing to the imagination, even to the minutest detail. The limited cost stipulated—one million dollars—rendered great elaboration impossible; so the architects depended on dignity and refinement of proportion and form to produce a worthy architectural effect. How far they were successful can be realised from the drawing. It may be added that the architects intended finishing all the interior walls and architectural features, save the roofs, in a rich system of natural polychromy, using coloured marbles, granites, Venetian mosaic, fine rich red brickwork, and warm-tinted stone. The roofs to be very magnificently decorated with figure subjects and rich illumination, after the style of the 13th-century manuscripts. Beyond this, the rich stained-glass windows would complete the grand colour scheme of the interior.

THE EVOLUTION OF THE CHAIR, BY CHARLES RIDGWAY.

NATIONAL COMPETITION DRAWINGS.

This somewhat comprehensive series of chairs, arranged from actual examples of historic design, was awarded a commendation by the judges, and it furnishes a usefully concise epitome of the subjects for ready reference, and so cannot fail to be of value to all who are interested in furniture. The Mediæval period is, however, not represented. The following are the descriptive notes furnished by Mr. George Ridgway, whose name is associated with the Manchester School of Art:—(I.) The Egyptian Chair, probably of wood, with stuffed seat. (II.) This Greek Chair is from a Greek vase painting. It was probably of wood, with an inlay of ivory in the legs. (III.) This Assyrian Chair, as represented in carving, was taken from an alabaster slab belonging to one of the Assyrian Temples. (IV.) This Roman Chair of oak, having a loose seat, was found in Rome. (V.) A Renaissance Chair of about 1470 A.D. (VI.) This Chair, of about 1520, or the time of Henry VIII., is of oak, with burnished leather back and seat. (VII.) An Elizabethan Chair, date about 1568. (VIII.) This Chair is of oak and upholstered in tapestry, was made about 1630, or early days of Charles I. (IX.) A Cromwellian Chair of typical character (about 1657), has an upholstered leather back and seat. (X.) A Stuart Chair, of Charles II.'s reign, say 1670. It is of oak, and belonged to the late Mr. Ernest Crofts, R.A. (XI.) A Jacobean Chair, dating about 1687, or the time of James II. It is made of oak, and is the property of Mr. Hugh Sleigh, of Leek. (XII.) A Queen Anne Chair of about 1712 period, being made of oak and upholstered in tapestry. It belongs to the Clayden House collection at Winslow. (XIII.) A handsome Chair of about 1750, designed by Thomas Chippendale. It is of mahogany, with upholstered cloth seat, and belongs to Mr. A. Hall. (XIV.) This Chinese fashioned Chair, of the same period as the last, was also designed by Thomas Chippendale, and is of mahogany. It is owned by Mr. H. Mullinson. (XV.) A Sheraton Chair of about 1788; is made of mahogany, and has an upholstered seat. (XVI.) A Georgian Armchair of about 1780, carried out in mahogany, with an upholstered seat. It is the property of Mr. G. Mullet. (XVII.) An English Chair of about 1820, designed in the Empire style, typical of the period. Tapestry is the description given of its upholstery. (We illustrated, in our issue of January 27 last, a series of measured drawings and designs for Chairs, for which the National Competition prize was awarded to Mr. Percy C. Massey, of Levenshulme.)

R.I.B.A. SILVER MEDAL PRIZE DRAWINGS, 1911: EDINGTON CHURCH, WILTSHIRE.

We reproduce to-day the half inch scale drawings of the details of the nave and aisles of this church by Mr. T. F. W. Grant, A.R.I.B.A., whose general drawings and description of the same building appeared in the BUILDING NEWS for February 24 last. This sheet, thus reduced for our double page plate, formed part of the excellent series for which the Council of the Royal Institute of British Architects awarded him the Institute Silver Medal for measured drawings this year.

The Hereford Corporation have decided to carry out an important street-improvement at the corner of Eign-street and Broad-street, the former thoroughfare being a continuation of the High-street. The premises at the angle of the streets have been acquired, and will be rebuilt and set back so as to widen both streets at their junction opposite All Saints' Church.

In the competition for the plans for the new $100,000 stock pavilion at Edmonton, Alberta, instituted by the exhibition directors of that city, Mr. R. W. Lines was awarded the first prize of $350, Mr. H. A. Magoon the second, of $200, and Mr. Henderson the third, of $200. The cost of the buiding, as estimated by Mr. Lines, is $108,000. Construction will proceed at an early date.

A new out-patient department is to be added to the hospital at Worthing as a memorial to King Edward. The new building has been designed by Mr. A. Morris Butler, F.R.I.B.A., and, including new entrance-gates and the provision of a covered way to the hospital proper, will cost nearly £2,700. A contract has been accepted, and the work is to be completed by the end of September.

A Bill has been presented to the Skupshtina with the object of securing funds to carry on extensive building operations in Belgrade, Servia. It appears that many Government offices are situated in premises held on lease, and that it is now proposed to erect independent buildings for the public service. The cost of this undertaking, including the enlargement of the Royal Palace, is estimated at 19,000,000fr. (£760,000).

The British Acting Commercial Attaché at Yokohama, Mr. R. Boulter, reports that according to the local press, it has been decided to erect a new hotel in Tokio at a cost of from 1,500,000 to 2,000,000 yen (£153,000 to £204,000). An address to which communications might be forwarded in this connection may be obtained by British manufacturers on application to the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C.

Owing to the reversion of leases, the far-famed Hospital of St. Cross at Winchester has experienced an increment of funds. It has been decided to effect the conversion of the master's old house, situate in the north-west corner of the triangle, into ten more dwellings, which will provide accommodation for as many additional brethren. Possibly a common hall will form part of the scheme. Plans for the extension have been prepared by Mr. T. G. Jackson, R.A., the architect to the trustees, and tenders are to be invited for carrying out the work.

COMPETITIONS.

OUR ADVERTISEMENT DESIGN COMPETITION.—To-day (March 31) is the latest date for sending in designs for the BUILDING NEWS Advertisement Design Competition. These must be delivered at Effingham House, Arundel-street, Strand, London, W.C.

MARYLEBONE TOWN HALL.—The borough council have received a report from the town-hall committee recommending that: (a) Designs for the new town hall be invited in open competition, and that an assessor be appointed to advise the committee in the preparation of the conditions and regulations governing such competition, and to select a design to be adopted by the council. (b) The President of the Institute of British Architects be requested to nominate three professional gentlemen from whom this committee be empowerd to select one as assessor. (c) The council do accept the offer of the president that two members of the committee be associated with the assessor to confer with him before the final selection of the plans. (d) The chairman and Mr. Alderman E. R. Debenham be appointed to confer and consult with the assessor as mentioned in the previous recommendation. After a long discussion, (a), (b), and (d) were approved, but (c) was rejected.

M. Oscar Roty, the well-known French engraver and sculptor, died in Paris on Thursday in last week, at the age of 65. He was awarded the Law Prize in 1875, and had exhibited every year since that date in the Paris Salon. M. Roty designed the allegorical figure of the female Sower for the French coins and stamps some years ago.

No important new work is to be commenced at Portsmouth Dockyard during 1911-12, but works already in hand or projected are to be pushed forward. Upon the new lock and dock an expenditure of £238,500 is to be made; the total cost of the works contemplated will be £1,300,000. An expenditure of £79,000 is proposed for providing accommodation for the floating dock.

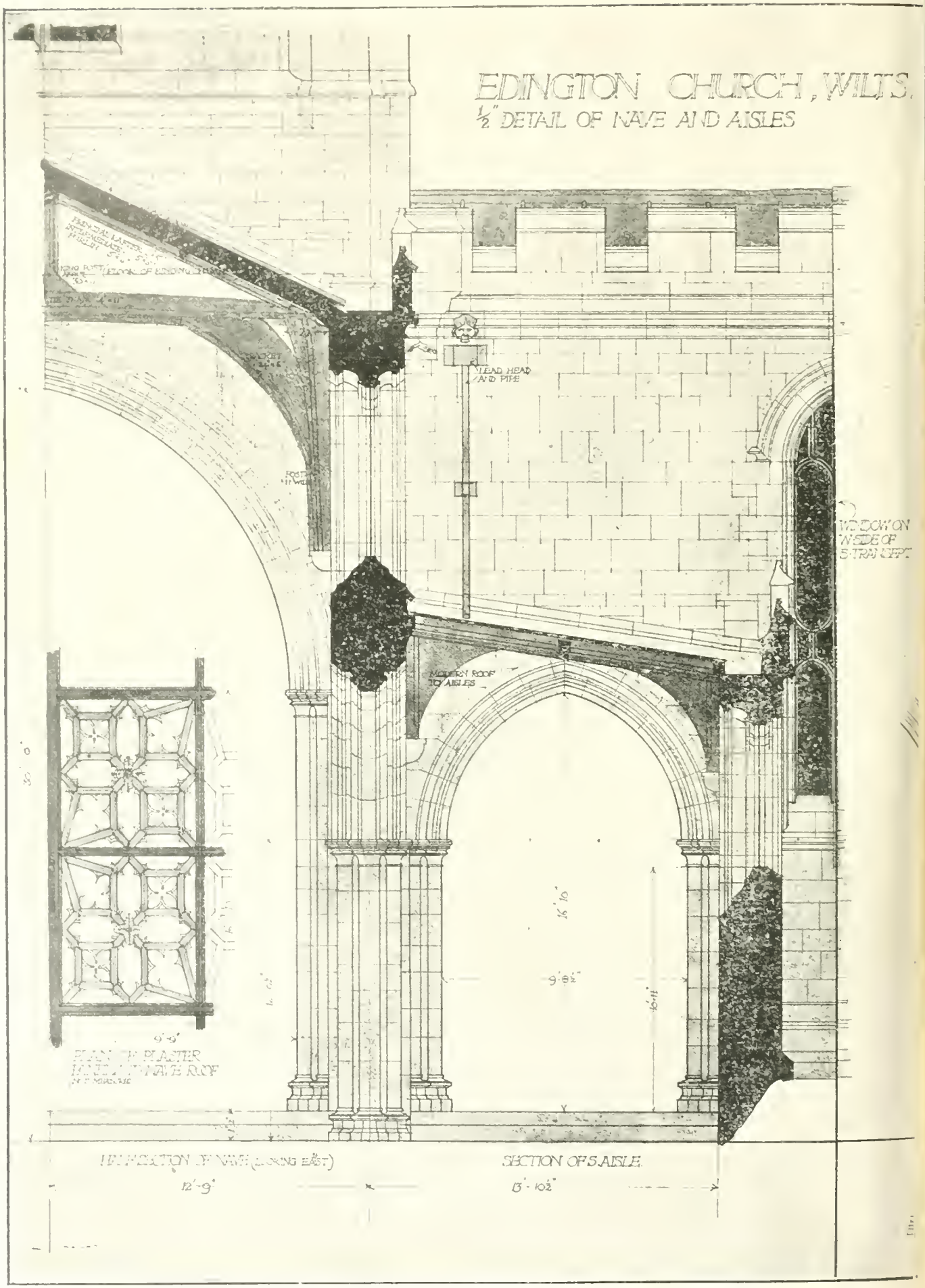
The Star Hotel, an ancient hostelry situated in the centre of the town of Shifnal, Shropshire, was destroyed by fire on Friday morning, and only the walls now remain of what was an interesting building. The hotel formerly belonged to the Pitt family, and was built about 1520. It was owned by the Wrekin Brewery Company, Wellington. In the commercial room was oak panelling some centuries old.

The London County Council has approved of drawings for buildings to be erected on the vacant site on the south side of Sardinia-street, between Kingsway and Lincoln's Inn Fields, which has been taken on lease by Messrs. King and Arnell. The elevation will be in brick and Portland stone, the materials used for the elevation of adjoining property. The architects are Messrs. Trehearne and Norman, of Lincoln's Inn Fields.

Westminster City Council has been recommended by the improvements committee to consent to the closing of Arundell-street and Arundell-square, Shaftesbury-avenue, in consideration of the payment to the council of the sum of £12,500 as a contribution towards the cost of street improvements in the city. The street and square form a cul-de-sac, and it is proposed to erect a block of new buildings on the site.

The Bessemer Gold Medal of the Iron and Steel Institute will this year be awarded to Professor Henri Le Chatelier, the eminent French metallurgist, in recognition of his great services in the advancement of metallurgical science. The presentation will be made by the Duke of Devonshire, President of the Institute, at the annual general meeting, to be held in London in May. The Andrew Carnegie Gold Medal for 1910 will also be awarded at the same meeting, the recipient being M. Felix Robin, Paris.

Suffolk is to lose and Southcliff, Clacton-on-Sea, is to gain a fine specimen of Tudor workmanship from the picturesque village of Hawstead, about four miles from Bury St. Edmund's. The building, which dates from the year 1499, is a very fine specimen of Early English half-timbered frame house construction. It is to be erected at the corner of Albany Gardens and Marine Parade East, Clacton-on-Sea, with a chimney-stack and some windows added, and an endeavour will be made to carry out the additions in strict conformity with the architectural detail of the original structure.



R.I.B.A. SILVER MEDAL PRIZE DRAWING, 1911.

VASE PAINTING

ASSYRIAN

EGYPTIAN ANCIENT

2

GREEK VASE PAINTING

HENRY VIII ABOUT 1520

6

OAK

QUEEN ANNE
ABOUT 1712

13

OAK

SHERATON
ABOUT 1788

15

MAHOGANY

NATIONAL

THE EVOLUTION

BY CH. J.

OAK

CHAIRS ABOUT 1630

CHIPPENDALE ABOUT 1750

18

MAHOGANY

ROMAN

EARLY EMPIRE ABOUT 1820.

17

OAK

RENAISSANCE

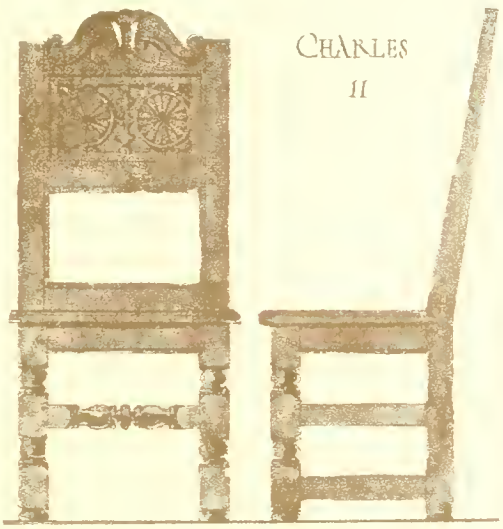
5

OAK

WELLIAN 9

OAK

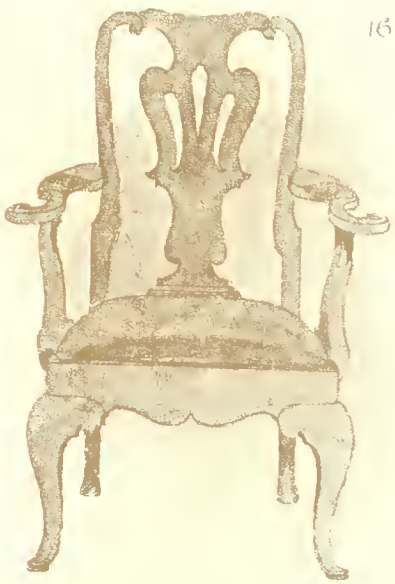
CHARLES II



OAK

GEORGIAN ABOUT 1780

16



MAHOGANY

DRAWINGS

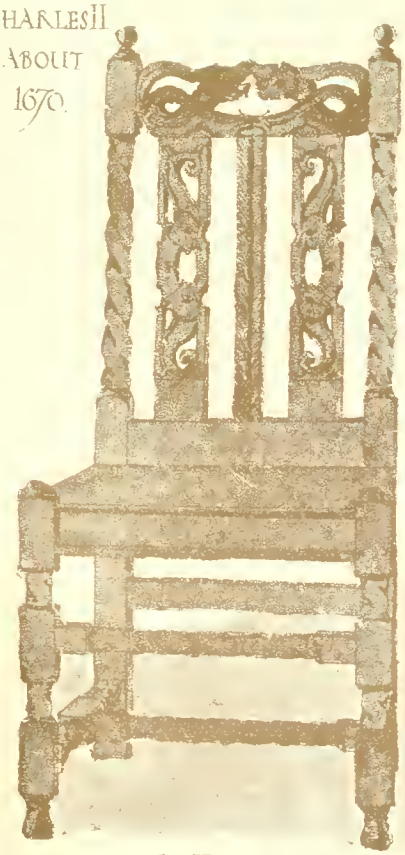
OF THE CHAIR

EDGWAY

7

CHARLES II ABOUT 1670.

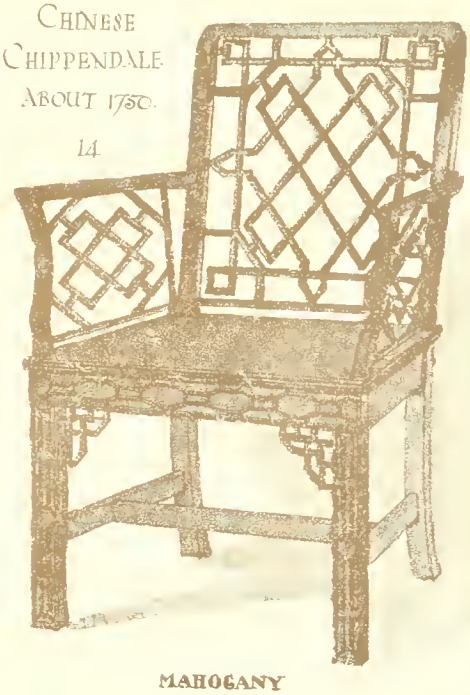
10



OAK

CHINESE CHIPPENDALE ABOUT 1750.

14



MAHOGANY

STUDIES OF IVORIES FROM S·K·M (4TH-14TH CENTURY)

LEAF OF A DIPTYCH - ROMAN 4th Cent.
Ht. 11¾" Wth 4¾" About ⅜ths Actual Size. Is purely Classical in conception, being probably adapted from some Greek original, with slight suggestion of heaviness resulting from Roman influence. Composition simple and broad, drapery stringy and diaphanous, with advanced evidence of form, treatment, and relief as decorative only possible in material workmanship; the very essential thing that Christian world at almost achievement in Art.

LEAF OF A CONSULAR DIPTYCH BYZANTINE - EARLY 6th CENTY.
Ht 14¾" Wth 5" ⅞ths Full Size

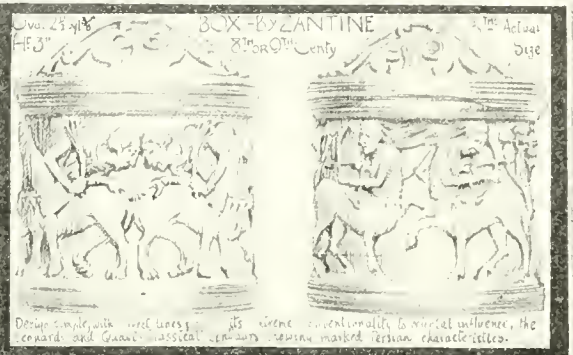
Shows characteristic early Byz. wide smooth face, and smooth muscle workmanship which was future of early 6th Cent. Is sound in design, with fairly good drawing and drapery falling in few and soft folds over rather chubby forms. Latest examples show impending trapezes, unstructural voids and overlooking of details. Often skilled, inscriptions learned in rest.

VIII PLAQVE (1 OF 5) 11th Cenly CARLOVINGIAN - Ht 3⅝ Wth 2¼" ⅝ths Actual Size.

FRONT AND ONE END OF VEROLI CASKET BYZANTINE 11th Century - Ht 4½ inches Lth 15¾ inches ⅜th Actual Size

BYZANTINE (Examples II III IV V I)

There was a steady determination in Byz. art from Hellenistic Roman Art until about 7th Cty. caused by (1) Rise of Christianity, adverse to images and stress of "non spirit in sensuous beauty and life", and stifling Barbarism, too ignorant to understand good work and incapable of good workmanship.
First important carvings are Consular diptychs (ends of 4th Cenly - middle of 6th) Earliest examples well designed in low relief monumentally, but later are inclined to flatness (see note No II)
From 5th century Iconoclast movement gave impetus to civil art and purified it by constant reference to Antique (No III). No IV is a typical example of secular Art.
Finest period was 10th-12th Cenly when invading Barbarians kept at bay, Byz. was left to develop "purely" and achieved its work marked by great form and technical workmanship (see No V VI)
Byz. Art adapted + related to Teutonic nations teaching them craftsmanship and design, enabling them to express later more emphatic + vigorous ideas. (See note on German work below)



Design simple, with vivid lines; its diverse conventionality to varied influences, the Lombard and Gaulish classical remains, Persian marked Persian characteristics.

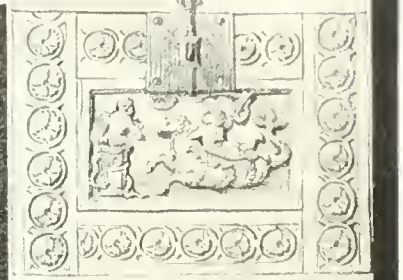
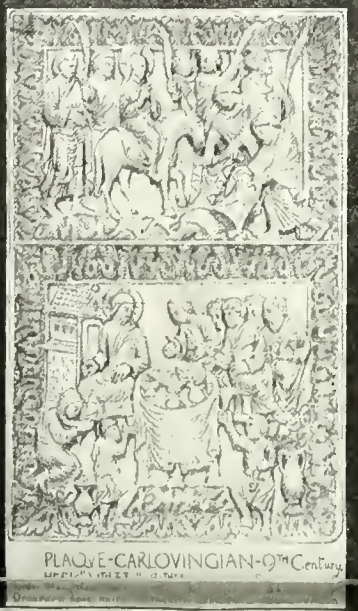
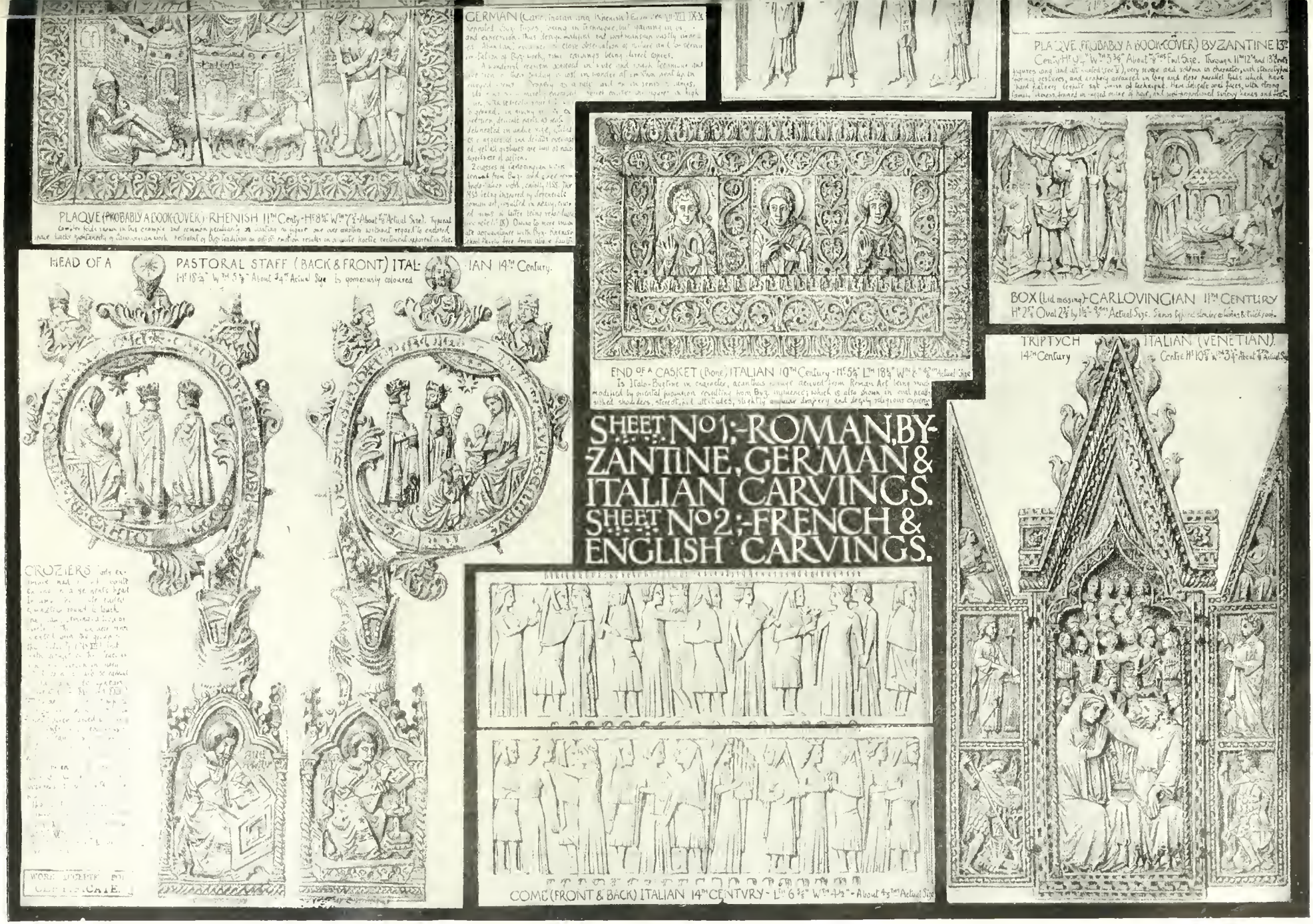


Figure spaces of this example inspired by Classical examples and rosette centers of Oriental derivation. Carved in high relief with freedom and spirit. Is characteristic of style as to: main end of 11th and 12th Cents, preponderance of width over height, slenderness of limbs, rest on small knees, exaggerated folds and drapery often misunderstood. Excellent neck and shoulders.



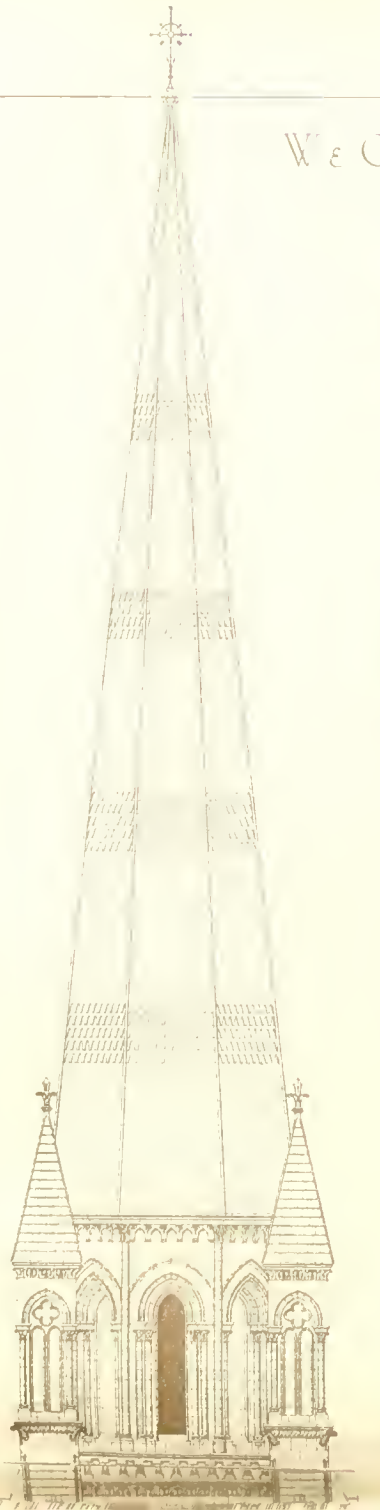
PLAQVE-CARLOVINGIAN-9th Century

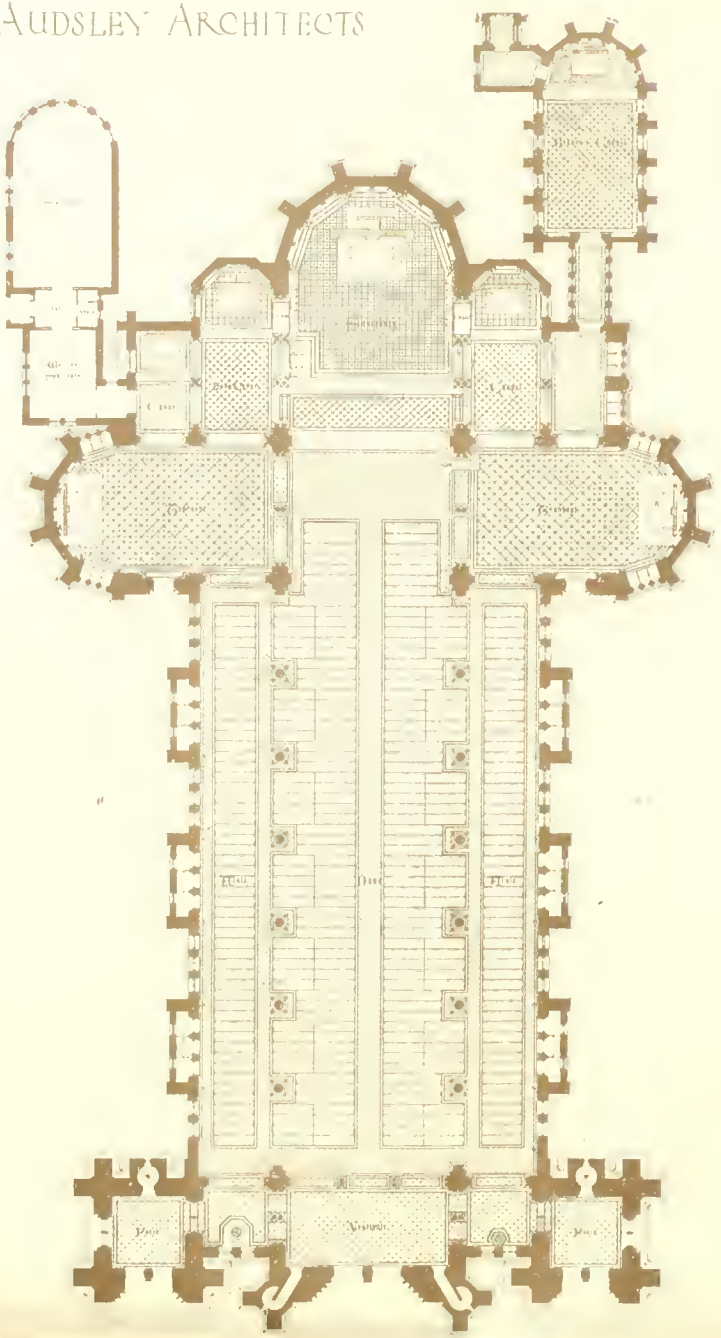

PLAQVE (PROBABLY A BOOK-COVER) - RHENISH 11th Centy - Ht 8¾" W.th 7⅞" - About ⅝ Actual Size).
PLAQVE (PROBABLY A BOOK-COVER) BY ZANTINE 13th Centy Ht 9" W.th 5 3/16" About ⅝ Actual Size.
HEAD OF A PASTORAL STAFF (BACK & FRONT) ITALIAN 14th Century.
Ht 18 2/3" W.th 5 3/4" About 3/4 Actual Size Is gorgeously coloured
CROZIERS
END OF A CASKET (Bone) ITALIAN 10th Century - Ht 5 1/4" L.th 18 1/2" W.th 2" 4/5 Actual Size
BOX (Lid missing) - CARLOVINGIAN 11th CENTURY
Ht 2 5/8" Oval 2 3/8" by 1 1/2" - 8/9ths Actual Size.
TRIPTYCH 14th Century
ITALIAN (VENETIAN).
Centre Ht 10 5/8" W.th 3 1/4" About 1/4 Actual Size
SHEET No 1;- ROMAN, BYZANTINE, GERMAN & ITALIAN CARVINGS.
SHEET No 2;- FRENCH & ENGLISH CARVINGS.
COMB (FRONT & BACK) ITALIAN 14th CENTVRY - L.th 6 3/4" W.th 4 1/2" - About 4/5 Actual Size

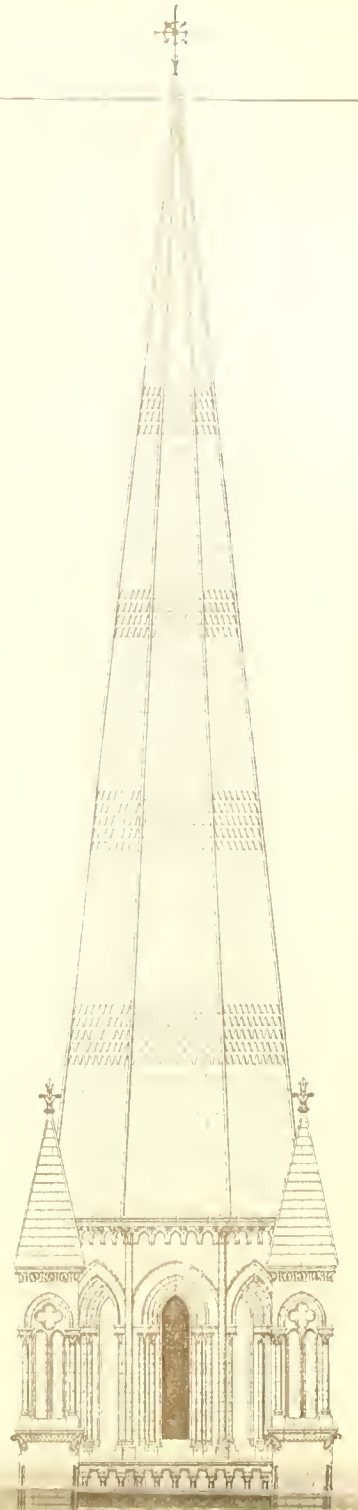
NATIONAL SILVER MEDAL DRAWINGS. By Sydney W. Clatworthy.

ILLUSTRATING HISTORIC ORNAMENT.—No. 1.

W & G AUDSLEY ARCHITECTS



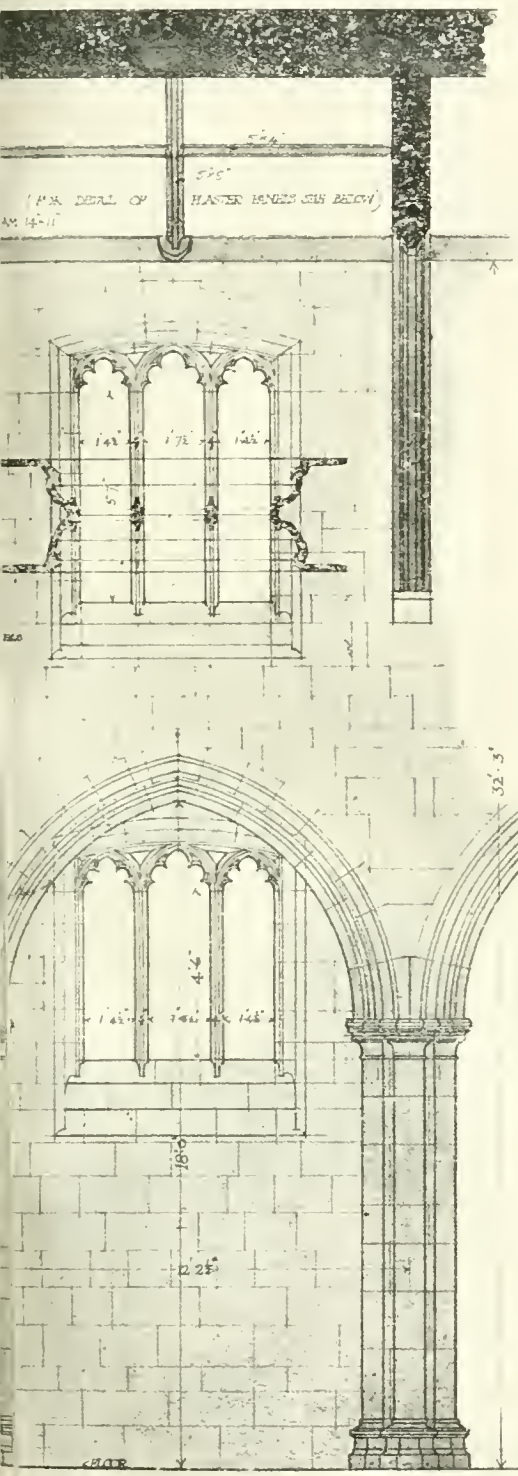




DESIGN SUBMITTED FOR NEW ROMAN CATHOLIC CATHEDRAL OF THE SACRED HEART, NEWARK, N.J.

SCALE OF FEET

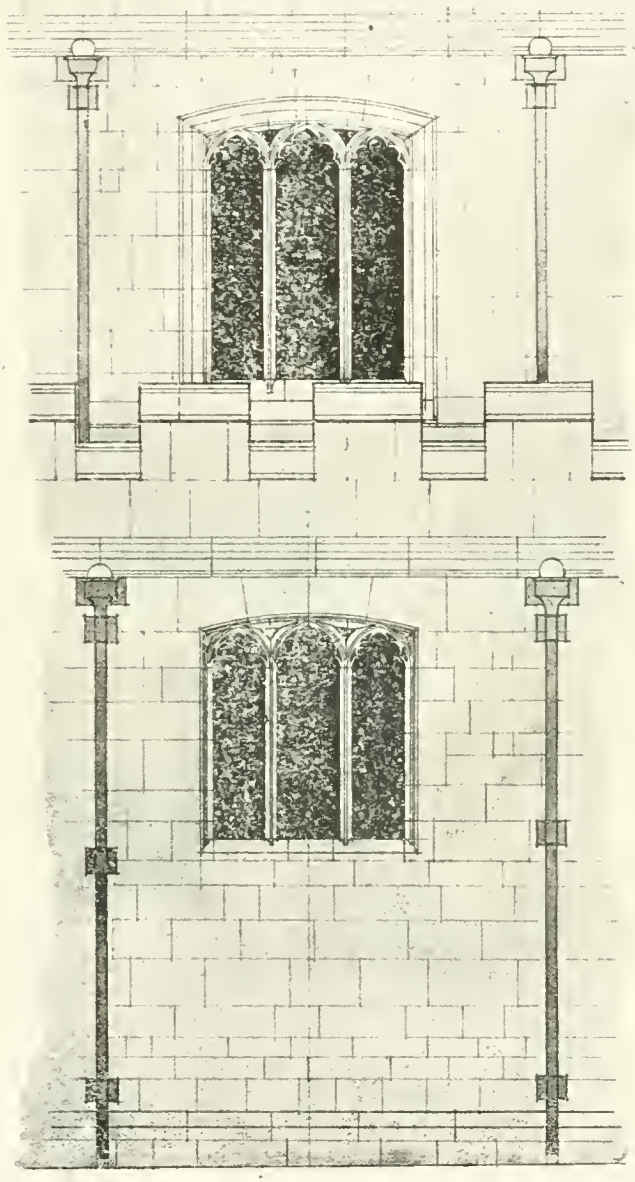
No 2.



ELEVATION OF ONE BAY (4TH FROM W. ON S. SIDE) (INSIDE)

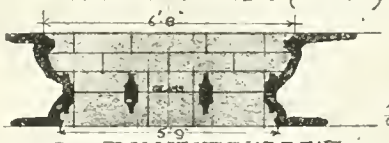
BASE

PLAN OF PIER



NAVE FLOOR

ELEVATION OF ONE BAY (OUTSIDE)



PLAN OF AISLE WINDOWS

MEASURED AND DRAWN ON THE SPOT. AUG. 1909.

ION CHURCH, WILTS. By T. F. W. Grant, A.R.I.B.A.

LEGAL INTELLIGENCE.

MEASURES BROS. LTD.'S FORMER MANAGING DIRECTOR SUMMONED.—ACCUSATION OF FALSE BALANCE SHEET.

Mr. Marsham sat sp[illegible] Bow Street yesterday (Thurs[illegible] a summons issued at the [illegible] of Public Prosecutions [illegible] Measures, for [illegible] a public company [illegible] Ltd., did unlawfully on [illegible] 1906 make, circulate, and publish [illegible] and balance [illegible] the corresponding December 31, 1906, which [illegible] was a material particular, to wit, [illegible] the value of the [illegible] in respect of the value of the stock in trade possessed by the said company on December 31, 1906, with intent thereby to deceive the members and shareholders of the said company, and to induce [illegible] persons to become shareholders therein. Messrs. Measures Bros are well known engineers and iron and steel merchants, carrying on business in Southwark street, S.E., and Croydon. Mr. W. H. Leycester and Mr. A. F. Rowe supported the summons on behalf of the Public Prosecutor, Mr. C. F. Gill, K.C., and Mr. J. R. Randolph defended. Sir Charle Mathews, the Public Prosecutor, occupied a seat on the magistrate's bench. At the outset, Mr. Gill said he only received the "informat" on the previous day, and at the close of the opening statement he should ask for an adjournment to enable him to consider what course to pursue at this court. The case was one which presented very considerable complications. In opening the case, Mr. Leycester said that the magistrate was about to undertake a long and intricate inquiry. The charge against the defendant was under Section 84 of the Larceny Act. The defendant was the managing director and chairman of the company and in addition to the charge mentioned in the summons, the jury would be asked to commit him for trial on similar charges in respect of the profit and loss account and balance sheet for 1904 and 1905, and for making a false certificate of the stock upon which those accounts were founded in each of those years. It was alleged that in the three years 1904-6, the value of the stock as stated in the balance sheet founded upon the defendant's own certificates, was, by very large amounts, greater than in fact it ought to have been. In 1904 the value of the stock was overstated by £12,000, in 1905 the quantity was overstated by 900 tons, and the value by more than £10,000, and in 1906 by 1,100 tons and £12,000 respectively. The effect of these false entries was largely to increase the apparent assets of the company, and, at the same time, to increase the apparent profits, if there were any profits, or to convert, in some cases, a loss into an apparent profit which did not exist. The company of Measures Bros., Ltd., was formed to take over the business which had been carried on by the defendant and his elder brother Mr. Richard Isaac Measures. The business was founded in 1870, and was for many years carried on very successfully by these two brothers. The work in which they were engaged was that of iron contractors and girder makers, bridge makers, iron merchants, and general engineers. In December, 1892, the business was converted into a private limited liability company, and on May 5, 1899, a public limited liability company was formed. The assets were then stated to be of the value of £126,418, and the goodwill at £203,582, old a total value of £330,000. The consideration was £210,000 in cash, and the balance in ordinary shares, 5½ per cent accumulative preference, and 4½ per cent. first mortgage debentures. The nominal value of the shares offered to the public was £240,000 and he believed that they were all taken up by the public. The share capital was afterwards increased in 1903, in which year a manufacturing business in the same trade which, up till then, had been carried on by the defendant's sons Harold and Gilbert, at Croydon was purchased by the company for £45,567. The consideration was £29,000 in cash, and 25,597 ordinary shares in the company. For that purpose, the nominal value of the company was increased to £315,000. By the articles of association the defendant and his elder brother Mr Richard Isaac Measures, were appointed directors, the defendant at that time being managing director and his brother the chairman of the company. Their salary was fixed at £1,200 a year. In 1902 Mr. Richard Isaac Measures retired from the business, and the defendant became the chairman and managing director, exercising general control and management of the business. Other members of the Measures family were directors of the company. Soon after the formation of the public company in 1899 came the South African War, and from that and other causes there set in a time of depression and bad trade which particularly affected the company. The result was that, incorrect as some of them were, the balance sheets showed diminishing profits and signs of diminishing business. For three years preceding the formation of the company the average profits amounted to £35,820 a year, and during the first year of the company's existence the profits amounted to over £53,000. This enabled the directors to pay a dividend of 10 per cent. on the ordinary shares. In 1900 the income of the business had already begun, but only a profit of £44,000 was made, and the same dividend was declared for the year. The profits next year again fell very considerably, and the dividend paid was reduced to 7½ per cent. In 1902 there was a profit made of £11,349, and a 5 per cent. dividend was paid. In order to do this, however, the founders surrendered their dividend, and the managing director waived half his fees, and £1,000 profits on unexecuted contracts had to be included in the year's accounts. In 1903 the profit amounted to £14,978, and again a 5 per cent. dividend was declared. The accuracy of the balance-sheets up to that period were not questioned by the prosecution. The directors' report for 1904 showed that a profit of £9,068 had been earned, which enabled them, by taking £2,500 from the contingency fund, to pay a dividend at the rate of 3½ per cent. But it was alleged that, so far from there being a profit for that year, there was actually a loss, which was cancelled by overstating the value of the stock in the balance-sheet. The accounts for 1905 showed a profit of £9,031, but no dividend was declared for that year on the ordinary shares, and in 1906 it was stated in the directors' report that that years profits amounted to £15,527. As a fact, however, it was alleged that, instead of there being a profit in 1905, there was a loss, and in 1906 the profit was very much less than that stated. Before the issuing of the next balance-sheet the defendant retired, and then for the first time a loss was shown on the year's trading. In 1907 and 1908 the directors reported that the accounts disclosed the fact that the business was being carried on at a loss. In 1908 there were many stormy shareholders' meetings, and in December of that year a shareholders' committee was appointed to investigate the affairs of the company. The result of their labours, which lasted many months, was that a Board of Trade inquiry was held. In September 1909 there was a creditors' petition, and in the following month a winding-up order was made by the Court. The affairs of the company were now in the hands of the Official Receiver, who was carrying on the business with a view of selling it on behalf of the shareholders. The result of the Official Receiver's examination of the books was, on the whole, favourable to the defendant, because some of the evidence given by the shareholders' committee could not be supported; but where there was any controversy of evidence the magistrate would be asked to take the view most favourable to the defendant. In January, 1909, the defendant held 68,422 ordinary shares besides preference and mortgage debentures, and between that date and the winding-up he had transferred the whole of them with the exception of 2,981. He transferred 20,000 to his own family without consideration and the remainder were sold for cash considerations. The suggestion of the prosecution was that, seeing the company going from bad to worse and rapidly approaching ruin, the defendant gave the false certificates to postpone the evil day and also to dispose of his own shares before the price had fallen to an extent which would practically have ruined him. The defendant himself organised and controlled the stocktaking, and the auditors had to rely on his figures. Counsel then went on to give details of the way in which he alleged the stock had been overstated. Resuming his speech after luncheon, Mr. Leycester said that the prosecution were not in possession of the stock sheets for 1904 and they were consequently unable to check the quantities given for that year. They had assumed, and perhaps rightly, that the total weight stated in the defendant's certificate was correct for that year. But it was alleged that, quite apart from quantities, the price put upon the stock by the defendant was too high for each of the years from 1904-1905. Mr. Leycester had not concluded his speech when the Court rose, and it will be resumed this (Friday) morning.

DISPUTE AS TO SKATING RINK CONTRACT.—At Birmingham Assizes on Saturday, before Mr. Justice Bray, an action was brought by Harrison Smith Buildings, Limited, Walsall, against Messrs. Bell and Co., 4, Chapel walks, Manchester, to recover £529 6s. 5d. for work done and materials supplied under a contract and for extras. The case for the plaintiffs was that by agreement contained in correspondence between the parties in 1909 the defendants agreed to pay to the plaintiffs £2,250 for erecting and fixing a skating-rink at Hamilton road, Manchester. The plaintiffs built the rink, but the defendants, after demand, refused to pay the balance due. They put in a counter-claim for £1,962 7s. damages on the ground that the contract was not carried out in a workmanlike and proper manner, and further that the work was not carried out in accordance with the terms of the contract, nor within the specified time, with the result that it was of less value to them than it would otherwise have been. In consequence of the work not having been properly done, the defendants would be compelled to renew the roof and the floor, and the defendants estimated the lost profits at the rate of £50 per week. Evidence having been given in support of the plaintiffs' case, there was a consultation between counsel, and it was announced that the parties had agreed to avoid what must necessarily be an expensive inquiry by coming to terms. There would be judgment for the plaintiffs on the claim with costs, and judgment for them also on the counter-claim with costs.

A BUILDER'S REFERENCE.—An action was heard in the Nottingham County Court on Monday, before his Honour Judge Allen, in which the plaintiffs were Messrs. Wood, Johnson, and Smith, timber merchants, Hull, and the defendant William Holbrook, builder, Lenton. The claim was for £50 12s. for goods sold and delivered personally or to an agent, and an alternative claim was for the amount as damages caused by the alleged fraudulent misrepresentation of defendant contained in a letter. Mr. E. Campion appeared for the plaintiffs, and Dr. Lindley represented defendant. Mr. Campion, in stating plaintiffs' case, said that the subject matter of the claim was for timber supplied on three different dates in October and November last year to the value, less carriage, of the amount claimed. The circumstances were peculiar. Plaintiffs had, prior to the time of these transactions, supplied goods to defendant, who was a speculative builder. When the goods in question were supplied, Holbrook had entered into some arrangement with a young man named Reid, who had been a builder in a small way, but had executed a deed of assignment with his creditors. In 1910 Reid answered an advertisement in a Nottingham newspaper offering work to bricklayers and joiners, and got into communication with Holbrook. Reid explained his position, and Holbrook made a suggestion that he could be better served by Reid if a contract were made with regard to the sale of a piece of land of about 1,128 square yards at Sandiacre. Three houses were to be erected on the ground. Mr. Holbrook to advance £75 per house. It appeared that Holbrook, after having made that contract, put Reid in possession, and himself took an active part in the actual building of the houses, in the buying and ordering of the materials. It was also alleged that Holbrook suggested a partnership, and a man named Hutchinson was put in as a dummy. When Reid and Hutchinson wanted timber from plaintiffs one of plaintiffs' firm wrote to Holbrook with regard to them, and Holbrook, on October 4, replied to the effect that "they have bought some land from me, and are putting up some houses. I recommended them to approach you for timber, and have no doubt you will find them all right. They are decent young fellows, and will pay the accounts due." If his Honour would compare that letter with the clauses of the contract between Holbrook and Reid, he would see how misleading it was. It was utterly untrue to say that Hutchinson and Reid had bought the land. Again, with regard to their paying the accounts, counsel said Hutchinson was merely put in as a dummy, and he was instructed that Reid told Holbrook that he (Reid) was penniless. Acting upon the letter, the timber was delivered, and plaintiffs now sought to show that Reid was in reality an agent for Holbrook. Correspondence was read by counsel to show that Reid mentioned Holbrook's name in ordering material, and to support the contention that Holbrook was the principal person concerned in the erection of the houses, and that the contract was a mere hollow sham.—William Reid, Hyson Green, said he did not buy any land, and there was no contract between Hutchinson and him. The former was a bricklayer. In cross-examination, witness insisted that he told Holbrook he had made a deed of assignment. Evidence was also given by Herbert Wood, of the plaintiffs' firm, who said it was on the strength of Holbrook's letter that the timber was supplied. Dr. Lindley, for the defence, said the two points at issue were first, whether the reference given by Holbrook was given bonâ fide, and, secondly, whether the contract entered into between Holbrook and Reid was genuine or bogus. The defence held that both were bonâ fide.—Mr. Holbrook, in the box, denied that Reid told him he was in financial difficulties before he signed the contract, or that he had

executed a deed of assignment, but, on the contrary, he said he had £200 to come to him. He emphatically denied that he suggested Reid should take a kind of bogus partner so that he could get credit. He paid various accounts for Reid because he said he was temporarily short of money, but it was understood that the money would be deducted out of the next "draw." He paid the men during Reid's illness. Cross-examined, defendant said he had now got the land and the houses. Altogether he had advanced between £200 and £400 for the building of the houses.—The Judge: But if your version is correct, the land belongs to Reid, and you have chosen to build houses on Reid's land. They therefore belong to Reid. In reply to Mr. Campion Mr. Holbrook said, although he sold the land to Reid, he had not received any money in respect of the sale. He expected that when the houses were finished, Reid would either repay him on receiving the £200, sell the houses, or execute a mortgage.—Joseph Hutchinson, who described himself as a bricklayer, of Peas Hill-road, said he declined to enter into partnership with Reid, and did not find out till afterwards that he was using his name.—In giving judgment, his Honour said that he had come to the conclusion that the letter of Mr. Holbrook with regard to the financial position of the two men was written with reckless regard as to whether it was true or not. Mr. Holbrook must have known that it was incorrect. His Honour believed that the statement in the letter was incorrect and untrue to the knowledge of Mr. Holbrook, that it was made recklessly, without caring whether it was true or not, and with the intention of inducing Wood and Company to give credit to Reid and Hutchinson. He therefore gave judgment for £40 on the alternative claim, with costs.

WATER SUPPLY AND SANITARY MATTERS.

KILKENNY.—The urban district council of Kilkenny have under consideration a report by Mr. P. H. McCarthy, C.E., Dublin, as to the proposed drainage of the city. Mr. McCarthy recommends that the sewers at present in existence be utilised as heretofore, to take road water and discharge it direct into the river, and that a new system of sewers be laid down to take the discharge from the house drains, and that it be conveyed by an intercepting sewer to purification works. His estimate of the total cost of the scheme is £30,000.

NEW STORM RELIEF SEWER FROM HOLLOWAY TO SHADWELL.—The London County Council propose shortly to proceed with the construction of the authorised new relief sewer from Holloway-road to the Tower of London, the cost of which has been roughly estimated at £250,000, subject to an addition of 10 per cent. for contingencies. The object of this sewer is to afford further relief to the northern high-level sewer in addition to that already given by the Holloway storm-relief sewer and the Camden-road branch of the Fleet storm-relief sewer. The main drainage committee reported to the Council on Tuesday that, after further consideration, they are of opinion that it would be desirable for the route of the sewer to lie further to the eastward, and for the outlet to be situated near the northern shaft of the Rotherhithe tunnel, on land at Shadwell acquired by the Council in connection with the construction of the tunnel. It is hoped that it will be found practicable to construct the sewer in such a position and the gradient will be such as to permit of its discharging by gravitation. In the first instance, the committee propose that expenditure of £1,000 should be sanctioned to cover the cost of making the necessary borings and of preparing plans. This expenditure is provided for in the draft capital estimates for the financial year 1911-12. The committee ask to be authorised during the Easter recess to accept the most favourable tender or tenders received, subject to the action taken being reported in due course.

The rural district council of Hemel Hempstead have received the sanction of the Local Government Board to the borrowing of £3,430 for the new sewerage works for Markyate, and £470 for the land required for sewage disposal works.

Smethwick Town Council appointed on Tuesday Mr. Alex Hoskins, acting borough surveyor, as borough engineer and surveyor in place of the late Mr. Fox-Allin, at a salary of £350 per year, rising by annual increments of £25 per annum to £450. Mr. Hoskins was also appointed architect to the Smethwick and Oldbury Joint Hospital Committee, at a salary of £20.

PARLIAMENTARY NOTES.

PUBLIC OFFICES IN GREAT GEORGE-STREET.—Mr. Wedgwood asked the hon. member for Southampton, as representing the First Commisisoner of Works, whether he would state when it was anticipated that the new public offices in Great George-street, Westminster, would be completed; and what Government departments were to be housed therein. Mr. Dudley Ward: The First Commissioner of Works anticipates that these new public offices will be completed in about five years' time; he does not wish at this early stage to commit himself to the exact arrangements which will be made for the occupation of this building.—Mr. Lough: Will any of these buildings project further into the Park than the old buildings? Mr. Dudley Ward: No; there will be a re-arrangement of the boundary; but the general effect will be to increase the area of the Park.

L.C.C. GENERAL POWERS BILL.—The Select Committee of the House of Commons, we regret to say, have rejected the clause in Part 4 of the London County Council General Powers Bill, under which the Council sought power to limit the size, weight, and character of signs, lamps, projections, and advertisements in the public thoroughfares. —The Bill was again under consideration on Tuesday, when the Committee passed the clause empowering the Council to contribute £1,000 towards a recreation-ground proposed to be acquired by the Willesden Urban District Council at a cost of £16,500. By another clause authority was asked for the payment to the members of any committee or sub-committee of reasonable travelling expenses incurred by them within the county area in the performance of duties entrusted to them in pursuance of instructions of the Council or its committees, but not any expense incurred in respect of attendance at the County Hall or any other offices of the Council used in connection therewith. Mr. Sankey, Chairman of the Parliamentary Committee, contended that there were special circumstances in London as compared with the districts of other local authorities which made it necessary that travelling expenses should be paid to the members of the County Council. There were under the control of the Council 114 parks and open spaces with an area of 5,100 acres, in which a thousand men were employed exclusive of casual labour. Instead of going round to the different places by tramway to inspect new works and to arrange for fresh acquisitions, it was found more expeditious to use motor-cars for visits of inspection, and for this purpose expenses amounting to about £80 a year had been incurred. After conferring in private, the Chairman announced that the committee by a majority had decided to grant the powers asked for. The time for the completion of the Thames Embankment Millbank Extension, along with the improvements in Westminster connected therewith, and also for the rebuilding of Catford Bridge sanctioned in 1900, was extended for two years until August 6, 1913.

PROJECTING SIGNS IN THE CITY.—The Committee of the House of Lords, Lord Kintore presiding, considered on Friday the remaining clauses of the City of London (Various Powers) Bill. It was proposed on behalf of the promoters to amend Clause 21, which gives power to the Corporation to make by-laws to control the erection of projecting signs and notices, by providing that the Corporation may dispense with the regulations in respect to particular classes of projections. This was further amended by providing that the by-law giving exemption should specify the classes to which it should apply. The amendment was then agreed to, and the clauses having been adjusted, the Bill was ordered to be reported to the House for third reading.

DRAINS AND SEWERS.—Without in any way expressing an opinion on the merits of the Private Bill drafted to straighten out the present muddle with regard to drains and sewers, the President of the Local Government Board, in reply to a question in the House, says that efforts are being made to arrive at a settlement of the problem.

The Dorking Rural District Council have elected Mr. G. E. Mullard, of Goring Heath, Reading, as surveyor.

A faculty has been granted for the erection of a tower at the south-west entrance to St. Bartholomew's Church, Ewood.

The Luton Board of Guardians have adopted a scheme to demolish the present women's infirmary and a block of buildings at the north-west wing of the workhouse, and erect a new block of buildings at an estimated cost of £5,700, and new quarters for the nurses at an estimated cost of £1,190.

Our Office Table.

Mr. Andrew T. Taylor, F.R.I.B.A., of Lyndhurst-road, Hampstead, has been elected Chairman of the Building Acts Committee of the London County Council for the existing year. At the Council meeting last week the following recommendations of the Establishment Committee were agreed to:—That the salary (£800) of Mr. J. Briggs, Chief Assistant Architect, be increased to £850 a year as from April 1, 1910, rising by annual increments of £50 to £1,000 a year; that Mr. R. Robertson, Assistant Architect, be promoted to be Divisional Architect for Schools, and that his salary (£600) be increased to £800 a year as from April 1, 1910; that the position of Assistant Architect (Schools) be abolished, and that an Assistant Divisional Architect for Schools be appointed, and that Mr. H. P. Perry (£500), Assistant Architect (Schools), be promoted to be Assistant Divisional Architect for Schools, and that his salary (£500), be increased to £550 a year as from April 1, 1910, rising by annual increments of £25 to £600 a year; that Mr. W. Hynam (£450), Principal Assistant, be promoted to be Assistant Architect at the commencing salary of £475 a year, rising a year later to £500 a year.

A very successful and largely-attended smoking concert and revel was given by the Athletic Club of the Architectural Association at the Pillar Hall, Victoria Station Restaurant, on Tuesday evening. Mr. Henry Tanner, Jun., F.R.I.B.A., ex-President of the Association, occupied the chair. The outstanding feature of the entertainment was a series of songs and impersonations, charmingly rendered by Miss Nina Gordon, of the Palace Theatre, and the programme also included pianoforte solos by Mr. Cecil G. Macdowell (who acted as accompanist), songs by Miss Lilian Sanders, and Mr. Thomas Ranger, banjo solos by Mr. Joseph Bull, musical sketches by Mr. Kenna Lawson, humorous ditties by Mr. Harry Turner, and exhibitions of bayonet fighting and boxing by members. During the evening the prizes won in athletic competitions were distributed by the chairman.

The fine church of St. Michael, Honiton, was destroyed by fire on Sunday morning. The tower and bells, with the main walls, were the only portions saved. The church, which was in the Perpendicular style, dates from the 14th century, but was largely rebuilt towards the close of the 15th century by Peter de Courtenay, Bishop of Exeter and Winchester. It stood on a hill about half a mile south of the town, and contained, among other interesting features, an elaborate rood-screen of Early 16th-Century work and the marble and alabaster tomb of Thomas Marwood, physician to Queen Elizabeth, who died in 1617, aged 105. The rood-screen, 46ft. in length, consisted of eleven large and two small bays, and had three double doors, and ranked third for beauty and elaboration of treatment of the many grand examples in Devonshire. Both the rood and chancel screens were elaborately wrought with strings of foliage, finely carved, and shields à bouche; they were restored by Mr. Harry Hems, of Exeter, under the direction of the late Mr. E. Ashworth, architect, in 1880. The organ, built in 1899 at a cost of £800, and a newly-erected pulpit of oak, were also destroyed.

The destruction by fire of the State Capitol at Albany on Wednesday last is believed to have been caused by the fusing of an electric wire, and deprives New York State of a building of great interest and charm, although lacking harmony and cohesion in design, having been the work of a succession of eminent architects from 1871 till 1898. It was commandingly situated on the summit of a hill, with a small park in front, and was in several phases of the French Renaissance style, being planned in the form of a quadrangle, with louvre towers at the angles. The building was of light-coloured granite, which contrasted pleasantly with the red-tiled roofs. The greater portion was planned by the late H. H. Richardson, of Brookline, Mass. The total cost is stated to have been five and a half

[illegible] Some of its most imposing features were constructed of shams. The great Assembly Chamber contained a ceiling of papier-mâché for which £[illegible] was charged. The State paid the rent of [illegible] and school rooms. The building [illegible] upon the water [illegible] damage has been [illegible] pounds. The State [illegible] Colonial [illegible] victories, [illegible] feet, its 600 [illegible] members' [illegible] state of the [illegible] prices were [illegible] to [illegible] sales. The [illegible] replacement [illegible] £40,000. The famous staircase, [illegible] £200,000 [illegible]. The [illegible] damage to the building is estimated at [illegible] £1,200,000.

The Coronation committee of the West London City Council have selected four designs for different parts of the city through which the Coronation processions will pass. The design suggested by Sir W. B. Richmond, Mr. Frank Brangwyn, Professor Moira, and Professor Lanteri was accepted for Piccadilly from Constitution Hill to St. James's street. The scheme submitted by Messrs. James Pain and Sons was adopted for Pall mall, Pall mall East, Trafalgar square, Duncannon street, Charing Cross, and Cockspur street; that of Messrs. Ryan and Sons for the Strand, Bridge street, Parliament square, and Broad Sanctuary; and that of Messrs. Boekbinder and Co. for Whitehall and Parliament street. The decoration of St. James's street will probably be carried out by the frontagers, as on former occasions, under the supervision of a local committee.

The great wrought iron and bronze gates under the Mall entrance gateway, which form part of the Victoria Memorial scheme, standing in the arches of the Admiralty extension, are on the eve of completion. These gates were designed by Sir Aston Webb, C.B., R.A. The centre gates are 44ft. high and 20ft. wide. The weight of iron used in the construction of the gates and railings is about 25 tons. The centre grille alone weighs about four tons. The Royal Arms and grille, and the wreaths on the gates are executed in cast bronze, and weigh, approximately, two tons.

The Rev. J. W. Wynne-Jones, now of Llanbedrog, who was until recently vicar of Carnarvon, writes to the daily Press giving out the extensive works of repairs to Carnarvon Castle carried out between 1870 and 1903 by the late Sir Llewellyn Turner, the Deputy Constable. "Sir Llewelyn, upon his appointment, travelled to many parts of Britain and abroad to visit castles and read a paper upon his own charge before the Society of Antiquaries, recounting. He husbanded the admission fees, which at 1d. a head amounted to some £500 a year, cleared out masses of filth and rubbish, endured a vast amount of cavil and censure partly from those who used the castle as a quarry, and satisfied such archæological authorities as were available. He was assisted by his foreman, Mr. John Jones, who worked for him nearly 30 years. Steps were replaced, vast accumulations removed, towers repaired and rebuilt."

In connection with the improvement which is being carried out by the corporation of Southampton at Southampton, near the boundary of the borough, interesting archæological discoveries have been made. Substantial remains of buildings have been disclosed by the excavators. A square block of masonry 70ft. by 12ft., with walls 6ft. in thickness, has been discovered. The massive character of the well and the state of preservation of the stonework suggest that the style employed in the construction of the Castle, that is, the well may date back to the Norman period. Other blocks of buildings have been revealed, and these are now being examined by the excavators, and it is thought that the remains of a building of some importance will be disclosed. The field is said to be the site of the Manor House of North Stoneham, which has been [illegible] a local forest [illegible] as [illegible] the alternative [illegible] Stoneham [illegible] Canterbury Hundreds, which Members of Parliament accept when they wish to vacate their seats.

The *Irish Builder* for March. Mr. W. S. Sparrow attempts to solve the problem of the primitive round house became square and oblong. He traces this transition from the period of the long barrows through the beehive houses on the island of Skellig Michael in Kerry. The necessity, as agriculture developed, of forming a winter shelter for cattle led to the adoption of the oblong shed, the ends of which were supported by the forked tree known as gavel or crutch. This form of shed architecture came gradually to be extended to the round family hut as the needs of social life gave rise to the demand for larger roofed structures, which could not be provided in the circular building, and as the growth of the power of the chief made it necessary for him to sit on a dais at some distance from his retainers. The adoption of the crutch as a roof support naturally led to the practice of doing away with the curved spaces at the sides of the house by flattening the outer wall, which, as in the lake village of Glastonbury, then came to be made of long hurdles.

The county council of West Suffolk have adopted a report by their highway committee devising a scheme for the maintenance and improvement of main roads. The report recommended that, with the exception of the Glemsford urban district, the principle to be adopted in the urban districts should be that of subsidising such roads as may be deemed to be continuations of main roads. The principle was based upon the provisions of the Local Government Board Act, 1888, sec. 11 (d), and Local Government Act, 1894, sec. 25 (3). It was further recommended that the services of an independent competent engineer or surveyor be employed to inspect and report upon the several roads mentioned in the schedules, except those in the Bury St. Edmunds urban district, in lieu of the county surveyor doing this work; that such engineer or surveyor be instructed (1) To estimate the sum per mile which it will cost to bring the several roads up to the classification mentioned in the schedule before March 31, 1913; and (2) inspect and report upon such bridges as are not county bridges.

A conference of Surveyors-General representative of the majority of the self-governing Dominions will be held in London early in May. The conference is the outcome of a discussion on the examination and authorisation of land surveyors and surveying which took place at the last Imperial Conference. The following resolution was then passed: "That it is desirable that reciprocity should be established between the respective Governments and examining authorities throughout the Empire with regard to the examination and authorisation of land surveyors." It was also suggested the matter should be referred to the respective Governments for their consideration. It is arranged that the conference shall be held at the Surveyors' Institute, and all the self-governing Dominions, with the exception of the Union of South Africa and Newfoundland, have intimated their intention to be present. The delegates will include Mr. E. G. D. Deville, Surveyor-General for the Dominion Government in Canada.

Mr. E. E. Pruitt, architect, of Columbus, Ohio, in a communication to the Builders' Exchange of that city outlines a suggestion for the more effective co-operation between the architect and builder. The plan is to standardise quantities, which will enable each bidder to determine, know the amount of material and labour required to do a certain piece of work. Errors in taking off quantities will be reduced to a minimum, it is said, and all estimates based upon the understanding that requirements will be established at the outset. The quantity surveyors could prepare detailed statements of the costs among prospective bidders, who would, after viewing the plans and specifications and possessing themselves with such other data as seem necessary, attach their price. Any additional information given by the quantity surveyors could be issued as a supplementary circular to those tendering.

Mr. John A. Davenport, 48, Castle street, Liverpool, who, when the Report of the R.I.B.A. Joint Committee on Reinforced Concrete was published in 1907, worked out a theory based on their recommendations, has written it out, with illustrative examples and diagrams, and published it, at 5s., through E. and F. N. Spon, Ltd.

The preliminary works in connection with the new whinstone quarries at Budle and Waren are being pushed rapidly forward. Messrs. Brand, on Budle Hill, will be ready in a very short time to deliver the first shipments of metal. Messrs. Brunton, at Waren, are not so far forward, and it will be a considerable time before they are in a position to deliver stone by sea. They propose running a tramway line from the public road at Waren, along the foreshore to a point near Heatherhouse, where they will have a loading pier. The embankment to carry this tramway line is a task of some magnitude, and will occupy a good deal of time in the making. The first boat to enter Budle Bay in connection with these undertakings came in last week, laden with building material for Messrs. Brand. Exactly thirty years before, the last cargo boat crossed the bar to the open sea. A hundred or 150 years ago a considerable trade was done from and to the port of Heatherhouse, mostly in corn and flour. Further back still it occupied a very prominent place among the ports on the North East coast.

Treating sawn and hewn ties in the same cylinder load was discussed by Mr. H. J. Whitmore during the recent annual meeting of the Wood Preservers' Association at Chicago. He advocated separate treatments, claiming that timber from which sawn ties are cut is, as a rule, of a better grade than that from which hewn ties are taken; that the hewn ties are usually seasoned along the line, while the sawn ties usually come direct from the mill, and are, as a rule, green and not ready for treatment, and that the treatment can be controlled more readily when the two classes are separated.

An interesting research has been carried out in the Natural Philosophy School of the University of Melbourne by the aid of funds furnished by the Government of Victoria, Australia, with the object of determining the effect of electric currents on reinforced concrete. The series of tests tends to prove: (1) That the rusting and pitting of reinforcing and structural steel occurs at the anode. (2) That this rusting, by its growth, causes rupture of the concrete and the development of large cracks. (3) That very small currents—e.g., 0·02 amps., will cause such rusting and cracking. (4) That when steel is cathode no rusting of the steel or cracking of the concrete will occur with currents up to 0·06 amps., during 200 days. (5) That sandstone and brick will behave similarly to concrete, showing even less resistance to cracking. (6) That damp earth supplies sufficient moisture to concrete to render it conducive to a current which will cause cracking. (7) That alternating currents of the magnitude of 3 amps. will produce cracks by thermal action, but no rusting. (8) That the thermal action, when measured by a thermometer, of currents of the magnitude of 0·05 amps., is negligible in blocks of concrete.

Mr. Alexander A. Swann, of Montrose, has been appointed burgh surveyor to the Bervie Town Council, in room of Mr. John Sim, retired.

A new secondary school is about to be built at Alcester for the Worcestershire Education Committee. The contract has been taken at about £5,000 by Mr. Gower, of Dursley, near Knowle.

The Committee of the House of Lords on Unopposed Bills sanctioned on Tuesday the construction by the London Brighton and South Coast Railway Company of a new subway under Norwood Junction Station, with approaches connecting Station road at its junction with Canfield road on the one side, and Clifford road on the other side. It was stated that the cost of the subway and approaches would be about £6,500, with £1,500 for incidental expenses, and that the subway, which will be a public thoroughfare, will be maintained by the Corporation of Croydon.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and al communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, Effingham House, 1, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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MEZZANINE.—Yes.

C. R. S.—Please send.

J. K. P.—Moderately so.

MAJOR P.—Many thanks; kindly send.

CIRCULATION.—Probably 250 copies a week; mostly "free-list!"

D. W. MITCHELL.—For illustrations of Somerset House see R.I.B.A. Silver Medal measured drawings by W. H. Hillier in our issue of March 17, 1905, windows in that for June 3, 1898, pp. 768-9.

MEMORIAL.—You are pulling our leg! Because Canova moulded his first lion out of butter, as the good little story-books tell us, you hardly advocate buttering our dead lions in double Dorset? What *do* you mean?

NORTHERN TOWN.—The following illustrations of public baths have recently appeared in our pages:—Castleton, Rochdale, Dec. 16, 1910; Glossop-road, Sheffield, Oct. 21, 1910; Haggerston, Nov. 10, 1906; Hammersmith, Oct. 12, 1906; Reddish, Stockport, May 24, 1907; Royton, March 20, 1908, Salford, June 28, 1907; Selly Oak, Nov. 16, 1906; Stockport, July, 13, 1906, and Wood Green, N., Jan. 21, 1910.

"BUILDING NEWS" DESIGNING CLUB.

SEVENTH LIST OF SUBJECTS.

G.—A Country-side Garage, with two Cottages attached, giving accommodation for motor refuge and repairs. The garage to be large enough to give shelter standing for two motors, with pits below of the usual kind, and set side by side. Opening out of this garage put a small workshop, with loft over for storage. The cottages to be situate one at either end of the block, and to provide living-room used as kitchen, about 14ft. by 12ft., a parlour 10ft. square or of that area, a scullery, pantry, bathroom on ground floor, coal-place and w.c. Upstairs three bedrooms. The second cottage at west end, which is to serve as a local post-office, in addition to the before-mentioned provisions, is to have a projecting bay or porch by way of little shop, with counter and wall-desk common in country post-offices, for sale of stamps and telegraph business, and for this 10ft. by 9ft. square will suffice. The other cottage will be occupied by the engineer, and so should be associated with the workshop. His assistant will live in the other. The site is level and faces south, and the building will have an 18ft. deep forecourt or garden for the cottages, and a standing space off the road in front of garage and workshop. The idea embodied in the design to be after the style of a village smithy, treated in tile-hanging and red brick, with tiled roofs, handled simply without florid detail or ornamental ridges. A pigeon turret might be introduced in teak, but this is quite optional, and so is the line of frontage to the buildings, which need not be in a straight line, so that the cottages may project a little if thought well. Two plans, two elevations, two sections, and sketch. Scale 8ft. to the inch. Drawings due not later than April 29, 1911.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY (To-day).—Leicester Society of Architects. "Architectural Sketching," by B. J. Fletcher; "The Planning of Domestic Buildings," by Shirley Harrison. 8 p.m.
Institution of Civil Engineers. "The Uses of Chemistry in Engineering," No. 2, by James Swinburne, F.R.S. M.Inst.C.E. 8 p.m.

SATURDAY (To-morrow).—A.A. Visit to Royal Academy of Music, Marylebone-road. 2 p.m.

MONDAY.—Architectural Association. "Architecture in Paintings," by Prof. Selwyn Image. 7.30 p.m.
Glasgow Architectural Craftsmen's Society. Business Meeting. 8 p.m.

TUESDAY.—Royal Society of Arts. "Australia and Her Resources," by Captain R. Muirhead Collins, C.M.S. 4.30 p.m.
Institution of Civil Engineers. "The Improvement of Highways to Meet Modern Conditions of Traffic," by Jonah Walker Smith, M.Inst.C.E.: "Recent Development in Road-Traffic, Road-Construction, and Maintenance," by Henry Percy Maybury, M.I.C.E. 8 p.m.

WEDNESDAY.—Royal Society of Arts. "Wheels, Ancient and Modern, and their Manufacture," by Henry L. Heathcote, B.Sc. 8 o.m.
Institution of Civil Engineers. Students' Visit to the Works of the Associated Portland Cement Manufacturers (1900), Ltd., Swanscombe, Kent.
Edinburgh Architectural Association. Associates' Annual Business Meeting. 8 p.m.

THURSDAY.—Society of Architects. "English Furniture," by Percy Macquoid, R.I. 8 p.m.

FRIDAY (April 7).—Institution of Civil Engineers. "Retaining Walls," by E. E. Farrant, Stud.Inst.C.E. 8 p.m.

Lieut.-Col. J. T. W. Leslie, C.I.E., sanitary commissioner to the Government of India, died at Marseilles on Monday, in the forty-ninth year of his age.

Mr. Henry Hinson, of Stamford, head of the firm of Messrs. Hinson and Co., builders and contractors, died on Friday at his residence in Northfields, aged 69 years. He was till recently a member of the Stamford Town Council.

A Local Government Board inquiry will be held at Colchester on Wednesday into an application of the Essex County Council for sanction to a loan of £131,215 in connection with the new county lunatic asylum at Boxted, near Colchester.

It was reported at Tuesday's meeting of the London County Council that substantial progress had been made with the tunnelling works on the north side of the River Thames in connection with the construction of Woolwich Tunnel. Work on the shaft on the south side of the river has been commenced.

On Tuesday an inquiry was held by an inspector from the Local Government Board at Sunderland into an application by the Sunderland Rural District Council for sanction to borrow £2,140, £2,070, £970, and £400 for private street improvement works in the contributory places of Ford, Fulwell, Ryhope, and Tunishall, respectively.

On Wednesday a Local Government Board inquiry was held at Wallsend, into an application by the town council for permission to borrow £2,150 for the purchase of land near Church Bank as a site for a public elementary school, for sanction to loans of £422 for private street improvement works in High View and King's-road, and £570 for the provision of a recreation-ground at Church Bank.

LATEST PRICES.

IRON.

Steel Joists, Belgian and German (ex steamer, London) Per ton	£5	12	8	to	£5	17	6
Steel Joists, English	6	10	0	,,	6	15	0
Wrought-Iron Girder Plates	7	0	0	,,	7	5	0
Steel Girder Plates	7	2	6	,,	8	2	0
Bar Iron, good Staffs	8	5	0	,,	8	10	0
Do., Lowmoor, Flat, Round, or Square	20	0	0	,,	20	0	0
Do., Welsh	5	15	0	,,	5	17	0
Boiler Plates, Iron—							
South Staffs	8	0	0	,,	8	15	0
Best Snedshill	9	0	0	,,	9	10	0

Angles 10s., Tees 20s. per ton extra.
Builders' Hoop Iron, for bonding, &c., £8 15s. to £9.
Builders' Hoop Iron, galvanised, £14 to £15 10s. per ton
Galvanised Corrugated Sheet Iron—

	No. 18 to 20.				No. 22 to 24.		
6ft. to 8ft. long, inclusive gauge Per ton.	£13	0	0	...	£13	10	0
Best ditto	13	0	0	...	14	0	0

Wire Nails (Points de Paris)—

3 to 7	8	9	10	11	12	13	14	15	B.W.G.
8/3	8/9	9/3	9/9	10/3	11/-	11/9	12/6	13/6	per cwt.

Per ton. Per ton.

Cast-Iron Columns	£8	10	0	to	£8	10	0
Cast-Iron Stanchions	8	10	0	,,	8	10	0
Rolled-Iron Fencing Wire	8	5	0	,,	8	10	0
Rolled-Steel Fencing Wire	8	5	0	,,	6	10	0
,, ,, ,, Galvanised	7	15	0	,,	8	5	0
Cast-Iron Sash Weights	5	0	0	,,	5	5	0
Cut Floor Brads	9	15	0	,,		—	
Corrugated Iron, 24 gauge	16	0	0	,,		—	
Galvanised Wire Strand, 7 ply, 14 B.W.G.	14	5	0	,,		—	

B.B. Drawn Telegraph Wire, Galvanised—

0 to 8	9	10	11	12	B.W.G.
£10 5 0	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.

Cast-Iron Socket Pipes—

3in. diameter	£8	2	6	to	£8	7	0
4in. to 6in.	6	0	0	,,	6	5	0
7in. to 24in. (all sizes)	5	7	6	,,	8	0	0

[Coated with composition, 5s. 0d. per ton extra; turned and bored joints, 5s. 0d. per ton extra.]

Pig Iron— Per ton.

Cold Blast, Lilleshall	110s.	0d.	to	117s.	6d.		
Hot Blast, ditto	70s.	0d.	,,	75s.	0d.		

Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.):—

Gas-Tubes	75 p.c.
Water-Tubes	72½ ,,
Steam-Tubes	67½ ,,
Galvanised Gas-Tubes	65 ,,
Galvanised Water-Tubes	62½ ,,
Galvanised Steam-Tubes	57½ ,,

OTHER METALS.

Spelter, Silesian Per ton	£22	17	6	to	£23	0	0
Lead Water Pipe, Town	16	15	0	,,		—	
,, ,, ,, Country	17	10	0	,,		—	
Lead Barrel Pipe, Town	17	15	0	,,		—	
,, ,, ,, Country	18	10	0	,,		—	
Lead Pipe, Tinned inside, Town	18	15	0	,,		—	
,, ,, ,, ,, Country	19	10	0	,,		—	
Lead Pipe, Tinned inside and outside Town	21	5	0	,,		—	
,, ,, ,, ,, Country	22	0	0	,,		—	
Composition Gas-Pipe, Town	19	15	0	,,		—	
,, ,, Country	20	10	0	,,		—	
Lead Soil-pipe (up to 4½in.) Town	19	15	0	,,		—	
,, ,, ,, Country [Over 4½in. £1 per ton extra.]	20	10	0	,,		—	
Lead Shot, in 25lb. bags	24	15	0	,,		—	
Copper Sheets, sheathing & rods	70	0	0	,,	70	10	0
Copper, British Cake and Ingot	58	0	0	,,	58	10	0
Tin, Straits	184	15	0	,,	185	5	0
Do., English Ingots	182	10	0	,,	183	0	0
Do., Australian	182	0	0	,,	182	10	0
Do., Bars	183	10	0	,,	184	0	0
Pig Lead, in 1cwt. pigs	14	2	6	,,		—	
Sheet Lead, Town	16	5	0	,,		—	
,, ,, Country	17	0	0	,,		—	
Genuine White Lead	21	0	0	,,		—	
Refined Red Lead	19	0	0	,,		—	
Sheet Zinc	32	5	0	,,		—	
Old Lead, against account	12	0	0	,,		—	
Tin per cwt.	11	0	0	,,		—	
Cut Nails (per cwt. basis, ordinary brand)	0	10	8	,,		—	

TIMBER.

CONSTRUCTIONAL.

Per St. Petersburg Standard (100—12ft. by 11in. by 11in.)

Yellow Pine Deals, Quebec, 1st quality	£34	0	0	to	£42	0	0
,, ,, ,, 2nd ,,	24	0	0	,,	28	0	0
,, ,, ,, 3rd ,,	15	10	0	,,	18	0	0
Spruce Deals: St. Johns	8	0	0	,,	11	0	0
,, ,, Miramichi	7	5	0	,,	8	10	0
,, Boards: Swag	7	0	0	,,	8	0	0
Red Deals: Archangel 1st quality	20	10	0	,,	21	10	0
,, ,, ,, 2nd ,,	15	0	0	,,	17	0	0
,, ,, ,, 3rd ,,	11	0	0	,,	12	0	0
,, ,, Bt. Petersburg—							
,, 1st quality	16	0	0	,,	17	0	0
,, 2nd ,,	13	0	0	,,	14	10	0
,, ,, Wyburg & Ulcaborg	10	0	0	,,	12	0	0
,, ,, Gefle, Gothenburg, and Stockholm	10	0	0	,,	17	0	0
White Deals: Crown	10	0	0	,,	12	0	0
,, ,, Seconds	9	10	0	,,	10	0	0
Flooring: White and Planed—							
1st and 2nd quality mixed	9	0	0	,,	9	5	0
1st, 2nd, and 3rd quality mixed	8	5	0	,,	8	10	0
Red Planed, 1st quality	11	5	0	,,	11	10	0
Pitch Pine: Prime Deals and Boards	17	0	0	,,	20	0	0
Lignum Vitæ	5	10	0	,,	12	0	0
Per foot super, as 1in.							
Yellow Pine Logs (waney board)	0	2	9	,,	0	4	3
Pitch Pine Logs	0	1	8	,,	0	1	10
Birch: Quebec Logs	0	2	0	,,	0	2	6
Oak: Austrian Wainscot	0	7	0	,,	0	8	0
Mahogany: Gaboon	0	6	1½	,,	0	6	2½

FURNITURE AND HARDWOODS.

Teak Burmese, [illegible] (at 150c.ft.)	£21	0	0	to	£21	10	0
,, Java ,, ,,	15	0	0	,,	18	0	0
				Per		Cent.	
Oak, Portugal U.S.A., [illegible]					0	2	8
,, Boards ,, ,,							
			2	4	0	2	9
,, ,, ,,					0	2	6
,, ,, ,,					0	2	2
Siberian (Cal Foreign) [illegible]							3
Birch Quebec logs			8	,,	0	2	2
,, ,, Sq.					0	1	2
Oak, Austrian Wainscot				,,	0	7	0
Walnut, Prime [illegible]				,,	0	6	0
,, Mid. ,, ,,		3	4	,,	0	3	1
Greenheart Heavy		3	6	,,	0	4	8
Cedar, Clear log		3	6	,,	0	4	8
Satin Wa nut, Log, [illegible] per cu.		2	3	,,	0	2	6
Orhanı: Imp. sawn [illegible] prime		1	10	,,	0	2	2
				Per		Cent.	
Mahogany, Spanish [illegible]							
,, Honduras [illegible]	0	0	5	,,	0	0	6
,, African, [illegible] &c.			4	,,	0	0	9
,, Lagos [illegible]	0	0	3½	,,	0	0	4½
,, Sapele, and Cape Lagos	0	0	2½	,,	0	0	3½
,, Gaboon	0	0	1¼	,,	0	0	1
Satinwood, West Indian	0	0	10	,,	0	2	2
Rosewood, Per ton	7	0	0	,,	12	0	0
Lignum Vitæ ,,	4	0	0	,,	11	10	6

STONE.*

Red Mansfield, in blocks per foot cube	£0	2	4
Darley Dale, ditto ,, ...	0	2	3
Red Corsehill, ditto ,, ...	0	2	2
Closeburn Red Freestone, ditto ,, ...	0	2	0
Anguster, ditto ,, ...	0	1	10
Greenshill, ditto ,, ...	0	1	10
Chilmark, ditto (in truck at Nine Elms) ,, ...	0	1	9
Bear, ditto ,, ...	0	1	6
Hard York, ditto ,, ...	0	2	10
Ditto ditto 6in. sawn both sides, landings, random sizes per foot sup.	0	2	8
Ditto ditto 3in. slab sawn two sides, random sizes ,, ...	0	1	

* A 1 F.O.R. London.

Bath Stone, delivered on rail at quarry stations per foot cube	0	1	0
Delivered on road waggons, Paddington Depot ,, ...	0	1	6½
Ditto ditto, Nine Elms Depot ,, ...	0	1	8½
Beer Stone, delivered on rail at Seaton Station ,, ...	0	1	0
Ditto, delivered at Nine Elms Station ,, ...	0	1	6

Portland Stone, in random blocks of 20ft. average:—

	Brown Whit Bed.				White Base Bed.		
Delivered to railway depot at the quarry per foot cube	£0	1	6¼	...	£0	1	7¼
Delivered on road waggons at Paddington Depot ,, ...	0	2	1	...	0	2	2½
Ditto, Nine Elms Depot ,, ...							
Ditto, Pimlico Wharf ,, ...							

BRICKS.

(All prices net.)

Hard Stocks	£1	6	6	per 1,000 alongside, in river
Rough Stocks and Grizzles	1	6	0	,, ,, ,,
Picked Stocks for Facings	2	10	0	,, delivered at railway station.
Flettons	1	6	0	,, ,, ,,
Pressed Wire Cuts	1	16	0	,, ,, ,,
Red Wire Cuts	1	14	0	,, ,, ,,
Best Fareham Red	3	12	0	,, ,, ,,
Best Red Pressed Ruabon Facings	5	0	0	,, ,, ,,
Best Blue Pressed Staffordshire	3	15	0	,, ,, ,,
Ditto Bullnose	4	0	0	,, ,, ,,
Best Stourbridge Fire Bricks	3	14	0	,, ,, ,,
2½in. Best Red Accrington Plastic Facing Bricks	4	13	0	,, Net, delivered in full truck loads in London.

GLAZED BRICKS.*

HALF GLAZES. (PER 1,000.)

	White, Ivory, and Salt Glazed. Best.	Seconds.	Buff and Cream.	Best. Other Colours.	Second Colours.
Stretchers—	£10 17 6	£9 7 6	£12 7 6	£16 7 6	£10 17 6
Headers—	10 7 6	8 17 6	11 17 6	15 17 6	10 7 6
Quoins, Bullnose, or 4½in. Flats—	13 17 6	12 17 6	16 7 6	19 17 6	14 7 6
Double Stretchers—	16 7 6	14 17 6	19 7 6	22 17 6	16 7 6
Double Headers—	13 7 6	11 17 6	16 7 6	19 17 6	13 7 6
One side and two ends, square—	17 7 6	15 17 6	20 7 6	24 17 6	17 7 6
Two sides and one end, square—	18 7 6	16 17 6	21 7 6	25 7 6	18 7 6
Splays and Squints—	15 17 6	14 7 6	20 7 6	23 7 6	15 17 6

Plinth and Hollow Bricks. Stretchers and Headers—

5d. each	4d. each	6d. each	6d. each	5d. each

Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres—

5d. each	4d. each	6d. each	6d. each	5d. each

Rounded Internal Angles—

4d. each	3d. each	5d. each	5d. each	4d. each

MOULDED BRICKS.

Stretchers and Headers—

8d. each	8d. each	8d. each	8d. each	8d. each

Internal and External Angles—

1 2 each	1 2 each	1 2 each	1 2 each	1 2 each

Coll Bullnose, Stretchers and Headers—

5d. each	4d. each	6d. each	6d. each	5d. each

	Per 1,000
Majolica or Soft Glazed Stretchers and Headers	£21 17 6
,, ,, ,, Quoins and Bullnose	26 17 6
Glass bricks, circular and arch bricks of 8 inch radius £6 per 1,000 over above respective kinds and colours	Not exceeding 9in. × 4½in. × 2½in.
Coulter arch brick, any kind or colour, 1s. 2d. each	
Special cuts for Closers and Nicked Double Headers, £1 per 1,000 extra.	

* These prices are carriage paid in full truck loads to certain stations.

	s.	d.
Thames and Pit Sand	7	0 per yard, delivered i.
Thames Ballast	5	6 ,, ,,
Best Portland Cement	28	0 per ton, ,,
Best Ground Blue Lias Lime	19	0 ,, ,,

Exclusive of charge for sacks.

Grey Stone Lime	11s. 6d. per yard, delivered
Stourbridge Fireclay in sacks	27s. 0d. per ton at rly. stn.

SLATES.

	In.	In.	£	s.	d.			
Blue Portmadoc	20 × 10	...12	12	6	per 1000	of 1200	at r.stn.
,, ,,	16 × 8	...6	12	6	,,	,,	,,
Blue Bangor	20 · 10	...13	2	6	,,	,,	,,
,, ,,	20 × 12	...13	17	6	,,	,,	,,
First quality	20 × 10	...13	0	0	,,	,,	,,
,, ,,	20 × 12	...13	15	0	,,	,,	,,
,, ,,	16 × 8	...7	5	0	,,	,,	,,

Eureka unfading	£	s.	d.			
green	20 × 10	...15	17	6	,,	,,
,, ,,	20 × 12	...18	7	6	,,	,,
,, ,,	18 × 10	...13	5	0	,,	,,
,, ,,	16 × 8	...10	5	0	,,	,,
Permanent green	20 × 10	...11	12	6	,,	,,
,, ,,	18 × 10	... 9	12	6	,,	,,
,, ,,	16 × 8	... 8	12	6	,,	,,

TILES.

	s.	d.		Delivered at rly. stn.
Plain red roofing tiles	42	0	per 1000	,,
Hip and Valley tiles	3	7	per doz.	,,
Broseley tiles	50	0	per 1000	,,
Ornamental tiles	52	6	,,	,,
Hip and Valley tiles	4	0	per doz.	,,
Ruabon red, brown, or brindled do. (Edwards)	57	6	per 1000	,,
Ornamental do.	60	0	,,	,,
Hip tiles	4	0	per doz.	,,
Valley tiles	3	0	,,	,,
Selected "Perfecta" roofing tiles —Plain tiles (Penke's)	46	0	per 1000	,,
Ornamental do.	48	6	,,	,,
Hip tiles	3	10½	per doz.	,,
Valley tiles	3	4½	,,	,,
"Rosemary" brand plain tiles	48	0	per 1000	,,
Ornamental tiles	50	0	,,	,,
Hip tiles	4	0	per doz.	,,
Valley tiles	3	8	,,	,,
Staffordshire (Hanley) Reds or Brindled tiles	42	6	per 1000	,,
Hand-made sand-faced	45	0	,,	,,
Hip tiles	4	0	per doz.	,,
Valley tiles	3	6	,,	,,
"Hartshill" brand plain tiles, sand-faced	50	0	per 1000	,,
Pressed	47	6	,,	,,
Ornamental do.	50	0	,,	,,
Hip tiles	4	0	per doz.	,,
Valley tiles	3	6	,,	,,

OILS.

Rapeseed, English pale, per tun	£28	15	0	to	£29	5 0
Do., brown	,, ...	26	15	0	,,	27 5 0
Cottonseed, refined	,, ...	29	0	0	,,	30 0 0
Olive, Spanish	,, ...	39	10	0	,,	40 0 0
Seal, pale	,, ...	21	0	0	,,	21 10 0
Coconut, Cochin	,, ...	46	0	0	,,	46 10 0
Do., Ceylon	,, ...	42	10	0	,,	43 0 0
Do., Mauritius	,, ...	42	10	0	,,	43 0 0
Palm, Lagos	,, ...	32	5	0	,,	33 5 0
Do., Nut Kernel	,, ...	35	0	0	,,	35 10 0
Oleine	,, ...	17	5	0	,,	19 5 0
Sperm	,, ...	30	0	0	,,	31 0 0
Lubricating U.S.	per gal.	0	7	0	,,	0 8 0
Petroleum, refined	,,	0	0	6¾	,,	0 0 6¾
Tar, Stockholm	per barrel	1	6	0	,,	1 10 6
Do., Archangel	,,	0	19	6	,,	1 0 0
Linseed Oil	per gal.	0	4	1½	,,	—
Baltic Oil	,,	0	4	5	,,	—
Turpentine	,,	0	6	0¼	,,	—
Putty (Genuine Linseed Oil)	per cwt.	0	11	0	,,	—
,, Pure Linseed Oil, "Stority" Brand	,,	0	10	0	,,	—

VARNISHES, &c.

	Per gallon.
Fine Pale Oak Varnish	£0 8 0
Pale Copal Oak	0 10 0
Superfine Pale Elastic Oak	0 12 0
Fine Extra Hard Church Oak	0 10 0
Superfine Hard drying Oak, for seats of churches	0 14 0
Fine Elastic Carriage	0 12 0
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 16 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

GLASS IN CRATES.

	15oz.	21oz.	26oz.	32oz.
English Sheet Glass: Fourths	1½d.	2½d.	3½d.	4½d.
Thirds	2½d.	3½d.	4d.	5½.
Fluted Sheet	2½d.	3½d.	6½.	6½d.

	⅛in.	³/₁₆in.	¼in.
Hartley's English Rolled Plate:	2½d.	2½d.	3½.

	White.	Tinted.
Figured, Rolled, and Repoussé	3½d.	5d.

TRADE NOTES.

The Greenock Dean Public Institute, near Kintore, is being ventilated by means of Shorland's patent exhaust roof ventilators and special inlet ventilators supplied by Messrs. I. H. Shorland and Brother, Ltd., of Failsworth, Manchester.

Under the direction of Messrs. Ashlin and Coleman, architects, of Dublin, Boyle's latest patent "air pumps" ventilators have been applied to new sheds, Rutland-street, Dublin.

Mr. A. L. Thomson, of Peterhead, has been appointed burgh surveyor and sanitary inspector by the Lesmo Town Council.

Mr. T. McKenzie, a well known builder and contractor, of Heaton-on-Tyne, where he had carried on business for many years, died on Friday in his fifty-first year.

A Local Government Board inquiry has been held at Derby into an application by the Derbyshire County Council for sanction to borrow £20,500 for the erection of additional county offices in Derby opposite the present block.

A Local Government Board inquiry was held at Southwick-on-Wear, on Tuesday, before Mr. R. H. Bicknell, into an application by the Southwick Urban District Council for sanction to borrow £1,200 for proposed drainage of the unappropriated ground of the Southwick Cemetery.

The London County Council have approved of plans for buildings proposed to be erected on a site in the rear of High-street, Fulham, for the Territorial Force Association. The elevation to High-street will be in red brick, with Portland stone plinth and dressings, and that to Fulham Palace Gardens in red brick.

The King has appointed Mr. Lewis Harcourt, Viscount Esher, and Lord Beauchamp trustees of a new museum for London on the lines of the Musee Carnavalet in Paris. The Hilton Price collection of London antiquities has been secured as a nucleus, and the trustees appeal for further contributions by way of gift or loan.

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TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender; it adds to the value of the information.

Allahabad.—For doubling the existing single-track bridge across the River Jumna, for the East Indian Railway Co. Messrs. Rendel and Robertson, Westminster, engineers —

Head, Wrightson, and Co., Ltd., Thornaby-on-Tees.
(Accepted.)

Banbury.—For fencing at People's Park, for People's Park Syndicate. Mr. W. L. Whitehorn, 25a, High-street, Banbury, architect :—

Economic Fencing Co., Billiter House, Billiter-street, E.C. 7s. 6d. per yard run.
(Lowest tender received.)

Battersea and Chelsea, S.W.—For special work in the construction of electric tramways from Battersea Park road to King's-road, Chelsea, for the London County Council :—

Hadfield's Steel Foundry Co., Ltd. £2,641 16 6
(Accepted.)

Bethnal Green, N.E.—For painting the interior of Olga-street school, Bethnal Green, for the London County Council :—

Butters, G., (accepted) ... £379 0 0

[In lieu of tender by B. Jewell, £315, withdrawn since acceptance on account of error.]

Dartford.—For erection of a new secondary school, for the Kent Education Committee. Mr. Wilfred H. Robinson, M.S.A., Architect:—

Ellingham, J. W., Dartford ...	£9,777 0 0
Kazak, L., Belvedere	9,681 14 11
Johnson and Co., Gravesend ...	9,672 0 0
Baker, G., and Son, Strood ...	9,625 0 0
Patrick, J. and M., Wandsworth	9,400 0 0
General Building Co., Chandos-st.	9,367 5 9
Browning, G., Canterbury... ...	9,280 0 0
Somerford, H., and Son, Clapham	9,259 0 0
Friday and Ling, Erith ...	9,050 0 0
West Bros., Rochester	8,990 0 0
Crossley, T., and Son, Bromley ...	8,930 0 0
Knight, T., Sidcup	8,929 0 0
Blay, W. F., Ltd., Dartford ...	8,888 0 0
Gunning, G. H., and Sons, Erith ..	8,798 0 0
Wallis, G. E., and Sons, Ltd., Maidstone	8,784 0 0
Archer, W. H., and Son, Gravesend	8,757 0 0
Foster, G. & F., Norwood Junction	8,686 0 0
Woodhall, J. W., & Son, Ramsgate	8,575 10 0
Podger, J., and Sons, Bromley ...	8,486 0 0
Godden, D., and Sons, Ham-street, Ashford*	8,422 0 0

* Recommended for acceptance

Delhi.—For doubling the existing single-track bridge crossing the river Jumna at Delhi, for the East Indian Railway Co. Messrs. Rendel and Robertson, Westminster, engineers:—

Patent Shaft and Axletree Co., Ltd., Wednesbury. (Accepted.)

East Leake.—For erecting golf club-house, East Leake, Notts., for the Rushcliffe Golf Links Co. Ltd. Mr. H. Tatham Sudbury, M.S.A., Estate Offices, Ilkeston, architect. Quantities by the architect:—

Dennett and Ingle	£2,211 0 0
Appleby, W.	2,196 0 0
Maule, W., and Co	2,171 0 0
Moss, W., and Sons, Ltd., Loughborough	2,141 0 0
Woodsend, W.	2,070 0 0
Messom, F.	2,046 0 0
Parker, J., Ruddington, Notts ...	2,039 14 0
Fish, T., and Sons	2,038 0 0
Oliver, E., Ruddington, Notts ...	2,026 15 0
Bosworth and Lowe	2,005 15 0
Cuthbert, T.	2,026 9 6
Roberts, D., Ilkeston	1,965 0 0
Donnelly, W., & Sons, Kimberley, Notts	1,932 0 0
Gibbons, S. W.	1,880 0 0
Fanlkes, A., Loughborough ...	1,862 0 0
Corah, W., and Son, Loughborough	1,836 0 0
Barker, T., and Son, Loughborough (accepted)	1,824 0 0

Rest of Nottingham.

Falmouth.—For the extension of the hospital:—

Thomas and Son, Falmouth (accepted).

Glasgow.—For constructing overhead runways at slaughterhouses, for the corporation. Mr. A. W. Miles, City Chambers, Glasgow, town clerk:—

North British Lifting and Appliances Co., Glasgow. (Accepted.)

Grimsby.—For erecting wooden bandstand at Boulevard, West Marsh, for the corporation. Mr. H. G. Whyatt, A.M.I.C.E., 170, Victoria-street, Grimsby, architect:—

Richardson, J. W.	£125 13 6
Rands and Lindup	118 0 0
Swaby and Walsham	117 10 0
Kemp, O.	114 12 0
Marshall, E.	103 10 0
Hipkin, G. H.	100 9 0
Edwards and Raynor	100 8 1
Borrill and Cheesman (accepted)...	96 13 10

All of Grimsby.

Grimsby.—For erecting additional cells at police-station, for the corporation. Mr. H. G. Whyatt, A.M.I.C.E., 170, Victoria-street, Grimsby, architect:—

Rands and Lindup	£2,687 6 0
Hipkin, G. H.	2,390 0 0
Edwards and Raynor	2,310 0 0
Richardson, J. W.	2,285 10 0
Gilbert, W.	2,265 0 0
Hewins and Goodhand	2,255 0 0
Kirton, W., Great Coates	2,255 0 0
Borrill and Cheesman	2,195 8 3
Swaby and Walsham (accepted) ...	2,163 5 6

Rest of Grimsby.

Highgate-road, N.W.—For carrying-out special work in the reconstruction and electrification of the tramways in Highgate-road, for the London County Council:—

Hadfield's Steel Foundry Co., Ltd. £1,387 0 0 (Accepted.)

Ipswich.—For the supply of a high-pressure steam turbine, driving direct, on the same shaft, two continuous-current dynamos of a total capacity of 1,000k.w., a surface condenser, air and circulating pumps, etc., for the corporation:—

A. E. G. Electric Co..	£6,100 0 0
Parsons, C. A., and Co. ...	5,623 0 0
British Westinghouse Co. ...	5,546 0 0
Parsons, C. A., and Co. ...	5,320 0 0
British Westinghouse Co. ...	5,195 0 0
Richardsons, Westgarth, and Co	5,175 0 0
Escher, Wyss, and Co. ...	5,138 0 0
Brush Electrical Engineering Co .	4,950 0 0
Willans and Robinson	4,906 0 0
Howden and Co.	4,800 0 0
Willans and Robinson (accepted)	4,756 0 0
Howden and Co.	4,541 0 0

Ipswich.—For the supply (but not including erection), of a compound direct-acting steam feed-pump, with a capacity of 6,000 gallons per hour, for the corporation:—

Weir, G. and J., Ltd., Glasgow £259 0 0

(Accepted.)

King's Lynn.—For alterations to house in Cattle-market, for the corporation. Mr. A. J. Smith, Town Hall, King's Lynn, borough surveyor:—

Dickerson, F., and S., King Staithe-lane, King's Lynn.

(Accepted.)

London.—For cleaning and painting of the following schools, for the London County Council. Tenders recommended for acceptance:—

Battersea: Winstanley-road—Lole and Co.	£271 0 0
Bethnal Green: Globe-road—Stevens and Sons	322 0 0
Olga-street—B. Jewell	315 0 0
Bow and Bromley: Alton-street—Vigor and Co.	335 0 0
Deptford: Nynehead-st.—Bailey, W.	415 0 0
Hackney, N.: The "Shacklewell"—Markham and Markham ...	307 0 0
Hackney, S.: Daubeney-rd.—Horswill, H. C.	488 0 0
Lambeth, N.: Walnut Tree-walk—King, W. and Son	281 0 0
Mile End: Essex-street—Marchant and Hirst	435 0 0
Peckham: Hollydale-rd.—Fenn, J. S.	414 15 0
Poplar: Oban-street—Davey, F. & E., Ltd.	437 0 0
Stepney: Smith-street—Woollaston, R. and Co, ...	280 0 0
Strand: The "Pulteney"—Chappell, W.	329 0 0
Wandsworth: Merton-road—Gower, J. and Son	317 10 0
Sellincourt-road—Maxwell Bros., Ltd.	383 0 0
"Tooting Graveney"—Gathercole Bros.	451 0 0
Whitechapel: Old Castle-street—Fenn, J. S.	358 18 0

London.—For the supply of tables under schedule No. 350, items 9, 15, 23, and 24, for the London County Council:—

Kingfisher, Ltd., West Bromwich £462 0 0

(Recommended for acceptance.)

(Continued on page xvii.)

LIST OF COMPETITIONS OPEN.

Gidea Park—Town Plan of Gidea Park (E. G. Dawber, H. V. Lanchester, and M. E. Macartney, Assessors)	£100, £50	The Secretary, Town Planning Exhibition, 33, Henrietta-st., W.C.	Mar. 31
Manchester—Library and Art Gallery (Prof. Reginald Blomfield, A.R.A., assessor)		Thomas Hudson, Town Clerk, Town Hall, Manchester	,, 31
New Cumnock—United Free Church (£3,700 limit)	£10	The Rev. W. Scott, The Manse, New Cumnock	,, 31
Coventry—Municipal Buildings and Proposed Town Hall. (E. Guy Dawber, F.R.I.B.A., 22, Buckingham-street, W.C., Assessor.)		Geo. Sutton, Town Clerk, 10, Hay-lane, Coventry	April 1
Carlton—Sewage Disposal Scheme		James Senior, Clerk, Carlton, near Barnsley	,, 6
Corbridge, Hexham—Sewerage and Sewage Disposal Scheme	£15, £10	J. H. Nicholson, Clerk, Midland Bank Chambers, Hexham	,, 13
Kilkee, West Clare—Sewerage and Sewage Disposal Scheme		T. Kelly, Clerk, The Workhouse, Kilrush	,, 15
Sofia, Bulgaria—State and Municipal Offices	£280, £120, £80, £4	Kreis-Permanenz-Ausschuss, Sofia, Bulgaria	,, 30
Swansea—Castle-street Improvement (Assessor, S. S. Reay, F.R.I.B.A.)	£50	The Town Clerk, Guildhall, Swansea	May 5
Devizes—Additions to Cottage Hospital	£10 10s.	E. Thorp, Hon. Secretary, Devizes	,, 10
Aspatria—Sewerage Scheme		F. Richardson, Clerk, Aspatria, Cumberland	June 10
Athens—Court of Justice (cost £160,000)	£800, £320	Comm. Intel. Branch, Board of Trade, 73, Basinghall-street, E.C.	Aug. 8
Glasgow—Alexander Thomson Travelling Studentship	£60, £20	C. J. Maclean, Secretary, 115, St. Vincent-street, Glasgow	Dec. 29
Inverness—Remodelling Northern Meeting Assembly Rooms		Thomas G. Henderson, Secretary, Eastgate House, Inverness	No date

LIST OF TENDERS OPEN.

BUILDINGS.

Lepton—Additions to Four Houses, Rowley-lane		J. Kirk and Sons, Architects, Huddersfield	Mar. 31
Gellifaelog—Schools (1,150 palces)	Merthyr Tydfil Education Com.	J. Ll. Smith, M.S.A., Aberdare	,, 31
Sandbach—Upper Standards School	Congleton Administrative Sub-Com.	Alfred Price and Son, Architects, Sanbach	,, 31
Lepton—Two Houses, Rowley-lane		J. Kirk and Sons, Architects, Huddersfield	,, 31
Knuteford—Repairing Clifton House	Bucklow Union Guardians	J. H. Hall, F.S.I., 1, Cooper-street, Manchester	,, 31
Pontypool—Covered Play Shed at West Monmouthshire School		Fisher and Sons, Architects, Albion Chambers, Pontypool	,, 31
Redcar—Shelters on Esplanade	Urban District Council	J. Howcroft, Surveyor, 2, West-terrace, Redcar	,, 31
Ebbw Vale—Enlarging Christ Church	Rev. I. Evans	G. E. Halliday, F.R.I.B.A., 19, Castle-street, Cardiff	,, 31
Milford Haven—Residence at Murray-crescent		J. B. Gaskall, Architect, Milford Haven	,, 31
Blackwood—Twenty Workmen's and Eleven Officials' Houses	Oakdale Navigation Colliery Co., Ltd.	A. F. Webb, Architect, Blackwood, Mon.	,, 31
Sherburn—Six Cottages	J. Pilling Kirk	David Petch, Architect, 6, Westborough, Scarborough	,, 31
Oakworth—Detached Cottage at Wright-avenue		Moore and Crabtree, Architects, York Chambers, Keighley	,, 31
Mushury, near Axminster—Rectory		Harbottle Reed, F.R.I.B.A., 12, Castle-street, Exeter	,, 31
Longtown—Additions and Improvements to Schools	Cumberland Education Committee	The Clerk of Works, 13, Earl-street, Carlisle	April 1
Barming Heath—Internal Alterations to Lunatic Asylum	Kent Asylums Committee	Francis R. Howlett, Clerk, 9a, King-street, Maidstone	,, 1
Fransham—House and Stables	Miss E. K. Archer	A. F. Scott and Son, Architects, 24, Castle-meadow, Norwich	,, 1
Northallerton—Additions to Grammar School	North Riding Education Committee	W. H. Brierley, F.S.A., 13, Lendal, York	,, 1
Halifax—Maple Flooring at Boothtown School	Education Committee	James Lord, M.I.C.E., Borough Engineer, Town Hall, Halifax	,, 1
Bandon—Twenty-nine Labonrers' Cottages	Rural District Council	A. Haynes, Clerk, Bandon	,, 1
Wootton Bassett—Police Station	Wilts County Council	J. G. Powell, County Surveyor, Trowbridge	,, 2
Nottingham—Boiler House and Chimney, Pumping Station	Water Committee	F. W. Davies, Water Engineer, St. Peter's Churchside, Nottingham	,, 3
Maldon, Essex—Elementary School (520 places)	Essex Education Committee	F. H. Bright, Clerk, 63, High-street, Maldon, Essex	,, 3
Wimbledon—Additions to Drill Hall, St. George's-road	Territorial Force Association	Jarvis & Richards, Archts., Queen Anne's Gate, Westminster, S.W.,	,, 3
Truro—Seventeen Artisans' Dwellings at Waterloo	City Council	F. A. Barnes, A.M.I.C.E., City Eng., Municipal Buildings, Truro	,, 3
Aberdeen—Goods Shed and Offices	Caledonian Railway Co.	J. Blackburn, Secretary, 302, Buchanan-street, Glasgow	,, 3
Tidworth—Riding School, Assaye Barracks	Secretary of State for War	The Director of Barrack Construction, 80, Pall Mall, S.W.	,, 3
Walbottle—Fifty-eight Houses	Newburn Urban District Council	G. Wilkinson, Clerk, 1, Mosley-street, Newcastle-on-Tyne	,, 3
Plymouth—Barracks at Lambhay Green	Devon Territorial Force Association	T. R. Kitsell, A.R.I.B.A., George-street Chambers, Plymouth	,, 3
Long Sutton—Improving Works & Repairs to Corn Exchange		W. H. H. Davis, Architect, 2, York-row, Wisbech	,, 3
Gloucester—Tramp Wards in Great Western-road	Guardians	Walter B. Wood, A.R.I.B.A., 12, Queen-street, Gloucester	,, 3
Carmarthen—Wooden Pavilion for Royal National Eisteddfod	Executive Committee	J. C. H. Portnell, General Sec., Eisteddfod Offices, Carmarthen	,, 3
Tarves—House	Alex. Cumming	J. Cobban, Architect, Haddo House	,, 3
Newton Abbot—Market Man.'s House, Six Shops, & Fire Stn.	Urban District Council	C. D. White, Surveyor, Town Hall, Newton Abbot	,, 3

BUILDINGS—*contd.*

Marsden—[illegible] Houses at S[illegible]	[illegible] Sons, Ltd.	J. Berry, Architect, 3, Market-place, Huddersfield	April 3
Kerfig Hill—Grocer's Shop, [illegible]	Miss Jenkins	A. T. James, Architect, Bisley House, Pyle, near Bridgend	" 3
Gillingham, near Bargoed—H[illegible]	Gellygaer Urban District Council	J. P. Jones, F.I.S.E., Council Offices, Hengoed, via Cardiff	" 3
Burghead—Cottages [illegible]	[illegible]	J. Willet, Architect, Elgin	" 3
Newton Abbot—Alter[illegible] [illegible] Hall	Urban District Council	C. D. White, Surveyor, Town Hall, Newton Abbot	" 3
Northallerton—Addition[illegible]	North-Eastern Railway Co.	William Bell, Architect, York	" 4
Swindon—Enlarging H[illegible]	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	" 4
Merthyr Tydfil—Infants' S[illegible]	Education Committee	The Deputy Surveyor, Town Hall, Merthyr	" 4
Wrexham—Alterations [illegible]	Great Western Railway Co.	A. E. Bolter, Secretary, Paddington Station, W.	" 4
Shildon—Institute	North-Eastern Railway Co.	William Bell, Architect, York	" 4
Darlington—Laundry [illegible]	Corporation	G. Winter, Borough Surveyor, Town Hall, Darlington	" 4
Newtown—Domestic Science [illegible]	Montgomery Education Authority	L. Phillips, Clerk, Education Offices, Newtown	" 4
Morley—Pavilion, Hall, [illegible]	[illegible]	Howorth and Howorth, Architects, Bank Chambers, Cleckheaton	" 4
Todmorden—Pasture Stables	[illegible]	F. H. Mitchell, Architect, Water-street, Todmorden	" 4
Keighley—Alterations, Nurses' Home [illegible]	Guardians	Moore and Crabtree, Architects, York Chambers, Keighley	" 4
Hull—Coal Storage Warehouse	Guardians	T. B. Atkinson, Architect, 11, Trinity House-lane, Hull	" 4
Glasgow—Improved Water Supply [illegible]	Corporation	Jas. Dalrymple, General Manager, 40, Bath-street, Glasgow	" 4
Dirleton—School	School Board	J. A. Carfrae, 3, Queen-street, Edinburgh	" 4
Manchester—Drainage and Water [illegible]	Guardians	A. J. Margetroyd, Architect, 23, Strutt-street, Manchester	" 4
London, S.W.—Extensions [illegible]	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	" 5
Manchester—Alterations and Additions to Stockbridge Houses	S. Manchester Board of Guardians	C. Clegg and Sons, Architects, 21, Spring-gardens, Manchester	" 5
Ardwick-green, N.—Extensions [illegible] Nurses' Home	Holborn Union Guardians	A. S. Snell, F.R.I.B.A., Southampton Bldgs., Chancery-lane, E.C.	" 5
Maltby—Institute	H.M. Works Commissioners	H.M. Office of Works, 3, Parliament-square, Edinburgh	" 5
Littlehampton—Fire Engine House, Sea[illegible]	Urban District Council	H. Howard, F.S.I., Surveyor, Town Offices, Littlehampton	" 5
Haxby-near-York—Enlarging Church	[illegible]	W. H. Wood, F.R.I.B.A., Architect, Durham	" 5
Hastings—Post Office	[illegible]	J. Thomson, Architect, Bo'ness	" 5
Pilkington—Police—Vestry	[illegible]	Thorp and Turner, Architects, Goole	" 6
Manchester—Alterations to Cottages, Williamson Square [illegible]	Midland Railway Co.	The Engineer's Office, Derby Station	" 6
Lydiate-lane, Repairs at School	Kent Education Committee	Wilfrid H. Robinson, Architect, Caxton House, Westminster, S.W.	" 6
Highgate Hill, N.—Bathing Accommodation for Nurses	St. Mary's Islington Guardians	E. J. Harrison, 9, Gray's Inn-square, W.C.	" 6
Chatham, Kent—County School, Chatham Hill [illegible] places	Kent Education Committee	W. H. Robinson, M.S.A., Archt., Caxton House, Westminster, S.W.	" 6
Perth—Infirmary Buildings	Infirmary Directors	J. Miller, A.R.S.A., F.R.I.B.A., 15, Blythswood-square, Glasgow	" 6
Ulverston.—House at Oubas-hill	[illegible]	J. Wilson, 28, Oubas-hill, Ulverston	" 6
Wadsworth—Twelve Houses at Billy-lane	[illegible]	Sutcliffe and Sutcliffe, Architects, New-road, Hebden-Bridge	" 6
Sedgefield—Additions to Parish Hall	Parish Council	T. W. Richardson, M.S.A., 57, High-street, Stockton-on-Tees	" 6
Rugby—Transformer Chambers	Urban District Council	T. S. Shenton, A.M.I.E.E., Manager, Benn Buildings, Rugby	" 6
Colwyn—Five Houses, Leymoor-road	[illegible]	J. Ainley, Architect, Chapel-street, Slaithwaite	" 6
Eastleigh—Drill Hall, Factory-road	Territorial Force Association	R. H. P. Bevis, Architect, Elm-grove Chambers, Southsea	" 6
Croydon—Drill Hall, Mitcham-road	Territorial Force Association	Jarvis and Richards, Architects, 10, Queen Anne's-gate, S.W.	" 6
Tyndrum—Reconstructing Manse	Kulin School Board	T. M. Logan, Architect, Tayview, Killin	" 6
Mousehole—School	Cornwall Education Committee	Sampson Hill, Architect, Green-lane, Redruth	" 6
Lustleigh—Clubhouse in Town Orchard	Conservative Association	A. Ponsford Fisher, Lyneham, Chudleigh	" 6
Kirkcaldy—Bathroom at Fever Hospital	Town Council	W. L. Macindoe, Town Clerk, Kirkcaldy	" 6
Wakefield—School, Lawefield-lane	Education Committee	Watson, Son, and Ellison, Archts., Bastow-square, Wakefield	" 6
Lightcliffe—House	[illegible]	Walsh and Nicholas, Architects, 10, Harrison-road, Halifax	" 10
Deal.—Alterations to Engineer's House at Waterworks	Deal & Walmer Joint Water Board	Brown and Hardman, Clerks, Deal	" 10
Llanfair—Alterations to Rhiwhirnaeth School	Montgomery Education Authority	L. Phillips, Clerk, County Education Offices, Newtown	" 10
Shiney Row—School [illegible] places	Durham County Council	W. Rushworth, Shire Hall, Durham	" 11
Mortlake, S.W.—Additions to Electricity Works, High-street	Barnes Urban District Council	G. Bruce Tomes, A.M.I.C.E., Surveyor, High-st., Mortlake, S.W.	" 11
New Seaham—School [illegible] places	Durham County Council	W. Rushworth, Shire Hall, Durham	" 11
Halifax—Two Pairs of Semi-detached Villas	[illegible]	Medley Hall and Son, Architects, 1, Harrison-road, Halifax	" 11
Bradford—Additions to Medical Officers' Residence	Guardians	Fred Holland, Architect, 22, Manor-row, Bradford	" 11
Merthyr Tydfil—Restoration of Penydarren Schools after Fire	Education Committee	J. Llewellin Smith, M.S.A., Aberdare	" 12
Knebworth—School [illegible] places	Hertfordshire County Council	Urban A. Smith, Surveyor, County Surveyor's Office, Hatfield	" 12
Farcet—Infants' School	Hunts Education Committee	The County Surveyor, 35, High-street, Huntingdon	" 12
East Howe—School	Dorset County Council	Fletcher, Son, and Brett, Wimborne	" 13
St. Albans—St. Paul's Vicarage	[illegible]	E. and J. P. Cutts, Archts., 14, Southampton-street, Strand, W.C.	" 14
Stansted—Elementary School [illegible] places	Essex Education Committee	F. Whitmore, Architect, 73, Duke-street, Chelmsford	" 15
Stansted—Alterations to School	Essex Education Committee	F. Whitmore, Architect, 73, Duke-street, Chelmsford	" 15
Heaton, Newcastle-on-Tyne—New Branch Post Office	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	" 19
Carnforth—Enlarging Post Office	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	" 19

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April 7, 1911. Volume C. No. 2935

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House, Strand, W.C.

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OUR ILLUSTRATIONS.

The Freemasons' Hall, Edinburgh. Mr. A. Hessler Crawford, F.R.I.B.A., Architect.

The London City and Midland Bank, Ltd., North and South Wales Bank Branch, Birkenhead. Messrs. Edmund Kirby and Sons, Architects.

North Transept Portal, Rouen Cathedral; Pavilion of Louis XII.; Palais de Justice, Rouen, and Choir Stalls Canopy, Amiens Cathedral. Drawn by Mr. Philip D. Hepworth.

Selected Design, Carnegie Library, Penistone. Mr. Henry R. Collins, Architect.

Illustrations from "William Ford Stanley Historical Work."

Reinforced Concrete Buildings in London. By Mr. Wm. G. Shipwright, M.C.I.

HOUSE WARRANTY.

Under the Common Law an owner who lets a house unfurnished for dwelling purposes gives no implied warranty whatever that it is reasonably fit for habitation when the tenacy begins. Nor is he under any sort of legal liability as to maintaining the house or doing any repairs during the whole period of its occupation. Of course, landlords nowadays do put their houses in fair order to get them let, and often do repairs to keep a good tenant; but this is quite voluntary, and for their own interests. In regard to houses let furnished, the law has always implied as a condition of the contract that they were fairly fit for habitation; but with respect to houses let empty in the ordinary way, there is at Common Law no implied warranty by the owners that they are at the time, or will remain, reasonably habitable. This old state of things was first broken in upon by the Housing of the Working Classes Act, 1890, which in s. 75 provided that in any contract for letting for habitation by persons of the working classes a house, or part of a house, there should be implied a condition that the house was, at the commencement of the holding, reasonably fit for habitation. This statute only applied to houses not exceeding rental value of £20 a year in London, and at lower rents in provincial cities and in the country. Nor did the Act say anything with regard to the landlord's duty to keep the place in a fit state of repair during the tenancy. Now, however, by the Housing and Town-Planning Act, 1909, which has been in force since December 3 of that year, the legal position of landlords is considerably altered. In the first place, the old Act of 1890 is declared to be of general application, and to take effect without adoption by local authorities, as first required.

But the most important changes in the law are those contained in sections 14 and 15 of the new statute. It is necessary to bring these out, because they affect great numbers of property-owners in London and the country, to whom they may remain quite unknown by being, as it were, casually thrown into this complicated statute about housing and town planning, which was promoted for quite other purposes by the Local Government Board. The sections require careful study because they make a wide breach in the Common Law, and add very largely to the liability of landlords. Section 14, which is described in the margin as an extension of s. 75 of the principal Act of 1890, above quoted, declares that in any contract after the passing of this Act (December 3, 1909) for letting for habitation a house or a part of a house to which the Act applies, there shall be implied a condition that it is, at the commencement of the holding, in all respects reasonably fit for human habitation. The section then states that the Act applies to all houses in the administrative County of London let at a rent not exceeding £40; that is to say, it doubles the rental limit of the Act of 1890. In the case of a house situate in a borough or urban district with a population of 50,000 or upwards, the rental limit is £26, and in all other places it is £16. These figures are also practically double those given in the earlier Act of 1890. The condition stated in s. 14, that the house when let shall be reasonably fit for habitation, of course, amounts in law to an implied warranty that it is so, with all the legal consequences following upon a breach of that warranty in the way of a landlord's liability to the tenant. The only case in which this condition shall not be implied is stated in the clause as being where the house or a part of a house is let for not less than three years upon the terms that it shall be put, by the lessee, into good order, and the lease is not determinable before the end of the term. As such an arrangement as this is very uncommon, the exception does not make much difference.

But, besides this general warranty by the landlord that the house is fit for habitation when let, the following s. 15 goes a good deal further. The marginal note to this clause is, as so often happens, most misleading, for it runs:—"Condition as to keeping houses let to persons of the working classes in repair." The clause, however, is not in any way confined to small working-class property. It applies to all houses affected by the preceding section 14, and so includes London houses up to £40 and urban and country property up to £26 and £16 respectively. It provides that the condition as to a house or part of a house, which is to include even one room, being reasonably fit for habitation contained in section 14, shall include an "undertaking that the house shall during the holding be kept by the landlord in all respects reasonably fit for human habitation." In this, the lumbering language of modern statutes, it is practically declared that the warranty of fitness for habitation, which is now implied upon every letting of property covered by the Act, shall be a continuing warranty of such fitness throughout the whole period of the holding. In other words, the law now implies not only a covenant on the part of the landlord to put a house in a reasonable state of repair before letting, but also to keep it in that state during the tenant's occupation. This is a striking change in the law, to the advantage of the tenant the full scope of which is not likely to be realised for some time to come. It was suggested in the textbooks that parties might contract themselves out of the Act of 1890, and probably the same view would be taken by lawyers of the last statute. There is no clause in this Act of 1909 making such a contracting out void or invalid, and so, prima facie, it would seem feasible, if supported by a good consideration, which, however, would of itself present some legal difficulty, and so the plan is hardly likely to be attempted.

The legal effects of the warranty now implied in letting a house or part of a house under the Act of 1890 so greatly enlarged and extended by the last statute will, doubtless, be developed as time goes on, and the Courts are called upon to construe the meaning of this legislation. It would seem that where the condition as to fitness for habitation is broken by the landlord, a tenant may quit without paying rent or giving notice. Under the former Act it was held in one case that a tenant could recover damages from the landlord where his wife was injured by the falling down of a plaster ceiling. There are, of course, many other ways in which an owner can now become liable for accidents arising through the bad state of repair of premises to which the Act is applicable. This is likely to be even more especially the case with reference to old property. In a recent action before Mr. Justice Scrutton, in the High Court (February 28, 1911), which does not seem to have been anywhere fully reported, "Schnell v. Chamberlain and Co.," the plaintiff, as tenant of a house in Devonshire-street, Holborn, sued the defendants, as owners, for damages. The facts proved showed that the plaintiff, a tailor, was sitting outside an upstairs window cleaning the glass, and holding on to the sash in the usual manner. Suddenly the sash gave way, and he fell to the ground, breaking his ankle and getting seriously bruised. His claim was based on the last Act of 1909, and he contended that, as the house was under £40 a year rent, the defendants, as landlords, were bound to keep the premises in all respects reasonably fit for habitation. In the end the jury found in his favour, with £50 damages, and judgment for the plaintiff was given accordingly. It is needless to point out that under the Common Law and before the passing of the new Act this action would not have succeeded, as there was then no legal responsibility upon owners of houses which could entail liability to pay damages for an accident caused by non-repair of a house.

Now that the limit of rental is raised to

WILLIAM FORD STANLEY.—Portrait taken in 1909.

WILLIAM FORD STANLEY.*

Few of us who use the tee-square to-day, probably remember that its present shape is little more than a half a century old, or that its maker and improver—the successful founder of the house whose fame as the leading manufacturers of drawing and mathematical instruments is world wide—had to battle so sturdily with adverse surroundings ere his remarkable inventions and expanding grasp of many aptitudes, and a noteworthy capacity for concentration of effort on the enterprise immediately in hand. Many a time he has come to us to exhibit and explain one of his many inventions, and the talk somehow has drifted to some branch of philosophical or speculative inquiry, and we have sat and admired equally the pertinacity and forcefulness with which

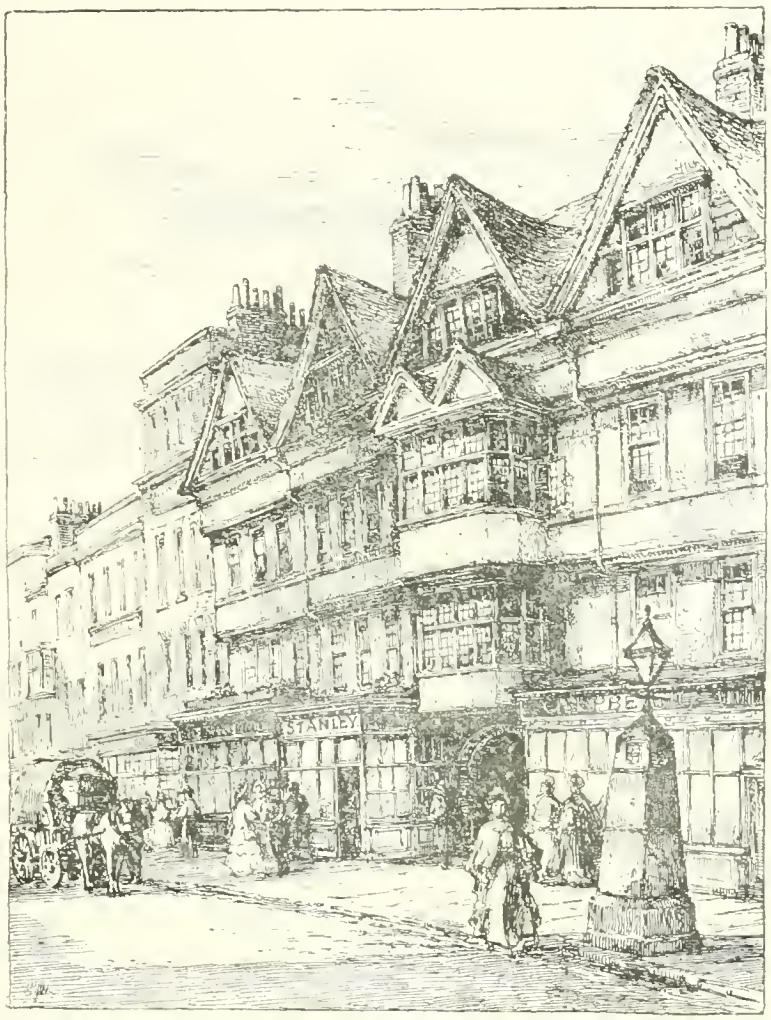
One of Stanley's Factories, 1909. Lincoln's Inn Front. (There are others at Norwood, London Bridge, and in the Great Turnstile.)

the merits and purpose of the new device were revealed and insisted on, and the subsequent wide reaching and ever-fresh energy and interest with which problems of natural science or current social needs would be discussed. And, presently remembering that neither of us were among the watters in the vineyard, he would stop short, laughing, and say: "Ah! we mustn't waste any more time to-day! I must write you a letter about

* William Ford Stanley. His Life and Work. Edited by Richard Inwards, F.R.A.S., F.R.Met.Soc. London: Crosby Lockwood and Co., 7, Stationers' Hall Court, E.C. 2s. 6d.

that for your *English Mechanic* next week." How wide his range of interest was, and how deeply he had mastered each subject, some of those letters show—notably, for instance, those on "Comets" in the *English Mechanic* of June 22 and July 6 and 20, 1883; on "The Area of the World," February 22, 1884; on "Iron," April 16, 1886; on "Buffers," April 30, 1886; on "The Luminiferous Ether," June 15, 1887; on "Carbon Atoms," April 27, 1888; on "The Ice Age," September 2, October 14, and November 4, 1898; "Is the Universe Finite?" November 24, 1899; "The Twentieth Century," January 5, 1900; on "Spontaneous Generation of Matter," January 22, 1904; on "The Rotation of the Planets," June 29, 1906; and others too numerous to quote. The same wide range covered his numberless inventions, embracing on the one hand the theodolite and the compass, and on the other the shilling stereoscope, and the novel and ingenious application of heat conductors used in cooking.

Shop in Great Turnstile (1854).—Sketch by Ernest Mager, F.R.I.B.A.



Stanley's Old Shop in Staple Inn (1858).—From a drawing by Ernest Mager, F.R.I.B.A.

The first five chapters in the book are purely autobiographical. They only bring the story up to 1865, when his well-deserved success was just beginning to reward his struggles; but they are the pith and marrow of the book, and should and will be read and reread with eager interest by any youngster who has wisely made up his mind to *deserve* success, and to peg away manfully, owing nothing to anybody, till obstacle after obstacle is surmounted. Born in 1829, of good stock—his earliest ancestor of any note was Thomas Stanley, a 17th-century philosopher and poet, whose portrait, by Lely, is in the National Portrait Gallery—Stanley owed few advantages to his immediate forebears. His father was a splendid mechanic, and a practical master of many trades. Some of his patents are still worked; but his business capacities were poor, and after exhausting his wife's fortune, he was reduced to poverty, and glad to accept the management of an engineering business, where he remained till death, "doing some excellent work, but with very little profit to his employers." Stanley was sent to a village school, at Buckland, in Hertfordshire, while under his grandmother's care, when from seven to eight years of age, and subsequently to an indifferent day school of the kind common in the 'thirties and 'forties of the last century. At fourteen he had to leave to help his father, working fourteen hours a day, including Sundays, generally in a sort of jobbing builders' business. Sick of things at home, Stanley ran away at sixteen to his uncle, who did his best to give him an education, paid his fees at the Birkbeck, and found him a situation with a drainage contractor, and subsequently in the joiner's shop of a builder. At eighteen he took a berth in the pattern shop of the works at Whitechapel where his father had become manager, and at twenty his paternal uncle at Buntingford, a builder, took him into partnership on favourable terms. Five quiet years seem to have passed, saddened by a love sorrow, during which time Stanley gave himself enthusiastically to the study of architecture; but failure in a competition led him to the conclusion that his "education was insufficient, or that he was not in the run of the prevailing fashion, and that it was useless to try further."

About this time his father suggested to him that English work in drawing instruments was going down, the Swiss and the French having beaten our own people out of the market. He thought there was an opening for any English maker with originality. Stanley had only a hundred pounds which he had saved; but he thought he would venture it, and he took a shop and parlour at No. 3, Great Turnstile—long since pulled down—at twelve shillings a week. This was in 1854, when stagnation in the building trade was complete; and engineering, hardly recovered from the great railway collapse, and harassed by the then recently-established trade unions, was in little better plight. There was consequently little demand for Stanley's work. However, he got a list of prices out, and began making tee-squares, set-squares, parallel rules and curves of pearwood, in the French form, and at lower prices than the imported articles. He also made his tee-squares with the blade of taper form, and forced to the top of the stock by screws. This form is now used all over the world; but, says Stanley, "it was a long time before I could make the profession recognise it, no doubt from my being young, and in no way an authority." Anyhow, retail orders came in slowly, and Stanley had to work for many years for the trade. At the close of his first year Stanley found himself with £80 of his capital gone, and discouraged. Just then a cousin, Harry Robinson, had come out of his apprenticeship as a house painter, with £150 left by his father. In delicate health, he was beginning to live on his capital. The two were friends, and it was determined they should live together as partners, and that

Harry's £150 should go into the business. In 1856 the old stereoscope had just become a popular toy. In its original form it was cumbrous and comparatively dear. Stanley produced the "Panoptic stereoscope," in the type now common, for a shilling. It caught on, and the profits gave his business a good start. In 1857 came marriage. He and his wife only occupied four rooms in the Turnstile, and Robinson, who lived with them, had to be given the best, being a confirmed invalid. He died early in 1859. In 1859 Stanley took for a few years an additional shop at Holborn Bars, just on the City side of Middle Row. Hard work gradually brought success, and the only award for mathematical instrument work at the 1862 Exhibition. Then came a three months breakdown, and illness. Recovery was followed by removal to live in a small but comfortable house at Kentish Town. In 1865 the well-known treatise on drawing instruments established its author's position as an authority, and he began to turn his attention to the construction of surveying instruments—more particularly the theodolite, in which—as we who then used it may remember—there were no less than 226 pieces, including screws, all of which had to be fitted together by the use of the file. Stanley reduced the number of pieces by one half, and the weight of the instrument considerably, although the new form had much greater stability.

So far Stanley's own record takes us. Mr. Richard Inwards's brief but most interesting notes of the subsequent years of strenuous organisation of factory after factory, all the while pouring out literary and scientific work, and scores of patents, and finding time for considerable journeys abroad, exploring Switzerland, Palestine, and Egypt in succession, will be read with pleasure. Magistrate, artist, carver, photographer, song and playwriter, chess-player, he led indeed a full life. He designed his own house at Norwood and the whole of the buildings comprising the Stanley Technical Schools. The Stanley Hall was projected in 1901, and opened on February 2, 1903, on its founder's seventy-fourth birthday. The technical school was opened in 1907. The scope and purpose of both are fully set forth in the last paper written by Stanley on "Technical Trade Schools," which is given in full in the appendix. It is well worth the most careful study. Since then men like the Lord Mayor and Mr. Applegarth and others are moving on similar lines. May all success follow!

The end of the long, busy, happy life came on August 14, 1909, at the ripe age of eighty. It is given but to few of us to leave such a record as that embodied in the "Dates and Events," which form Appendix II. Of all lives, assuredly such are the most enviable, for the men that live them have no time to be "tired," and their story is the strength of the generations that come after, and the ever-accruing wealth of the great harvest of Humanity.

REINFORCED CONCRETE DESIGN. VI.

By Richd. Coulson, Licentiate R.I.B.A., and Richd. Coulson, jun., Assoc. R.C.Sc.I.

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Where slabs are continuous over beams it is necessary to provide for the resulting negative bending moment at these points, and this can be most conveniently done by bending up the ordinary tensile reinforcing rods for about a quarter span on each side of the beam alternately, as shown by Figs. 7 and 8.

There is also a tendency for the slab to shear at its junction with the beam along planes P P as shown by dotted lines in

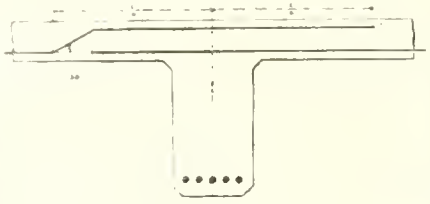


Fig. 7.

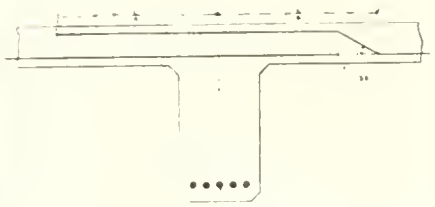


Fig. 8.

Fig. 9; where there is slab reinforcement at right angles to the beam it will be sufficient to take this shear, otherwise rods must be put in for the purpose, when their total area will require to be—

$$\tfrac{1}{2} \cdot \frac{2 A_s f_s}{S_s}$$

and if a' be the diameter of the rods, the number required will be—

$$\frac{1.27 A_s f_s}{(a') S_s}$$

The centres of the rods should be about $t/3$ from upper surface of slab, and their length at least $2b'$.

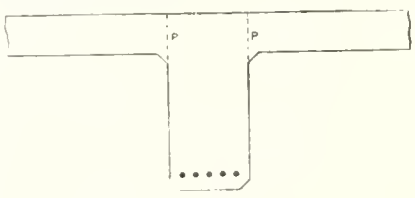


Fig. 9.

As shown in the figures, these continuous slabs commonly form part of the beams supporting them, and are then assumed, where there is single reinforcement only, to take the whole of the compressive stress, the stem or web of the so-called T-beam being made of sufficient breadth, b', to cover the tensile reinforcement, for which purpose half the effective depth d will usually be found a very suitable proportion.

The theory and symbolic formulæ for these T-beams are given in this article, and the reduced working formulæ, diagrams, and examples will follow subsequently.

For complete table of notation see p. 268, Feb. 24, 1911.

Theory and Symbolic Formulæ for T-Beams with Single Reinforcement.

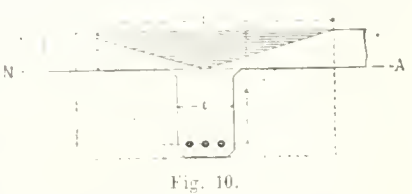


Fig. 10.

position of neutral axis.

Considering a T beam as Fig. 10, in which the neutral axis is at the under side of the slab, the equivalent compression area being represented by the shaded portion, then—

$$d = \mathrm{T}\ x,$$

and such a T-beam, so far as bending is concerned, is identical with a rectangular beam of breadth b and depth $\mathrm{T}\ x$, so that from equation (2), p. 269, Article I.—

$$b(\mathrm{T}\ x)^2 = \frac{6\,\mathrm{M}\,(r f_c + f_s)^2}{r f_c^2 (2 r f_c + 3 f_s)}$$

substituting for x—

$$\frac{6\,\mathrm{M}\,r}{b\,\mathrm{T}\,(2 r f_c + 3 f_s)} = \mathrm{T} \quad \ldots\ldots\ldots (28)$$

If we increase M or decrease b or T, the value of—

$$\frac{6\,\mathrm{M}\,r}{b\,\mathrm{T}\,(2 r f_c + 3 f_s)}$$

will be greater than T, and it is evident that the neutral axis, in order to obtain the required additional compression area, will then have to be below the under side of slab, or vice-versâ in the slab.

Therefore, in a single reinforced T-beam the neutral axis is in, at under side of, or below slab, according as—

$$\frac{6\,\mathrm{M}\,r}{b\,\mathrm{T}\,(2 r f_c + 3 f_s)}$$

is less than, equal to, or greater than T.

Taking first the case of the neutral axis in slab, the beam being in effect a rectangular beam of breadth b and depth d—

$$d = \frac{6\,\mathrm{M}\,(r f_c + f_s)^2}{b r f_c^2 (2 r f_c + 3 f_s)} \quad \ldots\ldots\ldots (29)$$

$$\mathrm{A}_s = \frac{b d r f_c^2}{2 f_s (r f_c + f_s)} \quad \ldots\ldots\ldots (30)$$

or—

$$\mathrm{A}_s = \frac{3\,\mathrm{M}\,(r f_c + f_s)}{d f_s (2 r f_c + 3 f_s)} \quad \ldots\ldots\ldots (31)$$

For neutral axis at under side of slab, either the formulæ for neutral axis in slab or for neutral axis below slab may be used, as both equally apply.

Now, considering the neutral axis below the slab, the equivalent resistance area will be as follows, the compression in the web being neglected. Stress on concrete at under side of slab—

$$f_c \frac{x d - \mathrm{T}}{x d}$$

Average stress on depth of slab—

$$f_c \frac{2 x d - \mathrm{T}}{2 x d}$$

The stress acts over an area, $b \times \mathrm{T}$; therefore the total compressive resistance is—

$$b\,\mathrm{T} f_c \frac{2 x d - \mathrm{T}}{2 x d}$$

The equivalent resistance area for maximum f_c may be represented by a trapezoid in the slab, having a breadth b of compression edge of slab as base, and whose non-parallel sides, if produced, would meet in the neutral axis, as shown in Fig. 11.

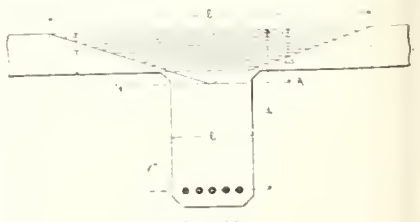


Fig. 11.

arm of resistance couple.

The arm of the resistance couple may be taken as for a rectangular beam, namely—

$$d(1 - x\ 3)$$

the difference between this and the correct value being negligible, and on the side of safety.

MOMENT OF RESISTANCE.

$$R = b T f_c \frac{2 x d - T}{2 x d} d (1 - x \tfrac{1}{3})$$

If a beam is required to resist a given bending moment, M, R must equal M; therefore—

$$d = \frac{3 M (r f_c + f_s)}{b T f_c (2 r f_c + 3 f_s)} + \frac{T (r f_c + f_s)}{2 r f_c} \quad ..(32)$$

AREA OF REINFORCEMENT.

Total tension equals total compression, therefore—

$$A_s = \frac{b T [r f_c (2 d - T) - T f_c]}{2 d r f_s} \quad .....(33)$$

Or— $$A_s = \frac{3 M (r f_c + f_s)}{d f_s (2 r f_c + 3 f_s)} \quad .....(34)$$

Stirrups should always be used in T-beams.

NEGATIVE BENDING MOMENTS IN T-BEAMS.

In T-beams continuous over supports negative bending moments are set up, to meet which a corresponding moment of resistance must be provided at the supports.

Then, if p is the ratio of this negative moment to the positive moment at centre of span—

negative R = p × positive R.

To provide this negative R the depth of the beam may be increased at the supports; compressive reinforcement may be used, or the two combined, as in Fig. 12, the positive tensile reinforcement being continued on to act as compressive reinforcement at the supports, and bent down as necessary to accord with the increased depth of the beam, new negative tensile reinforcement being introduced near upper surface of beam, as in Fig 12.

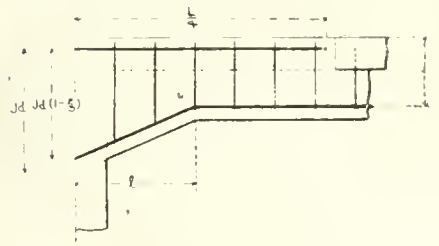


Fig. 12.

Depth of beam at centre of support = d', or $j d$; therefore, depth to centre of compressive reinforcement = $d' (1 - x/3)$, or $j d (1 - x/3)$; b' may be taken as $\frac{1}{2} d$.

Compressive resistance of concrete web at centre of support—

$$b' d' x f_c = \tfrac{1}{4} d d' x f_c$$

Compressive resistance of reinforcement at centre of support—

$$2\ 3 A_s f_c (r - 1)$$

and the sum of these two must equal $p A_s f_s$. But—

$$A_s = \frac{M}{d f_s (1 - x\ 3)}$$

and— $$d' = j d,$$

therefore—

$$j \frac{2 d^3}{M} + j \frac{8 (r - 1) (r f_c + f_s)^2}{r f_c f_s (2 r f_c + 3 f_s)} = p \frac{12 (r f_c + f_s)^2}{r f_c^2 (2 r f_c + 3 f_s)} \quad .....(35)$$

Tensional reinforcement, extending to the quarter points of the beam, will be required over each support. This reinforcement should be placed not less than 1½in. from upper surface of beam; its area A_s' will be—

$$\frac{p A_s}{j} \quad .....(36)$$

POINTS AT WHICH INCREASE IN DEPTH MUST COMMENCE.

The combined moment of resistance of the web and of the lower reinforcement, acting in compression, will be—

$$[\tfrac{1}{4} d^2 x f_c + 2\ 3 A_s f_s (r - 1)] d (1 - x\ 3)$$

substituting for x, the increase in depth must commence at the points in the span at which the negative bending moment is—

$$\frac{d f_c (2 r f_c + 3 f_s)}{3 (r f_c + f_s)} \left[\frac{d^2 r f_c}{4 (r f_c + f_s)} + 2\ 3 A_s (r - 1) \right] \quad ....(37)$$

If it is not desired to increase the depth of the beam at the supports, the total area of compressive reinforcement will be—

$$C_s = \frac{3 p A_s f_s}{2 f_c (r - 1)} - \frac{3 d^2 r f_c}{8 (r - 1) (r f_c + f_s)}$$

so that if the tensional reinforcement is continued straight through, the area of additional reinforcement required will be $C_s - A_s$, or—

$$\frac{A_s [3 p f_s - 2 (r - 1) f_s]}{2 f_c (r - 1)} - \frac{3 d^2 r f_c}{8 (r - 1) (r f_c + f_s)} \quad ..(38)$$

This additional reinforcement should extend to the points at which the increase in depth would otherwise commence.

The depth of the beam remaining constant—

$$A_s' = p A_s \quad .....(39)$$

Diagrams will be given for finding d, A_s, and j, also l for beams with uniformly distributed loads; but for other conditions of loading, l is best found from the bending-moment diagram, an example of which will be furnished.

(To be continued.)

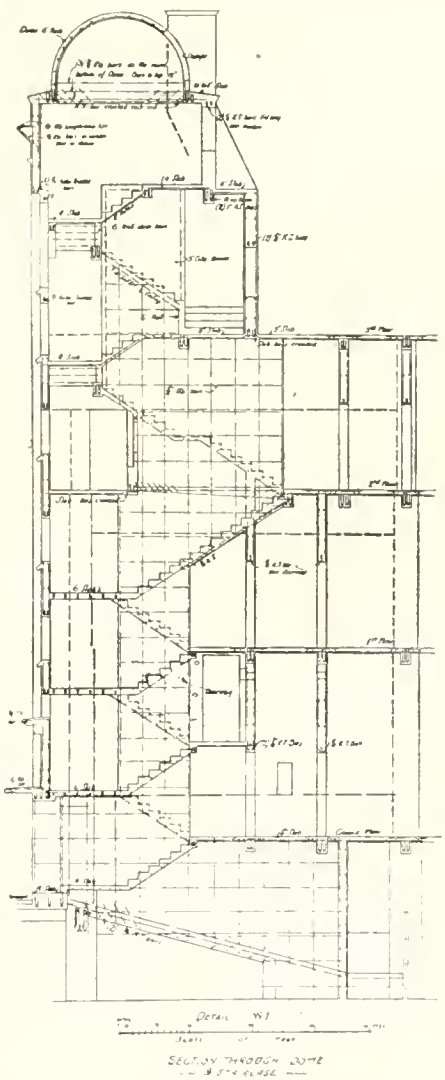
REINFORCED CONCRETE BUILDINGS IN LONDON.—V.

By Wm. G. Shipwright, M.C.I.

THE CLAY BUILDING, BRUNSWICK-STREET, S.E., G. F. COLLINSON, F.R.I.B.A., ARCHITECT.—(CONTINUED.)

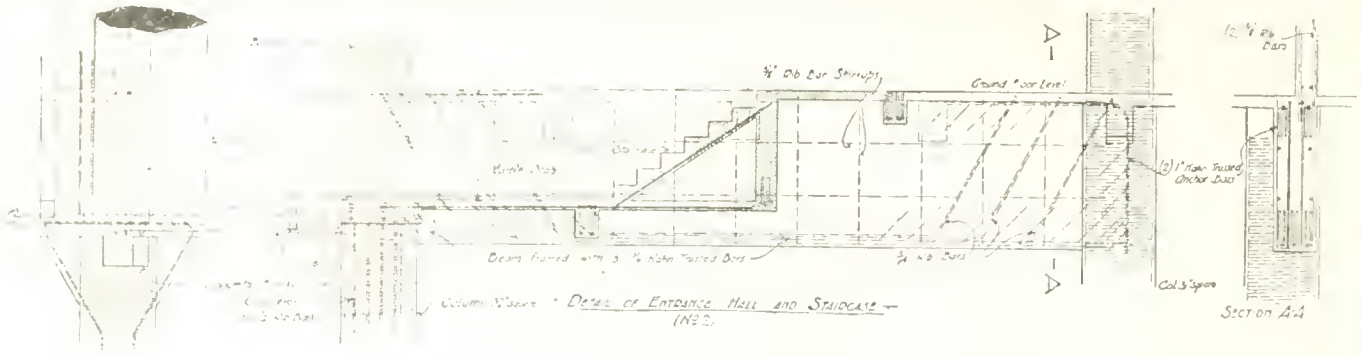
The flooring has been constructed in a series of slabs varying from 5 to 8in. in thickness, supported on reinforced beams. By far the larger proportion of the slabs are of the minimum thickness, with a span of about 6ft. between the beams, reinforced with twenty-four ½in. "rib" bars at 9in. intervals. These bars are 26ft. 6in. long, and are carried continuously across four spans. A further series of intermediate ½in. "trussed" bars, 3ft. 6in. long, are inserted across the bearings, to take up shearing stress, and provide continuity in the construction, whilst a series of 19 ½in. "rib" bars are inserted at 12in. intervals transversely across the bearing at the end of the slabs. The first-floor plan, a portion of which is reproduced, shows a typical arrangement employed throughout.

The form of construction adopted in the staircase is shown on the detailed drawing Number 1. The flights are constructed with 4in. soffits throughout, reinforced with "rib" bars arranged at 12in. centres, one bar being carried under each step and bedded into the side walls. The landings above the first-floor

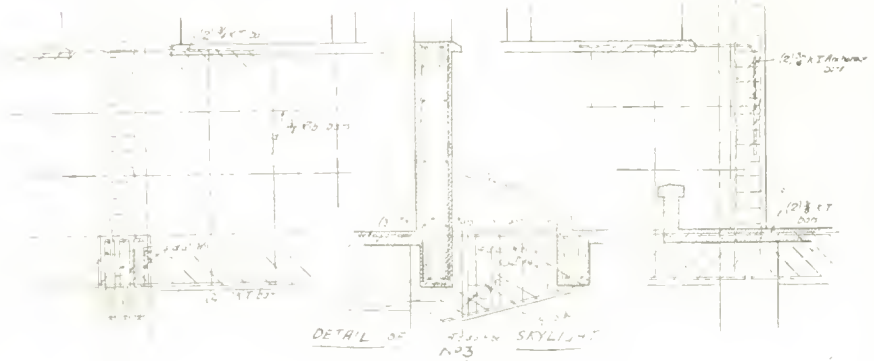


level are 4in. thick, similarly reinforced, whilst the lower landings are 6in. thick, reinforced with "trussed" bars.

The staircase walls, which are 9in. in thickness, are reinforced with a lattice of ½in. horizontal and vertical "rib" bars at 24in.

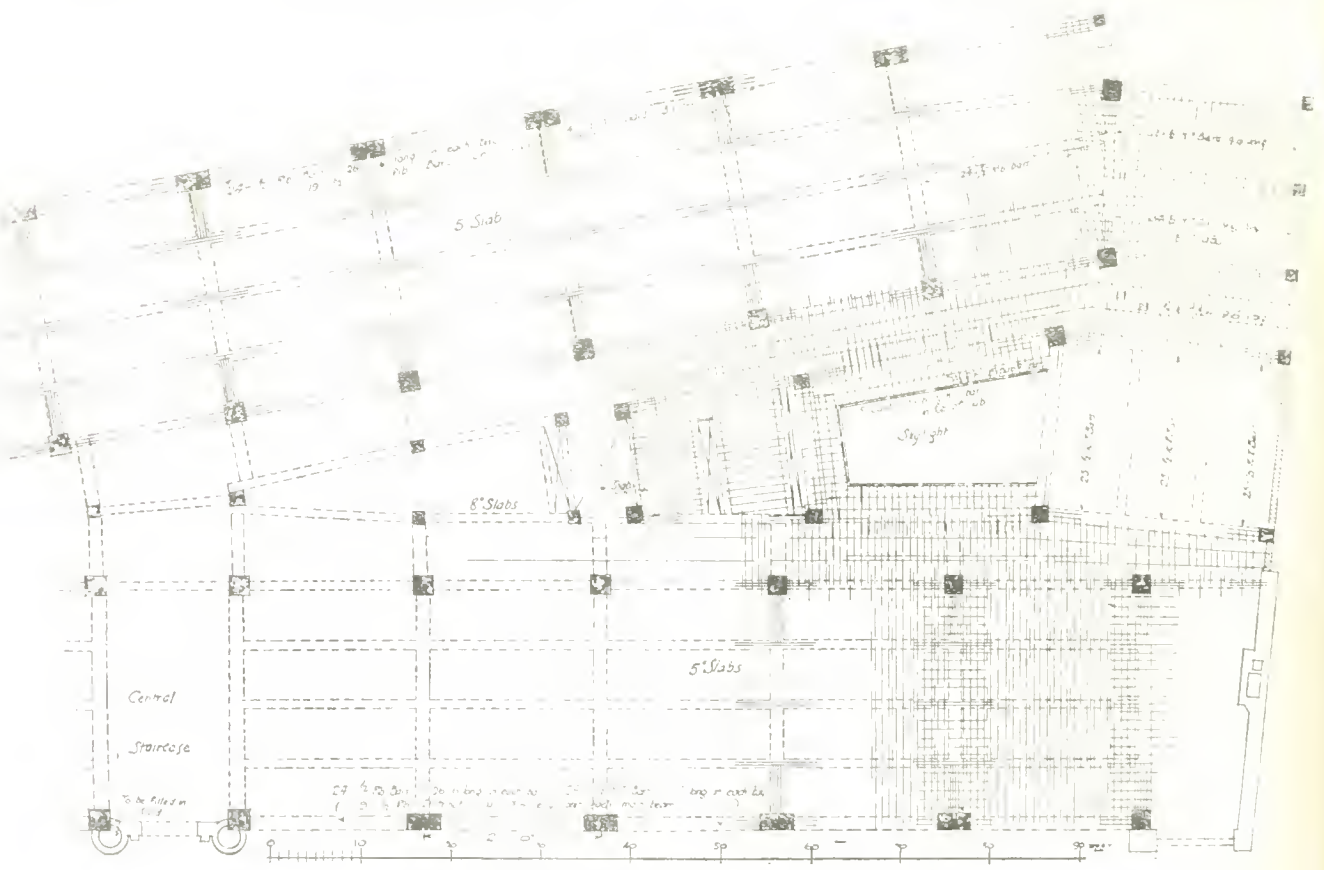


Detail of Entrance Hall and Staircase — (No 2.)



ferential reinforcement of three eight inch "rib" bars, the curb reinforcement being augmented with two 1in "trussed" bars.

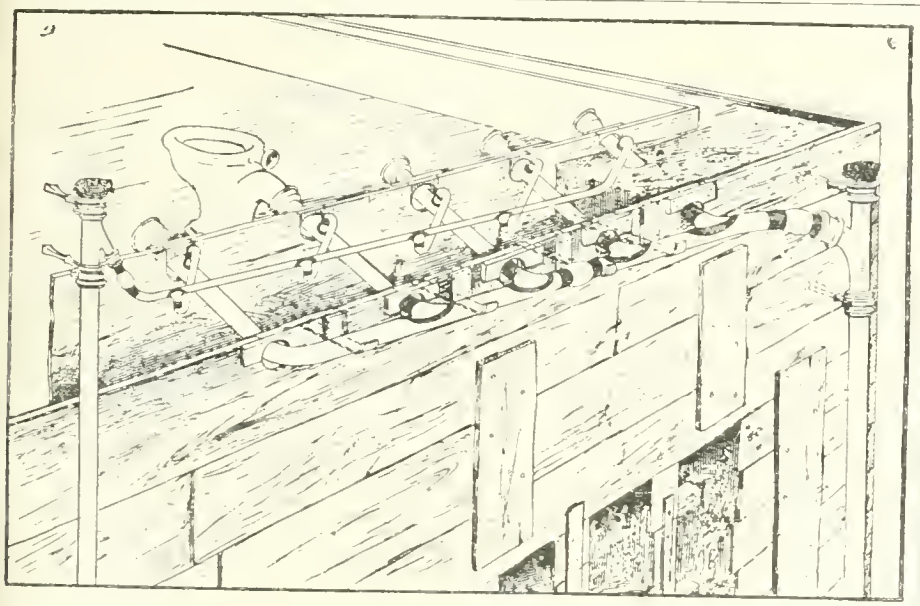
An enlarged detail of one of the more interesting examples of beam construction is shown in detail No 2. The beam has a span of about 20ft, and supports the newel walls of the staircase adjacent to the principal entrance. It is 5ft 6in deep and 18 in width, with 4 tensional reinforcement of three 1in. "trussed" bars traversing the full length of the beam and six "rib" bars, arranged in pairs, 25ft, 28ft, and 31ft respectively in length. Each pair of rods is turned at the end obliquely up the full height of the beam, to resist the shearing stresses. A lattice of 2in by 1in "rib" bars is provided through the



Plan shewing portion of floor construction

entire length, [illegible] to get ay to the construction, and a secure anchorage into the supporting columns is obtained by two 1in "trussed" bars bedded about 6ft into the solid concrete near the upper surface of the beam, bent at right angles above the columns, and carried about 3ft down the back of the latter.

An interesting piece of construction adopted in the formation of the skylights in the internal area is shown in detail No. 3. The curb beam is 21in. by 12in. girth, reinforced by [illegible] trussed" bars rendered homogeneous with the supporting [illegible] by bonding the three 1in



"trussed" bars which form the principal reinforcement of the latter completely round the beam reinforcement, the ends of the inch bars being securely anchored into the wall and column. An efficient shear resistance is obtained in the cantilever by ¼in. diameter wiring securely bound to the main reinforcement. The beam under the external wall, which has a span of 19ft. 6in., has a tensional reinforcement of two 1in. "trussed" bars, ¾in. "rib" bar stirrups being provided at 2ft. intervals.

Special care has been taken to secure thoroughly sound construction in this building. The concrete is a graded material, composed of four parts of ballast gauged to pass a ¾in. mesh—two parts of sand to pass one eighth-inch mesh, and one part of Portland cement. The slabs forming the "tees" to the main beams were cast simultaneously with the latter, special care being taken to secure that no cleavage plane exists between the granolithic finish and the concrete in the flooring. The reinforcement of each separate part has been carried some distance into the adjoining construction, and a thoroughly homogeneous piece of work has been secured in a building which is one of the largest private enterprises carried out entirely in reinforced concrete.

The design is simple in its conception, the mouldings having (as will be seen from the perspective reproduced in the last issue) been worked entirely in straight lines, without any enrichment, but the building nevertheless comprises one of the earliest attempts at ornation in this method of construction. It provides another illustration of the possibilities of design in reinforced concrete, and is regarded by its author as affording valuable experience in the best means of producing effect in this method of construction. It may, perhaps, be best regarded as one of the stepping-stones between the building "constructed" and the building "designed" in reinforced concrete—an anticipation of the time which will come in the march of events, when the architect will be called upon to "design" his work in ferro-concrete.

The sanitary fitting of a reinforced concrete building invariably requires foresight and consideration, and frequently, as in the present case, demands the exercise of considerable ingenuity. The sketch illustrates the modus operandi generally adopted, the various pipes being fixed to the centering in position before the concrete is put in, the lugs provided for permanent fixing being bedded in the concrete as the work proceeds.

The sanitary engineers are Messrs. George Jennings, Ltd., Messrs. D. G. Somerville and Co. being the builders, and Mr. Hedges the clerk of works.

The School of Art at Hereford is about to be enlarged from plans prepared by Messrs. Bettington and Clarke, of that city. The outlay will be jointly borne by the city and county councils.

THE ARCHITECTURAL ASSOCIATION.

The fortnightly meeting of the Architectural Association was held on Monday evening at the headquarters, 18, Tufton-street, Westminster, the President, Mr. Arthur Keen, F.R.I.B.A., occupying the chair. Messrs. J. Archibald, S. B. K. Caulfield, and H. S. Davis were elected as members. The President announced that to the house list of nominations of officers for next session (published a fortnight ago, p. 408, in our issue of the 24th ult.) three additional names had been sent in as proposed members of Council—Messrs. G. E. Nield, A. G. R. Mackenzie, and A. G. Horsnell. Messrs. J. Stable, G. D. G. Hake, F. J. Matthews, H. A. Thomerson, A. L. Snow, and J. Archibald were appointed scrutineers. Mr. E. Gunn, hon. secretary, announced that the annual exhibition of sketches and photographs, the work of the Camera Sketch and Debate Club, would be held in that room from the 4th until Tuesday (next), the 11th inst., and would be open from 10 a.m. to 6.30 p.m. He also stated that a visit to the Building Trades Exhibition at Olympia would take place, by kind invitation of Mr. H. Greville Montgomery, on Saturday, the 22nd inst., members to meet at 3 p.m.; and that the Annual Dinner of the Association would be held on May 4, at the Trocadero Restaurant, Piccadilly. On the motion of the President, hearty votes of thanks were accorded to the Royal Institute of British Architects for its annual grant of £100 towards the educational work of the Association; and to Sir Henry Tanner and H.M. Office of Works for the donation of a large detailed drawing (by Mr. R. Phené Spiers) of William Burges' designs for the Law Courts front to the Strand. The President announced that the Herbert Batsford prize of Five Guineas, kindly given annually by Mr. Herbert Batsford for the best drawing published in the Sketch Book, had been awarded to Mr. J. M. Whitelaw, for a sketch of the Wellington Monument, St. Paul's.

ARCHITECTURE IN PAINTINGS.

A lecture on this subject, illustrated by nearly a score lantern slides from specially-taken photographs of pictures at the National Gallery, was delivered by Mr. Selwyn Image, the recently-appointed Slade Professor at Oxford University.

I suppose one may say, remarked the lecturer, that the treatment of architecture by painters may be divided under at least seven heads—under at least seven, possibly under more, if one wishes to go minutely into the matter—but these seven may, perhaps, serve for our immediate purpose this evening. What are they? First of all, there are those pictures in which architecture is dealt with purely or mainly for its own sake. I am not, of course, thinking of merely literal, topographical representations, which may be extremely valuable and interesting, and even charming, but hardly come under our notice at the moment. I am thinking of the work of considerable painters, as such, yet whose chief aim has been to show us faithfully how such-and-such buildings or groups of buildings at a given moment looked, and who were capable of doing this with a certain artistic effect, superimposed, the painting having a value as painting beyond its value as a literal transcript of fact. As types of such paintings we may take the works of the two Venetians—Canaletto, 1697—1768, and Francesco Guardi, 1712—1793. Of these two, Guardi was the freer, or, I should rather say, the more flickly in his execution of the two—I should put him certainly well behind Canaletto. Or, again, we might take our own English Academician, David Roberts, 1796—1864. Secondly, there are the paintings in which architecture is definitely imitated, as if part of the construction of the work the artist is literally building, if one may be allowed the expression, not with marble or stone, but with his brush and his paint. The most famous type of all such work is, of course, Michelangelo's ceiling in the Sistine Chapel, 1475–1564. In the hands of so immense and unrivalled a genius as Michelangelo, who was himself, remember, an architect as well as a sculptor and painter, the work is a consummate success. But in lesser hands, as we all know, the attempt after this kind of architectural painting may easily be disastrous enough. Certainly the many disasters it has given rise to make one feel how no man should attempt so Herculean a task who has not attained to our own Alfred Stevens's ideal of knowing only one art, the name of which is architecture, painting, sculpture, and all the accompanying crafts. Perhaps, in passing, you will let me note about the Sistine ceiling the splendour of its colour. When I saw it, how many years since—alas! there is little chance of my ever seeing it again!—the first thing about it that struck me was this splendour of its colour. I think it must strike everybody. And yet, you know, Michelangelo, with the strange modesty of great genius, at first held back from undertaking the commission on the ground that he was not a painter. Thirdly, there are the pictures in which the architecture, though not, as in the Sistine ceiling, deceptively imitative of actual construction—of course, in a framed painting this could not be—is yet a fundamental part of the design treated with an independent dignity, as if there for its own sake—just as in a jewel of the first order it is the setting that counts, not merely the stone. In the earlier and middle Italian work especially is this treatment common and amazingly impressive. Let me show you three examples of this treatment. The first, an Annunciation, by Carlo Crivelli, 1430—1493; the second, a Circumcision, by Marco Marziale, of about the same date, the exact years of his birth and death being apparently uncertain; the third, the famous Ansidei Madonna of Raphael, 1483–1520. In this Crivelli, indeed, the architecture is almost the picture; if the picture were not so beautiful and so marvellously executed, considering what the subject of it is, one would be inclined to complain a little of the architecture as over-dominant. It is, however, at any rate, a miracle of drawing, of sumptuous decoration, and of colour. So elaborately finished is it up to the minutest detail that I always myself stand before it aghast that one man should ever have had patience and time to accomplish it, let alone all those other numerous works Crivelli executed with equal detail and precision. Still, it is a marvellous picture rather than a great one. You feel that the peacock and the carpet, the gherkin and the apple, have interested the artist as much as the Blessed Virgin and Gabriel; and though there is no lack of proportion in the design and its execution, there is certainly a lack of proportion in the motive or idea of the picture—it is little else, all said and done, than a bit of stupendous decoration. Marco Marziale's presentment of the Circumcision is certainly a noble creation. The architecture here, as in the Crivelli, is of importance for its own sake—beautifully and highly decorated, too; but it is not the whole picture, or anything like it. The incident

necessary. Upon design we [illegible] perhaps [illegible] merely picturesque. I [illegible] a word to say on that point presently, a little later on. [illegible] with the representation of [illegible] forms the broken forms [illegible] of buildings. But the love of picturesqueness, in this sense, is, I fancy, essentially a modern sentiment, and in the Veronese design the ruinous condition of part of the architecture may be not so much picturesque as symbolical: the pride of this world shattered and brought low before the divine child sheltered even here, you see, amid these stately columns, under a hastily erected shed. In a much earlier Florentine picture familiar to you all, "The Martyrdom of St. Sebastian," by Antonio Pollaiuolo, a similar question suggests itself. Here a magnificent triumphal arch in the background is shown all broken away at its top, as if to hint, so to say, by a touch aside, that the persecution of the Church assured its triumph and sealed the doom of the pagan authorities so cruelly, yet in vain, raging against it. In any case, of course, not too much is to be made of this symbolism, even supposing that symbolism it is. Yet both Pollaiuolo and Veronese may well have thrown it in as a detail, by the way, in the [illegible] giving to them some slight additional significance for those who were curious to examine their paintings more than cursorily. We pass, blithely, to those pictures in which, though the architecture is perfect and stately, it is in scale small and unobtrusive, quite carefully and even elaborately presented, yet in the distance a mere incident in the further background. There are two contemporary works illustrating this treatment by the two famous brothers-in-law, Giovanni Bellini and Andrea Mantegna: Bellini, 1428–1516; Mantegna, 1431–1506. The breadth, softness, and serenity of the "Infant Christ Asleep on the Lap of the Virgin" are wholly characteristic of Bellini; and these qualities are notable, not only in the treatment of the main figures, but in the placid movement of those little figures, too, and of the cattle in the background; and also, surely, in the disposition and lighting of the towers and castellated walls lying so peacefully up the hillside there beyond them. You may suppose that all this peacefulness and serenity are here only to be in harmony with and to emphasise the motive of this particular picture. "The Infant Jesus Asleep on His Mother's Lap." One knows, however, that these qualities characterise Bellini's work in general, so that he loses them not even when his subject neither demands them nor is even quite consonant with it. Thus, for instance, in the more famous picture in the National Gallery of "The Murder of St. Peter Martyr," there is scarcely less serenity. You may remember it. Over this picture, so that one often hears passers-by commenting on this serenity of landscape and accessories as at something incongruous, is a stumbling-block in their way. Verily, how vastly different from that other "St. Peter Martyr," Titian's masterpiece once over the altar in the Church of SS. Giovanni e Paolo, at Venice, but these many years since destroyed by fire, yet fortunately the design preserved for us in engravings. Here all is movement, violent movement: the tall trees swaying under the fury of a hurricane. Nature herself for the moment boisterous in horror at the foul deed one done there at their foot. Although contemporaries and so closely connected, from Bellini to Mantegna is a far cry. Here is the latter's representation of "The Agony in the Garden." In the middle distance stretches a fair and stately group of buildings, the Holy City or Jerusalem, accurately and minutely delineated in her strength and pride. Although to serve but as a distant detail, Mantegna, whose love of architecture and sculpture was predominant, and in everything that he painted his passion for precision amazing, designs and draws for us each building here with elaborate care; nothing is slurred over or merely suggested; but by but the whole range of the buildings is [illegible] entirely in detail made out for us. Yet [illegible] the manner of Mantegna's work [illegible] all his passion, as I have ventured [illegible] precision, and his love of detail from one corner to the other of his [illegible] were not distracted, as in Crivelli, by a multiplicity of adornments; but every thing holds its place in justly calculated relation of subordination or precedence, the central motive of the design remaining paramount to its human interest, and in its dignity and largeness of effect. This is so; and, indeed, without this largeness of style as I passionate curiosity in humanity look for an illustration of this latter at the figures of the three slumbering Apostles in this picture. Mantegna's exalted position in art would not be what it is—no, not for all his learning, and, in some sense, his unrivalled draughtsmanship. Yet I cannot find it in me to let this mention of him pass without a word commending to you the study of his detail, the detail especially of his foliage and flowers. Even in this awful and harrowing subject of Christ's Agony he cannot resist, you see, setting in the foreground these little nameless weeds. And how exquisitely designed they are! How always exquisitely designed, his hand never failing! I sometimes think nobody has ever drawn plants and flowers and fruits quite with Mantegna's union of grace and strength. Botticelli has the grace, but not the strength; Leonardo has the strength, but yet even he hardly the grace. But I refrain, for this, you will be telling me, has nothing to do with architecture. Sixthly, we have so far, in the pictures shown you, seen architecture treated by the painters as a thing so dignified and important that even when it enters into the design only as an accessory and on a small scale in the background no looseness or liberties are to be allowed in the delineation of it. Perhaps it was not until a later age when, for reasons which we cannot here stay to inquire into, the enjoyment of landscape, and the representation of it for its own sake, began to prevail, that any other pictorial treatment of the mother of the arts was possible or even thought of. That Titian, 1477–1576, was one of the first, or the first of the great masters who thus dealt with landscape in a secondary manner for its own sake is a commonplace familiar to every student; and there are many splendid landscape designs and studies of his extant to bear out the statement. I am not showing you any one of these because, of course, landscape is not our subject this evening; but here is a famous picture-piece of his, the "Noli me tangere," in the National Gallery, and I think you will feel that it is not mere faithfulness to recognise in the treatment of the buildings in the right-hand upper corner of the background here, at any rate, the stirring of a different feeling towards the pictorial treatment of architecture from anything we have already considered—even when the buildings have been background accessories on a small scale, as in the Bellini and the Mantegna. Now, what is the change that has come or is coming about? At its beginning, and here we are at its beginning, it is naturally something easier to feel than to analyse and put formally into words. But may we not say that evidently Titian's concern with the group of buildings in this picture is simply as to their providing him with a dark mass of something in the distance, against the sky to serve as a useful mass in the balance of his design? That it is a mass, not of rocks or trees, but of human habitations, is natural, because, as a rule, even a pure landscape likes to get into his scene some hint of humanity if I may say so, it vitalises and warms up the scene. But, apart from this, the mass is thought of simply as a mass; the interest in the buildings as buildings is negligible. That is not so, as we have seen, with Bellini or Mantegna; but I venture to say, in this Titian it is. To put my point into general words, we are coming now to a period, to a phase of thought and feeling, in which the painter will use architecture purely for pictorial effect, as a mere item in his design providing some required mass, or space, of light or dark; the actual forms and details of the architecture will, in consequence,

comparatively matter little to him, and their delineation as such will be often vague, or even, in a certain sense, careless. Fifty or sixty years after Titian's death, and this—shall we call it for distinction purely pictorial attitude towards and employment of architecture? — has become common enough. You will see it clearly emphasised in this grand landscape by Gaspar Poussin, 1613—1675. It is obvious that here the interest is not in any sense in the buildings of the distant town as buildings, but only as they afford an elongated stretch of light balancing the carefully-designed lines and masses of the landscape, charmingly illuminating and vivifying it. The more pure landscape appeals to painters, and the emotions it is capable of arousing are insisted on as the subject of their pictures, the more will this treatment of architecture in their compositions assert itself. Indeed, it is imperative; for obviously it would militate against the effect and impression they are seeking after were they to introduce their architecture more elaborately delineated; it would destroy breadth by focussing the attention on details of construction in a single part of their design, just as in another way it would be impossible in such a landscape as this of Poussin's to treat the foliage leaf by leaf, as in Bellini's "Peter Martyr," or the foreground with Mantegna's weeds, without disaster to its entire scheme and purpose. You will not, of course, understand me as saying that this generalised and summary method of treating landscape is the only proper and fine method. It may easily degenerate, and, as a matter of fact, degenerate it did, into academic formalism, an almost mechanical application of certain empty conventions of composition. Yet its principles, intelligently apprehended, and applied not mechanically, are capable of what impressive and dignified results! This magnificent Poussin I commend to you as an illustration of it. I spent a long while on Saturday last trying to find the picture in the National Gallery, that I might refresh my memory with a sight of the actual thing before speaking about it to you here this evening; but I searched in vain. To my thinking it is one of the great landscapes in our possession—by far the greatest of all the Poussins, and there are several—but at the moment, apparently, it is not hehung on the walls. But when it is, go and look at it: it is worth a world of study, and, amongst other excellent qualities, for bringing home to us the meaning of scholarly and superb design. And now we have come to the seventh, and last, heading of our subject, as I have mapped it out for the purpose of this evening's paper. Under it I am showing you, first, a picture by Albert Cuyp, 1620—1691, "A Ruined Castle in a Lake." Here, certainly, there is architecture prominent enough; no mere accessory of the general design for the sake of symbolism or play of massed light and dark—the building is itself the thing. Yes, but what is the artist's interest in it? The answer springs to our lips at once—he is interested in the building just for its picturesqueness. He would not have felt the same interest in it supposing the castle were standing in its first pride of completeness and unshattered strength, alert with busy life within and around; but to-day it is deserted, its walls broken and crumbling; over them weeds may now clamber unmolested, and hooting owls circle by night. And the charm of all this ruggedness and decay it is that arrests him hauntingly. Or, look again at another picture—this time by Ruisdael, 1628-1682, of a motive very similar—the castle here yet more utterly a wreck, just one tottering, crumbling tower and wall of it left, all overgrown at their base with tangled bushes, its design and plan clean perished out of sight. Or, again, one last picture—a landscape of Hobbema's, 1638-1709, a design of trees with cottages nestled among them, such as he loved to paint. It is true the cottages are not in ruins—busy country folk inhabit them; but they are old and weatherbeaten, their timbers are warped, and the lines of their roofs and walls have sunk into quaint irregularities. Smarten them up, make their crooked places straight, and their rough places plain—and then? And then Hobbema will say to you, "My friend, you've left me nothing worth painting!" Well, I do not think I am putting the matter unfairly, over-colouring it for effect; and assuredly it brings home to us how long a way we have travelled in these minutes I have been speaking to you from those elder Italians, with their love of order, stateliness, clarity, precision; and have passed not merely through many years, but are come out, as it were, at last into a new and vastly different world of artistic conception and enjoyment. Now, all this rugged brokenness, this indecision and irregularity of mass and form, we have learned to speak of as picturesqueness, and to be strangely attracted to and impressed by it. The love of it, as I have already said, is comparatively a modern sentiment; and perhaps it could only have arisen in times when men were settling down into a sense of some assured security and physical comfort, and were growing to look upon Nature, not as a world of lurking danger, but rather of friendliness and charm; and as this feeling grew there would grow with it the desire to depict natural scenes, and the sense that, whenever into such scenes were introduced human habitations and signs of human toil, these must in their forms be congruous with the lines and masses and colours of surrounding nature—these, which are never rigid, hard, monotonous, but endlessly and inextricably diversified. And since, as in the elder days, when man and man's work were the main motives of art, the presentment of nature was conformed to their orderliness and precision; so, as Nature began to assert herself as for her own sake a motive of his art, the presentment of man and his work, this in its turn was now accommodated to Nature, to her infinite variety of form, and her shifting play of colour and of light. And so, I think, you will see that our modern love of what we call picturesqueness in the treatment of architecture has a reason and justification in the order of things, and, though with most of us nowadays purely instinctive, it is yet easily capable of analysis, supposing we are in the mood for analysing. It may often lead us, of course, into a degenerate production of merely trivial prettiness, and equally, of course, there would go to its complete analysis several other elements beyond that which I have insisted on. But I have said enough for the moment, perhaps, considering the immediate subject before us this evening—enough, that is, to assure you in behalf of us painters that we are not merely impudent triflers with the supreme art of architecture when sometimes we do seem to approach it a little jauntily at our ease, with neither sufficient knowledge of its principles, nor quite a becoming reverence for its dignity. I have endeavoured in a quite cursory and very imperfect manner to show you a number of ways in which architecture has been dealt with by various great painters of various times and schools, and this, at least, you will hardly deny that the ways are very diverse. Here, then, as in almost everything else, there is no one law or method to be laid down and universally applied with rigour, but according to the circumstances of the case will be the treatment adopted; and every reasonable treatment will have its appropriateness, and so its justification and intimate charm. But let us remember we all of us have our limitations—limitations imposed upon us not only by our natural instincts or tastes, but by our education, and by the character of our work in the world; and in judging of other departments of work than our own, though to judge rightly demands that in some measure from the restraint of our limitations we should free ourselves, to do so is often difficult and distasteful. "The first duty of a critic," it has been said, "is to get himself out of the way"; and though that is not the final counsel as regards criticism, the first it assuredly is. And so, when any work of art is submitted to us, and it is at first sight strange and unacceptable, and runs counter to our innate prejudices, or prejudices indueed by our professional training, we do foolishly if we dismiss it in petulance with an "It's all wrong, and I can't stand it!" or a 'Yes, but that's not my style, and I see nothing in it! But in quite a different temper we have, if we want to stand on the side of the angels, to put three questions to ourselves, and try to answer them quietly. Firstly, What has the artist aimed at? Secondly, Has he attained his aim? Thirdly, Was it an aim worth attaining? And, though our first offhand judgment, prompted by sheer instinct, may prove also our considered judgment, and we may have, after all, to denounce the work right out, it is only because our criticism has passed through this disciplinary process before it utters itself that it is worth listening to, or finally will count.

Mr. Christopher Whall proposed a vote of thanks to Professor Image for his delightful lecture.

In seconding the motion, Mr. Gerald Horsley, President elect, said that between the painters and architects of the Earlier and Middle Schools of Italy and of Venice there was evidently a very close bond of sympathy, which reacted beneficially alike on the buildings and paintings of the time. It would obviously be for the advantage of our architects and painters alike if a more intimate friendship and co-operation could be cultivated at the present time.

Mr. Arthur T. Bolton was glad that Professor Image had selected the National Gallery as the field for illustration of a charmingly fresh address. It contained an extraordinarily fine collection, well deserving of the most careful study, and as now rearranged in something like historical sequence, it was possible to follow the development of the treatment of architecture in art as it had been suggested to them by the lecturer. It was impossible to visit the Gallery and fail to be impressed with the enormous development which had been taking place in architecture since the days of Giotto. For himself, he should trace the origin of landscape painting in the Raffaelle Cartoons, notably in that of the Disciples Fishing. We saw in the works of Crivelli that painters were still interested in and endeavoured to represent the actual buildings they saw around them; nowadays artists seemed to have lost touch with the real facts of architecture, and frequently had no perception of what was refined and what poor in decoration and furniture. Millais, for example, in his pictures showed himself to be a miracle of bad taste. Too many modern artists followed the teaching of Rembrandt and his school, and were solely interested in effects of lighting and atmosphere; many painters expected to find these in an architectural drawing, and were finally disappointed to find them disregarded. On the other hand, buildings as shown by painters were often preposterous in their proportions and details. The architectural details in some of the paintings by Paul Veronese were probably put in by his friend Antonio Palladio. He should like to ask Professor Image what he proposed to do for architecture. Oxford was a school of architecture in itself, and the professor might render useful service in compiling an index of architectural drawings confined to Oxford past and present.

Mr. A. B. K. Cook pointed out that Veronese was probably induced to introduce ruins into his landscapes not so much for the intrinsic picturesqueness, but because an interest was being taken by scholars in the remains of ancient Rome. Painters had it in their power to inspire the imagination by depicting on canvas edifices on a scale more vast and sumptuous than could ever be realised in actual masonry.

In putting the vote of thanks, which was carried by acclamation, the President referred to the address given before the Association by a previous Slade Professor, John Ruskin. The bringing of painters and architects into close association and sympathy would be very desirable, and he trusted the Academy would some day be able to effect this.

In his reply, Professor Image touched upon the difficulty of interesting undergraduates in lectures on subjects which would not yield marks in the examinations, and said that he should endeavour in his courses to show the primary importance of architecture.

ANNUAL LICENSE VALUE.*

By Donald Dinwiddy, F.I.S.

So much has been "tacked" on to the Finance (1909-10) Act, 1910, in regard to licensed properties, that the importance of the new value, called "Annual license value," set up by that Act has not been fully appreciated either by our profession or by the Trade. Licensed houses, whilst bearing all the rates and taxes that are levied upon properties in general, have, in addition, to bear an annual duty in payment for the monopoly to sell intoxicating liquors. This duty is, and always has been, levied upon the total gross value of the premises (land, structure, and license), and the present enactment is a forecast of an intention to levy the duty on a fairer and more logical basis—that is, upon the annual amount by which the license enhances the value of the premises, or, in other words, upon the annual value of the State grant of a monopoly.

THE ENACTMENT.

The means to this end are set out in Section 44, Subsection 2, of the Finance Act, 1910, which reads as follows:—

> It shall be the duty of the Commissioners to prepare, and keep corrected, a register showing the annual license value of all fully licensed premises and all beerhouses.
>
> For the purpose of this provision the annual license value shall be taken to be the amount by which the annual value of the premises as licensed premises exceeds the annual value which the premises would bear if they were not licensed premises, those values being calculated on the same basis as that on which the amount to be paid as compensation under Section 2 of the Licensing Act, 1904, is calculated, in default of agreement and approval in cases where compensation is payable under that Act, but there shall not be included in the value of the premises as licensed premises any amount on account of depreciation of trade fixtures.

EXISTING VALUES FOR DUTY AND RATES.

Before considering in detail this new value which the Commissioners of Customs and Excise are instructed to ascertain, no apology is needed for recalling the various values now attached to licensed houses, as such a course is essential to a clear understanding of how this new value differs from those already in existence. The values for local rates, and for house duty, and Schedule A (Income Tax) are all ascertained from the same data, but as—outside London—they are found by different authorities, they often differ. The gross established rental for local assessment is defined by Section 15 of the Union Assessment Committee Act, 1862, as:—

> The rent at which the hereditament might reasonably be expected to let from year to year, free of all usual tenant's rates and taxes, and tithe commutation rent-charge, if any.

And the Valuation (Metropolis) Act, 1869, and the Acts governing assessments for Imperial taxation, all define the gross value in terms of similar effect. In London the 1869 Act directs that the assessment in the valuation list shall be binding for both local rates and imperial taxes. License duties have in practice been levied since the Inland Revenue Act, 1880, on the highest of the three gross values, either in the rate book, or for inhabited house duty, or for Schedule A, and there is no machinery for arriving at special values for levying the license duty. It is interesting to note that by the House Duty Act of 1808, the assessment for house duty must not be less than the gross poor rate assessment; the gross value is also the basis of the compensation levy under the 1904 Act. This practice of levying the duty upon the highest value was temporarily upset by Section 14, Subsection (1) of the Finance Act, 1910, to the effect that—"In the determination of that value, the duty on the license is not to be allowed as a deduction," which, according to the judgment in "Wrigglesworth v. Rex," set up a special annual value for license duties both within and without London, but this is now only of academic interest, because Section 4 of the Revenue Bill, 1911, repeals this subsection and brings the basis back to the Inhabited House Duty or Schedule A assessments.

EXISTING TAXATION.

The taxation levied upon a public-house now averages as much as the total value of the house, as the following sample figures prove:—

	£		
Gross value	200		
Rateable value ..	167		
		£	s. d.
License duty, 50 per cent. of £200		100	0 0
House duty, gross value, £200 at 6d.		5	0 0
Property tax, £200, less repairs one-sixth £33 6s. 5d. = £166 13s. 4d. at 1s. 2d...		9	14 6
Rates—Rateable value, £167 at 8s.		66	16 0
Compensation levy (say)		20	0 0
Total rates and taxes		£201	10 6
Of which the landlord refunds to the tenant—			
Property tax	£9 14 6		
(Say) half compensation	10 0 0		
		19	14 6
Free tenant's rates and taxes ..		£181	16 0

Therefore before a licensed victualler can afford to pay £200 rent he must satisfy demands for rates and taxes of an amount nearly equal to the rent. My experience of the value of licensed houses has largely been gained in the arena of assessments, and 700 houses have passed through my own and my partners' hands during the last 12 months. In acting mainly for the rating authorities, it has been impossible to withhold sympathy from the licensees and brewers in respect of the heavy imposts of the 1910 Act on the top of a depression in sales, and (to the community) a welcome wave of soberness. A general decline in assessments has resulted from this double cause, but with the forecast and hope of license duties being levied upon the more equitable basis of "Annual license value," and the lower scale which this basis forecasts, it may in the future be competent for the rating authorities to restore some of the lost assessments, which have resulted in a loss of £370,690 rateable value in the County of London this quinquennial. A new license is now almost impossible to obtain, and then only on any conditions which Quarter Sessions may be pleased to impose, and the payment of heavy sums for the monopoly value. Consequently no new licenses have been granted in London since the 1904 Act without substantial annual payments in respect of the monopoly value. The Trade can have no proper objection to these conditions for new licenses, but the position is altogether different when the license has been held for generations, and perhaps tens of thousands of pounds have been paid for the property on the reasonable expectation that the license will be continued for as many more generations, and it is the sudden partial confiscation of this vested interest for which hard cash may have been paid, by an arbitrary increase of the annual payment to the State, that creates the hardship of which the Trade (and consequentially the rating authorities) bitterly complain. One word on the political-economy side of the Licensed Trade. It can hardly be denied that it is in the interest of the licensee that he shall exert his powers to induce his customers to swell his trade, and he is subject to the unhealthy temptation of enticing the sale of his liquors within the limits of police supervision. This pushing of his wares is the more necessary now that he has to meet such increased burdens, whilst, on the other hand, experience has taught him how difficult it is to increase the prices of the commodities he sells. This, then, is the thought in the minds of those legislators who are seeking to make the Trade a State monopoly.

FUTURE APPLICATION OF "ANNUAL LICENSE VALUE."

It must be inferred that the Legislature would not set up the machinery for determining and registering the "Annual license value," of every public-house in the kingdom if that value were not going to be applied to future taxation. In fact, the Government have stated in the House that when the register is completed they intend to base future duties upon the "Annual license value" in place of the present drastic taxation of one-half and one-third of annual value. This present rough-and-ready basis is admittedly a tentative method of increasing the duty pending the completion of the register of "Annual license values." On the other hand, the register may be applied for the purpose of capitalisation for compensation under the 1904 Act, or ultimate State purchase. The importance of this "Annual license value" to brewers, licensees, and freeholders cannot, therefore, be overestimated. The register is now in course of preparation by the Commissioners of Customs and Excise, and all licensees have been requisitioned to fill in Form LL1, to provide the Commissioners with the fullest data to enable them to fix the "Annual license value." It is important to notice that this first-quoted subsection only refers to fully-licensed premises and beerhouses, and so excludes off-licenses of every description. No duties are levied upon "Annual license value" by the 1910 Act except in the two undermentioned special cases, under the "Provisions applicable to retailers 'On' licenses." Paragraph 3.

> 1. Upon licensed houses exceeding the annual value of £500 the licensee has the option of paying one-third of the "Annual license value" in place of the half (upon fully-licensed houses), or the third (upon beerhouses) of the annual value, provided that the duty shall not be less than £250 in the case of a fully-licensed house, or in the case of a beerhouse, £166 13s. 4d., being one-half and one-third respectively of £500.
>
> 2. The duty is also one-third of the "Annual license value" in the case of certain season hotels, with a minimum duty of £30 to £50.

EFFECT OF 1904 ACT.

Our first impression is that the Legislature has set us the comparatively simple task of dividing the total free rental value (i.e., the assessment) into two parts, one part for the value of the license, and the other part for the value of the premises as if not licensed. But when, as the 1910 Act directs, we turn to the Licensing Act of 1904, and the methods adopted in arriving at the compensation for the extinction of licenses under that Act, we find that the task is by no means uncomplicated. Section 2 of the Act of 1904 enacts:—

> Where Quarter Sessions refuse the renewal of an existing "On" license under this Act, a sum equal to the difference between the value of the licensed premises (including depreciation of trade fixtures) and the value which those premises would bear if they were not licensed premises, shall be paid as compensation to the persons interested in the licensed premises.

If in the above section the word "annual" be prefixed to the word "value," we approximate to the section of the 1910 Act first above quoted.

"KENNEDY" JUDGMENT.

There has been an important test case interpreting Section 2 of the 1904 Act, known as the Ashby's Staines and Cobham Brewery cases (95 L. T. R., 260; "Professional Notes, xiv., p. 89). Mr. Justice Kennedy's famous judgment was to the effect that:—

"The mode of arriving at the amount of compensation is to ascertain the market value of the premises as licensed premises, adding the depreciation of trade fixtures by reason of the non-renewal of the license, and deducting the value of the premises without a license; but there is not to be included in the compensation any sum representing the interest of the tenant or any other interest in the premises.

"And if the owner is not a brewer and he lets the licensed premises to a tenant, it may be presumed that such owner gets the true rack-rent of the premises as licensed premises, and in such cases the market value may be obtained by a capitalisation of the annual value based upon that rent. But if the owner is himself the occupier, or if the owner is a brewer and lets the licensed premises to a tenant as a 'tied' house, in which

* Read at the Ordinary General Meeting of the Surveyors' Institution, on Monday, April 3, 1911.

case the rent paid by the tenant is less than the rack-rent, and a calculation of value could not be based upon it, then it becomes necessary to take evidence of profits and evidence of the average amount and quality of liquors supplied to the house, and having thus obtained the annual profit and the annual rent which a tenant would be likely to give, the market value of the premises quâ licensed premises is to be obtained by a capitalisation of each of these sums by a number of years' purchase which will vary according to circumstances."

In applying these principles, the learned Judge, in the case of a fully-licensed house let as a "tied" house, capitalised the brewers' annual profit on liquors at 10 years' purchase, adding 18 years' purchase of the rent, and a sum for depreciation of trade fixtures, and deducting the value of the house without a license. In the case of an ante 1869 tied beerhouse, the compensation was assessed in the same way, allowing 11 years' purchase of the brewers' annual profits. The following is a fair sample valuation for compensation for extinguishing the license of a small tied beerhouse under the 1904 Act (prior to increased duties by the 1910 Act), based upon the Kennedy judgment:—

Brewer's Profits—	£	£
Beer, average, 366 barrels per annum at 10s., £183 × 10 years' purchase = capitalised value		1,830
Capitalised value of tied rent, £35 × 18 years' purchase		630
Total value		2,460
Add depreciation of trade fixtures		80
		2,540
Deduct value of premises if without a license—		
Estimated net rent, if occupied for some other purpose than for sale of intoxicating liquors, £25 × 14.4 years' purchase	360	
Less estimated cost of conversion	120	
		240
Total compensation		£2,300

If this house had been in private ownership and let to a "free" tenant, it would have had to be let on repairing lease at £123 per annum in order to produce a capitalised value of £2,460. In my opinion, the "free" net rental value would not have been more than half that rent, and if the house had been let at a "free" rent instead of a brewer having been interested in the property, the compensation would have been much less.

"FREE" RENT AND BREWERS' RENT COMPARED.

We clearly have two rental values of a public-house, two values which may differ as wide as the Poles:—

1. The "free" rental value to a licensed victualler as occupier of the premises, having regard to the gainful trade resulting from the retail sale of liquors, etc., on the premises, with rights to buy in the open market, unfettered by extraneous considerations of tie.

2. The rent which a brewer would give for the premises in order that he may fetter the licensed monopoly by injunction that only his own liquors may be sold. The rent which he will pay, in competition with other brewers, will have regard to the profits he can make at the brewery and wine vaults in addition to the retail profits at the house.

This second and fictitious value must always be higher, much higher, than the first, consequently "free" houses are getting more and more rare, because brewery companies will always outbid a private owner or licensed victualler, either to rent or to purchase a licensed house. It was the brewers' mad rush for tied business that sent up the value of licensed properties in the boom of 1898-9 to prices which to-day we call ludicrous. In assessments of licensed houses, "Bradford-on-Avon v. White" (1898, 2 Q. B. 630) rules out a rent which a brewer may be paying except so far as it may screw up an occupying free tenant's rent. So, also, I submit, must the brewers' rent be ruled out when determining the annual value of the premises as licensed premises in accordance with Section 44, Subsection (2) of the 1910 Act first quoted, except so far as the fact that brewers, being competitors for the house, would screw up an occupying free tenant's rent, leaving a minimum of profit to the tenant. The great majority of London public-houses being tied, the compensation which has been paid on the extinction of 433 licenses in London under the 1904 Act in the six years 1905 to 1910 must mainly have been upon the "Kennedy" basis of capitalising the brewers' profits, and the London County Council's returns prove that the total compensation paid in London has averaged 33 years' purchase of the rateable value. It must be remembered that this 33 years' purchase has been paid for only the capitalised "Annual license value" plus the depreciation of the premises and of trade fixtures, while the ownership of the premises remains undisturbed—nor can it be suggested that public-houses have been generally underassessed in London. There can be little doubt that this high scale of compensation must have raised the fond hope of finding large "Annual license values" on which to base future duties, and the marrying of the compensation provisos of the 1904 Act to the Act which we are now considering makes this assumption the surer. Though my reading of the Act is that the starting value is the "free" rental value to a licensed victualler, and not the rent which a brewer will pay, the Commissioners may attempt to bring the capital compensation value of a "Kennedy" valuation to a rental equivalent, and taking the same beerhouse example referred to above, the "Annual license value" might be claimed to be:—

Brewer's Profits—		
366 barrels per annum at 10s.	£183	
Tied rent	35	
		£218
Deduct value of land and buildings as if occupied as a beerhouse		35
"Annual license value"		£183

But so simple a calculation will not stand investigation, because:—Firstly, no brewer would pay £218 rent for a house from which he is going to make £218 in beer profits plus rent. In order to obtain a property capable of producing 10s. a barrel profit, I suggest no sane business man is likely to give more than half the profit in rent. Such a proportion is illustrated by the fact that for compensation the trading profit is multiplied by 10 years' purchase, whereas it may be assumed that a rent would be multiplied by 20 years' purchase. Secondly, a license duty of only £3 10s. was regarded when arriving at an average profit of 10s. a barrel plus the tied rent of £35, whereas this duty is now increased in London and large towns to a minimum of £23 10s. Thirdly, the continued decline in beer sales throughout the country reduces the brewers' receipts without reducing the manufacturing cost pro rata; and in addition there is the extra brewers' tax of 12s. per 50 barrels (approximately 3d. per barrel), so the profit per barrel at the brewery must be less than it was a year or two ago. Taking these points into consideration, a brewer might be willing to give a rent for our sample beerhouse based upon the following calculation:—

Brewer's Rent—	£	s.	d.
366 barrels at 4s. 6d.	82	7	0
Tied rent	35	0	0
	117	7	0
Less increased duty, say	20	0	0
Rent which a brewer would give	97	0	0
Deduct value of land and buildings as if occupied as a beerhouse	35	0	0
"Annual license value"	£62	0	0

Upon this basis the "Annual license value" would about approximate to the gross rent which a free tenant would give—i.e., the gross value. In larger licensed premises, and especially where the land and structure bears a higher proportion of the total value as licensed, I think that the "Annual license value" upon a similar calculation upon the brewer's rent basis will show a lower proportion to gross value. In rare cases we find the gross value of a licensed premises actually less than the gross value of adjoining unlicensed premises of the same size. In such cases the license is actually a burden on the property, and does not enhance the value. The "Annual license value" of such a property may therefore be nothing.

UNLICENSED VALUE.

The 1910 Act directs that nothing is to be included for depreciation of trade fixtures. The reason for this is obvious, that as the property is to remain as licensed premises the trade fixtures are not reduced to scrap value. An essential part of the estimate of "Annual license value" is the estimated value of the premises if they were not licensed, because we remember the "Annual license value" is defined in the 1910 Act as "the amount by which the annual value of the premises as licensed premises exceeds the value which the premises would bear if they were not licensed premises," and the 1904 Act (to which the 1910 Act directs us to refer) reads "the difference between the value of the licensed premises and the value which those premises would bear if they were not licensed premises." The purport of the two Acts is to find values under diametrically opposite conditions. The 1904 Act assumes that the license is to be extinguished, while the 1910 Act assumes that the license is to be continued. In the earlier Act, therefore, the value of the premises "if they were not licensed" is, and ought to be, taken at the value for some other purpose than a public-house, and any outlay required to be spent on conversion of the property must be allowed; but under the 1910 Act the value of the premises "if they were not licensed" ought to be taken at the value as adapted for occupation for the continuance of a licensed victualler's trade. It will not test your flights of imagination to think of a gin-palace, the structure of which could not be adapted to any other purpose. Under the 1904 Act the value of the premises, if the license were confiscated, might rightly be little more than the site value, and it would be right to deduct but little more than the site value; but if in a valuation for "Annual license value" little more than the rental value of the site were deducted from the total rental value, an "Annual license value" far in excess of the actual annual value of the license would result. If, therefore, the strict language of the Act were followed, the more unadaptable were the premises to ordinary users, the higher would be the "Annual license value," an anomaly very far from the intention of the Act. The language of the Act is, however, so explicit (especially coupled with the reservation that nothing is to be included for depreciation of trade fixtures) that the Commissioners may seek to increase the "Annual license value" by restricting the value of the land and buildings to the lower value necessarily adopted under the 1904 Act as, if the premises were no longer to be used for the purpose for which they were constructed. We might then have the recent dictum of Mr. Justice Channell in the Wrigglesworth case (when confirming another part of the 1910 Act) repeated, that "This is obviously unjust, and such as one would not think any body of honourable men could deliberately have intended"; and the necessity would again arise for the Treasury to set wrongs right by a later enactment. The confusion has arisen by the draughtsman attempting to apply an Act for determining capital value for compensation, to an Act for determining annual value, and it is greatly to be hoped that the Commissioners will at once accept the just interpretation of the Act rather than press for the letter of the Act.

CONCLUSION.

To summarise, it seems to me that the annual license value must be arrived at upon the following lines:—

1. The total annual value of the licensed premises must be estimated in the same way as the law directs the assessment value to be found—that is, the rent which a licensed victualler would give for the premises unfettered by "ties," and with power to purchase his goods wholesale in the open market, remembering ("Bradford-on-Avon v. White") that the competition of brewers with extraneous motives would screw up the rent against an occupying tenant.

2. Deduct from the above value that part which is due to the land and buildings, not the dealer's stock of the 1904 Act, but the value of the premises remaining applied for the sale of intoxicating liquors.

The barrister representing [illegible] the Duke of Buccleuch's estate, and the agent of the Marquis of Lothian's estate, declined to take part in preparing the [illegible].

CLOSE OF THE EDINBURGH TOWN PLANNING EXHIBITION

The [illegible] Town Planning Exhibition was held in the large [illegible] of the Royal Scottish Academy Galleries on Saturday night, Mr T. Hunter [illegible] York, occupying the chair.

Lord Provost Brown announced that the attendance during the three weeks had exceeded 17,000, a number far in excess of the most sanguine anticipations.

Professor Geddes read a letter just received from the Right Hon. John Burns, M.P., strongly supporting the desire of the head of the Irish Local Government Board that the Exhibition should visit Dublin, and he mentioned that the assistant director had already left for Dublin, by invitation of the Countess of Aberdeen, to enter into the necessary arrangements. Communications of similar tenor were also coming in almost daily from corporations or galleries, associations and individuals, in all parts, from Aberdeen to Exeter, and even from New York and Philadelphia; so that the future progress of the Exhibition might be considered practically assured, thanks largely to the initial encouragement which they had received from the corporation and public of Edinburgh.

Professor Geddes then delivered a closing address on "The Results of the Exhibition." First, he said there had been the strengthening of an interest, the creation of an atmosphere, the deepening of civic patriotism, the enhancement of civic feeling, with corresponding arousals of constructive purpose on many sides: in short, a renewal for all concerned of that glow of civic life and hope from which the many developments of Edinburgh had once and again arisen, so that a new era of city development, as the designs around the gallery plainly showed, was thus fully beginning. Almost beyond the active interest and discussion which had been so evident among all classes of the community throughout the Exhibition, he valued the daily visits of the school children with their teachers, for town planning in the past, in Edinburgh as elsewhere, had constantly failed or fallen short, because a younger generation had lost sight of the designs of their predecessors, and sometimes even of the whole heritage and tradition of their city. Referring to the many lectures, papers, and plans which had been brought forward, as also to the recent conference, he suggested that here was a wealth of matter worthy of publication as a collective volume. Another most important result was the growing recognition on all sides of the need of city survey before town planning, as of diagnosis before treatment, and not vice versa. Through their survey of Edinburgh they reached not only a freshened and deepened sense of the value and significance of their historic heritage, but a clearer comprehension of its evils. Thus the overcrowding of the Scottish tenement, so pointedly criticised in his recent address, was not to be understood as an inherent inferiority of Scottish life and manners, to be accepted in all time coming, but as the demonstrable inheritance of the tragic past of Edinburgh as the overcrowding fortress of the wars with England. Century after century, generation after generation, as after Flodden, Pinkie, or the siege of 1573, the widow and her orphans had to accept the one room standard, if not even take in fresh fryes from the country as lodgers as well. Similarly as regards the future, the survey opened him before them a greater Edinburgh upon the Mid Lothian coalfield and with the Forth and Clyde Canal, why not also a greater Edinburgh upon Sea? Yet the use of all these material resources depended upon the mental powers, the originality, the knowledge, the training, we could brag to bear upon them. [illegible] for the sake of material development of town planning, and the rest, the ethical and greatness of Edinburgh must become their main object.

ASYLUM FLOORS TO BE RELAID OWING TO DRY ROT

As requested by the York City Council, a report has been prepared on the question of the defective flooring at Naburn Asylum, on the ground floor, the woodwork of which had indicated the existence of dry rot to such an extent as to necessitate the relaying of some of the floors. Attention was called to the matter a short time ago, and as it was very necessary at once to remedy the defective parts then pointed out, directions were given to the city surveyor (Mr. F. W. Spurr) to proceed with the work. Since then other defects were discovered, and both the city surveyor and the engineer to the Ouse and Foss Navigation (Mr. A. Creer) were requested to present independent reports on the matter, and particularly as to the cause of the defects. These reports have now been submitted, and are as follows:—

The report of the city surveyor states that the total remaining area of floors laid on the particular system that is proving unsatisfactory amounts to 2,665 square yards. Some floors have already been re-laid with wood blocks, the area being 357 yards. The floors that are affected, and which it would be advisable to deal with at once, are 751 yards in area. These floors are situated in the day rooms of ward blocks B, D, and E, the dormitory of block C, the visiting rooms, and the servants' and attendants' mess and recreation rooms. The cost of re-laying the floors above mentioned will amount to about £300 if laid with wood blocks, and about £260 if ventilated floors are adopted. There are also about twelve single rooms that should be re-laid on the solid system, the area being 120 yards sup., and the estimated cost £52 10s.

"Those floors which are now apparently sound, I think," adds Mr. Spurr, "might be left for the present, and it is possible they may last for some years to come, but their useful life I cannot estimate. Their total area is 1,791 yards, and the probable cost of re-laying (if found necessary) on the solid system will be about £775, or if single room floors laid solid, and others ventilated, £682. The cost of the solid floors will be materially reduced if it is found possible to remove the joists without disturbing the present concrete, and a further saving could be effected if it were possible to utilise patients' labour."

In the floors dealt with it was found that rot had first commenced in the joists bedded in concrete, the rot afterwards spreading to the boards above. Moist heat was, in his opinion, the cause of the trouble, the moisture coming from the ground under the concrete and the heat from the steam pipe subway, of which there was a very considerable length all laid either directly under the floors, or immediately adjoining them.

In his report Mr. Creer states that, in considering the class of floor best suited to the requirements of a public institution of this character, one had to bear in mind that a "solid floor" would be more hygienic than one of bearing joists and floor boards, on account of the facilities provided by the latter for rats and other vermin. Accordingly he decided upon a type that was economical and, in his opinion, suitable, and costing from 5s. 6d. to 6s. a square yard, including concrete foundation.

There are various classes of solid wood block floors from 11s. 3d. upwards. These, however, he considered, would be an extravagance that was not justified, especially as the site was a dry one.

The specification for the work and the close inspection both of labour and material were such as to insure good work, and to the best of his knowledge was satisfactorily carried out. It was not foreseen that the heated air in the subways would be the means of transmitting heat to the ground behind the subway walls. There could be no doubt but that the ground had been so heated, and that this had in turn been transmitted to the concrete and joists, and in the absence of ventilation (which was not necessary in a solid floor) had set up dry rot. It was a piece of sheer ill luck, and would not, he felt certain, have occurred under any other conditions, minus the moist heat from subways. He recommended the removal of the whole of the affected timber and all timber in which rot had not commenced, coated with a solution of sulphate of copper, more especially in proximity to affected timber. There should be no delay in adopting remedial measures, as the fungus would travel along brickwork or concrete in order to get to clean unaffected timber.

In concluding his report, Mr. Creer says: "I need hardly say how disappointed I am at this unexpected and unfortunate development. It was entirely unforeseen. In the absence of any premonition of this mischief, I should have considered it a piece of useless extravagance to put down wood block flooring over the area where the cheaper floor has been adopted."

The Asylums Committee have decided to proceed with the work of remedying the defects already existing in the floors as suggested in the report of the city surveyor, and that the cost be paid for out of the profits from out county and private patients as authorised.

In the House of Commons on Monday, the Bill promoted by the Middlesex and Surrey County Councils for the widening of the bridge at Kingston-on-Thames was read a second time.

A Carnegie Free Library, erected on the Ballyboden-road, Rathfarnham, Co. Dublin, has been formally opened. It was built from the designs of Mr. P. J. Byrne, A.R.I.B.A., Dublin, Messrs. Bolger and Doyle being the contractors.

The Secretary of the United States Treasury announces a competition for the proposed Sub-Treasury building to be erected at San Francisco. The jury will be composed as follows:—D. H. Burnham, of Chicago; H. Van Buren Magonigle, of New York; Douglas H. Thomas of Baltimore, C. E. Richards, of Columbus, O., and W. H. Noland of Richmond, Va.

The city council of Birmingham have, on the recommendation of their public works committee, and a report from the city surveyor, decided to substitute concrete paving for Rowley rag in all public footpaths having a steep gradient. A number of thoroughfares will be dealt with forthwith, at an estimated outlay of £2,700.

The borough engineer of Middlesbrough has presented to the streets committee his report on a plan for the laying out of a considerable area of building land on the south side of Station-road, just outside the borough boundary. The plan embodies the laying out of fourteen front streets, some 600ft. in length, and provides for the erection of 350 cottage houses. The scheme has been adopted.

Mr. Frank E. Rutan, A.A.I.A., of the architectural firm of Messrs. Rutan and Russell, Pittsburg, Pa., died at Atlantic City, N.J., on February 23. Mr. Rutan was born near Boston, Mass., forty-eight years ago, and studied architecture in the office of H. H. Richardson. In 1889 he located in Pittsburgh as a member of the firm of Longfellow, Harlan, and Alden. Subsequently he withdrew and formed a partnership with Mr. F. E. Russell.

Sir George Frampton, R.A., is completing a statue of Peter Pan, the gift of Mr. J. M. Barrie, to be set up in the children's playground in Kensington-gardens. The memorial to the boy who never grew up is executed in bronze, and is 9ft. in height. Peter is depicted standing on an upright tree trunk, surrounded by elves and fairies. There are also wild creatures around, rabbits and mice and birds and a squirrel, and old Solomon Caw, who was the only pessimist in Tree-Land.

Widespread sympathy will be felt by members of the profession at the bereavement which has befallen Mr. S. Perkins Pick, F.R.I.B.A., of Millstone-lane, Leicester, county architect, and past-president of the Leicester and Leicestershire Society of Architects, in the death, by a street accident, of his daughter, Miss Annie Ivens Pick. It appears that Miss Pick, who was twenty-four years of age, had been on a visit to relatives in London last week, and on leaving the Playhouse Theatre, with two lady friends, entered a motor-cab out of which she fell while changing seats with one of the ladies. She was removed to Charing Cross Hospital, where death occurred from a fracture of the skull. At the inquest held on Monday, a verdict of "Accidental death" was returned.

CURRENTE CALAMO.

The special general meeting of the Society of Architects, summoned for the 20th inst. at 8 p.m., is one that every member should make any sacrifice to attend. The three resolutions to be moved are of the utmost importance. It would be premature to indicate their purport here, as, at present, it is quite properly "private and confidential" to members only. We shall only say to-day they have our hearty concurrence and complete endorsement, and that they follow a line of action we have more than once recently suggested. As principally responsible for the foundation of the Society in 1884, we may, perhaps, be further allowed to say that the adoption of the course suggested will, in our opinion, be the most legitimate conclusion, under present circumstances, of the work the Society set itself to initiate at its formation, and the complete justification of its purpose and methods. Had the Royal Institute of British Architects manifested in 1884 the healthy spirit of ordered progress that animates it to-day, and the statesmanship which will justify its claim to be recognised as *the* representative body of the profession when the statutory registration of architects is achieved, there would never have been another Society of Architects. We believe and expect that the true loyalty to the best interests of the profession which animated its founders, and has made the Society so useful and prosperous, will now find its best expression in the determination that it is the duty of *all* architects to identify themselves with the Institute, working *within* it to make it still more powerful and perfect, and not from the outside as rivals or hostile critics.

Mr. Sydney Buxton's Copyright Bill is said to have good prospects. It is animated by the best intentions. It ordains that, in future, copyright shall subsist for the life of the author and fifty years after his death, subject to a provision that if at any time after the author's death any person can satisfy the Comptroller-General of Patents that the public is being prejudiced by the excessive price, or other limitation of performance or publication of the copyright work, the Comptroller may order the owner of the copyright to grant the petitioner a license to reproduce, perform, or publish on such terms as the Comptroller may think fit. Such decisions of the Comptroller are to be subject to an appeal to a judge of the High Court.

Civil actions for infringement must be brought within three years thereof. Summary remedies include fine, imprisonment, and seizure of pirated reproductions. Registration of copyright, as heretofore, is to be by the Stationers' Company. The Act is not to apply to designs capable of registration under the Patents and Designs Act of 1907, except where such are not meant to be used as models for industrial reproduction. This is rather a vague definition, and we doubt if the contemplated "General Rules" to be made will cover differences of opinion between the public and officials.

Still more do we doubt whether the Act will be workable as regards copyright in architecture as set out in Clause 9

> Where a building or other structure which infringes or which, if completed, would infringe the copyright in some other work has been commenced to be constructed, the owner of the copyright shall not be entitled to obtain an injunction or interdict to restrain the construction of such building or structure or to order its demolition.
>
> Such of the other provisions of this Act as provide that a pirated copy of a work shall be deemed to be the property of the owner of the copyright, or as impose summary penalties, shall not apply in any case to which this section applies.

Or in the "Supplemental Provisions," which are numerous, and some of them very hazy. It is laid down, for instance, that:—

> "Artistic work" includes works of painting, drawing, sculpture, and artistic craftsmanship, and architectural works of art, and engravings, and photographs.
>
> "Work of sculpture" includes casts and models.
>
> "Architectural work of art" means any building or structure having an artistic character or design, in respect of such character or design, but not in respect of the processes or methods of its construction.

Who is to decide whether a building has "an artistic character or design"? How far is part imitation to be deemed infringement? As the one real remedy, demolition, or the prevention of erection, is barred by Clause 9, the only satisfaction to be obtained by the aggrieved author seems to be damages. How are they going to be assessed? How are the "artistically designed" buildings to be registered at Stationers' Hall? Are their architects to be compelled to deposit their drawings? Is "originality" to be the qualification for copyright? If so, who is to define it? Unless the provisions dealing with architecture are carefully considered in committee, we shall see plenty of litigation presently. The temptation to a popular architect who has "caught on," with a building which appeals to the public, to exact license fees from imitative professional brethren, or those he fancies have imitated him, will be irresistible.

We advise careful study of the Act, which can be obtained at the King's printers for threepence, through any bookseller or direct, and, in connection, a useful little shilling handbook edited by Mr. Lawrence Weaver, and published at the office of *Country Life*, 20, Tavistock-street, Covent-garden, may be read with advantage. Mr. John W. Simpson contributes a lucid introduction. Mr. Lutyens puts with force and precision the doubts we share — not doubts, be it remembered, that the general idea of protecting architects from the plagiarism that prevails is a good one, but whether the dual ownership of copyright in buildings is workable or even desirable. Mr. Guy Dawber thinks, as we do, that the Bill as it stands seems to provide no answer to the questions we have suggested, and others. Mr. C. F. A. Voysey, so far from believing that the Bill does "honour to the status of architecture as an art," believes that "by claiming protection for architectural production you drag it down to the level of commercialism." Mr. Ernest Newton is much of the same opinion. Mr. John W. Simpson thinks that the question of "artistic character" is quite simple, and would not involve judgment by Courts on æsthetic points. Mr. Reginald Blomfield points out that there is nothing in the Bill to prevent a piratical designer from making a set of working drawings of another man's building and reproducing them elsewhere.

The only legal opinion given is that of "A Barrister," who seems to think the Bill is clear enough, and "that the copyright" of his building "will vest in the architect; but he will not be entitled to make or authorise the making of reproductions of the work except with the consent of the client." We shall not ask here whether that is exactly what architects want, but we do respectfully voice our dissatisfaction with this dictum — "True, there may be cases where it may be difficult to adduce proofs of infringement; but that is a matter for the parties and the tribunal, *not for the legislature*. It seems to us that too many legal gentlemen in Parliament are rather pleased than otherwise when the framers of Acts of Parliament do their work so badly that the Courts subsequently have to waste time, and suitors' money, in discovering what really was meant

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At a meeting of the executive committee of the Mansion House Fund for a London Memorial to the late King held on Tuesday it was unanimously resolved, on the motion of the Lord Mayor, "that, finding it impossible to carry out the present scheme, it be recommended to the general committee that the proposal be abandoned and that the executive committee be empowered to suggest another site." That is a satisfactory conclusion so far. Most people will hope now that the executive committee will display the minimum of foresight that might surely have foreseen the certain protest against its last selection, and that its next recommendations may be received and considered by the general committee in a more businesslike fashion than the last were.

Thirty-five members of Parliament, representing both sides of the House of Commons, have sent out a circular inviting their colleagues to meet in one of the Committee rooms yesterday and protest against the proposal of the Mansion House Committee on the King Edward Memorial to make further encroachment on St. James's Park. The park, the circular mentions, is only fifty-three acres in extent, and it is the most beautiful place available for thousands of poor people in the neighbourhood, especially children. Among the signatures are those of the following Unionists:—Lord Charles Beresford, Sir William Bull, Mr. William Peel, Major Jessell, Sir Harry Samuel, Viscount Wolmer, Mr. Tobin, and Mr. Remnant; and the following Liberals: Mr. Allen Baker, Sir Albert Spicer, Dr. Addison, Mr. Lough, Mr. Eugene Wason, and Mr. Cathcart Wason. It is said to be felt at Westminster that the Office of Works needs careful watching in order to insure that no irrevocable step shall be taken before Parliament is fully consulted.

Mr. Mawson, the Professor of Town Planning at Liverpool University, it seems, has anticipated the London King Edward Memorial Committee, according to the London correspondent of the *Manchester Guardian*. In a plan which is some two years old, although its first publication will be in Mr. Mawson's forthcoming book, the path appears almost exactly on the lines of the scheme now proposed. But there are important differences. Mr. Mawson's plan, instead of cutting a great piece out of the park at the upper side, leaves all that part untouched, and comes out to a circular open space on the Westminster side. Another difference, however, may rouse even more ire than the King Edward Memorial plan. Mr. Mawson's path is only a part of a large improvement project, the object of which would be to open a direct view through from Westminster Bridge to Buckingham Palace. In order to achieve this, a broad avenue is cut at a slight angle from Birdcage Walk, slanting right across grass and lake so as to carry on the line of Great George-street. In

this way a road as wide as Birdcage Walk would be cut out of the park. We confess we see neither the necessity nor the desirability.

In connection with the London Museum which, as we mentioned in this paper last week, thanks to the knighthood is now to make a good start—Mr. Frank L. Emanuel opportunely urges that some of the vacant Crown land in its immediate neighbourhood (at the back of Palace Gardens and to the west of the Palace) be secured whereon to re-erect such especially interesting relics of London architecture as have to be removed from their original sites. A genuine Old London street might be made of these treasures, the interiors to be filled with their appropriate and contemporary objects. If the trustees should think fit to rouse interest in, or funds for, the proposed museum by holding an exhibition, Mr. Emanuel offers to lend them some hundreds of careful drawings of London, disappearing and disappeared. We hope a favourable response may follow, and that others may similarly help.

Mr. Guy Francis Laking, the Keeper of the King's Armoury, who has been appointed keeper of the new London museum, has given some idea of what is aimed at under the scheme to a newspaper representative, who suggested that the old Post Office building in St. Martin's-le-Grand, with its Grecian frontage, might be an excellent place as a permanent home for the museum. "Yes, the idea is certainly a good one," he said. "I believe that a striking building and a clear and attractive way of showing the collections are the two most necessary things for the establishment of a successful museum. You must work on popular lines. There are plenty of museums in London for all the interesting things that the public never sees, simply because the exhibits are packed away in dark corners and no care has been taken with their arrangement or classification." That is true enough, and also that position counts for something. How would the Gaiety Restaurant building in the Strand do? No one seems to know what to do with it.

The death is announced of Mr. W. L. Balmer, water engineer and superintendent for the Middle Ward of Lanarkshire.

Messrs. Bell and Sons are publishing for Dr. George Herbert West a book on "Gothic Architecture in England and France," with numerous illustrations. Dr. West will elucidate in this work the simultaneous development and mutual influence of English and French Gothic.

Lord Selborne presided over a private meeting of the Mercers' Company on Friday, when a bust of the late King Edward, subscribed for by the members and executed by Mr. Alfred Drury, A.R.A., was received. The bust is to be exhibited in the Royal Academy, and will be unveiled later at the Mercers' Hall.

Bedford-street Council Schools, Crewe, have just been enlarged by the addition of wings providing 640 places. There are also additional rooms for the school staff, a manual room for instruction in craftsmanship, and a room for cookery. The cost of the addition has been £10,000. Mr. Ball, the assistant surveyor was the architect, and the builders are Messrs. Dolan, of Warrington.

The section of the London County Council tramway which has been under reconstruction and electrification during the past year between Greenwich and Woolwich has been inspected by Colonel Yorke, of the Board of Trade. The length of the new section, which extends from Rainton-road to Chapel-street, is about one mile and two-thirds. Only 800 yards have to be traversed by horse-car before the London County Council electric cars from Woolwich to Abbey Wood and Bexley are reached.

OBITUARY.

Mr. Arthur G. Langdon, F.S.A., of Launceston, who has died at the residence of his brother, the Very Rev. Canon Langdon, at Kensey, Launceston, was at one time a well-known architect. In 1903, owing to failing health, he gave up his professional work in London and went to reside with his brother. He prepared beautiful drawings of the new Roman Catholic church in the town. His work, published in 1896, on "Old Cornish Crosses" is well known. The deceased discovered the famous Ogham stone in Lewannick Churchyard in 1892, and was elected a Fellow of the Society of Antiquarians in 1895. The funeral took place at St. Stephens-by-Launceston on Saturday afternoon.

CHIPS.

The Wallsend Town Council has received sanction from the Local Government Board to the borrowing of £29,477 for the purpose of providing a burial-ground.

The West Ward Rural District Council have adopted the scheme prepared by Mr. Graham, engineer, of Carlisle, for a water supply for Morland and district.

Plans have been passed by the corporation of Coventry for nearly 300 new houses, including 61 in Melbourne-road, 43 in Heath-road, 17 in Bray's-lane, and 16 in Oliver-street.

The partnership hitherto subsisting between W. M. Lewis and T. N. Morgan, architects, Pontypridd and Tonypandy, under the style of Lewis and Morgan, has been dissolved.

The Bolton Corporation, who are constructing a huge new reservoir at Delph, near the Bolton-Blackburn highway, have now approved a scheme, estimated to cost £10,000, for laying a new 24in. service main between the Sweetloves water-shed reservoir and the Ferns Park pressure filters.

The rural district council of Lichfield have approved a scheme of sewerage and sewage disposal for the Streetly portion of their district estimated to cost £9,600, and have instructed Mr. Robert Green, M.I.C.E., Birmingham, to proceed at once with the detailed drawings with a view to commencing the work as soon as possible.

The first section of the new Church of St. Martin, Peverell, Plymouth, of which the foundation-stone was laid by the Bishop of Exeter in November last, has now been completed. It is the crypt, which, owing to the situation of the church on a hillside, is partly above ground, and seats 400 persons. It has been opened for service.

The acquisition by the Metropolitan Supply Company of the electrical undertaking of the Acton Urban District Council on payment of a sum of £5,000, and the taking over of the debts and liabilities of the council in connection with the supply of electricity in the past, has been sanctioned by a committee of the House of Commons.

The Sheffield Corporation have received a report from a committee recommending the improvement of the now notoriously bad and circuitous approach from the centre of the city to the Victoria Railway Station. The committee have adopted the comprehensive scheme prepared by Mr. C. F. Wike, M.I.C.E., the city engineer, and propose the cutting of a new thoroughfare 70ft. in width from the junction of Waingate, Exchange-street, and Castle-street to directly opposite Victoria Station, incidentally involving the widening and rounding off also of Furnival road and Exchange-street. The buildings which would have to be demolished include the Alexandra Theatre and five prominent hotels, as well as many large business premises.

An important book on the subject of the law and practice affecting building work in London is shortly to be published by Messrs. Constable and Co. The author is Mr. Horace Cubitt, A.R.I.B.A., formerly of the architectural staff of the London County Council. In addition to the text dealing with the building law and the practice in regard thereto, special articles are included which have reference respectively to the cost of building work in and around London, by Mr. H. J. Leaning, F.S.I., and the valuation and rating of London property, by Mr. Sydney A. Smith, F.S.I. The index, which in itself will amount to over fifty double-column pages, is now in the printers' hands, and it is anticipated that the book will be published towards the end of May.

Our Illustrations.

FREEMASONS' HALL, EDINBURGH, FOR THE GRAND LODGE OF SCOTLAND.

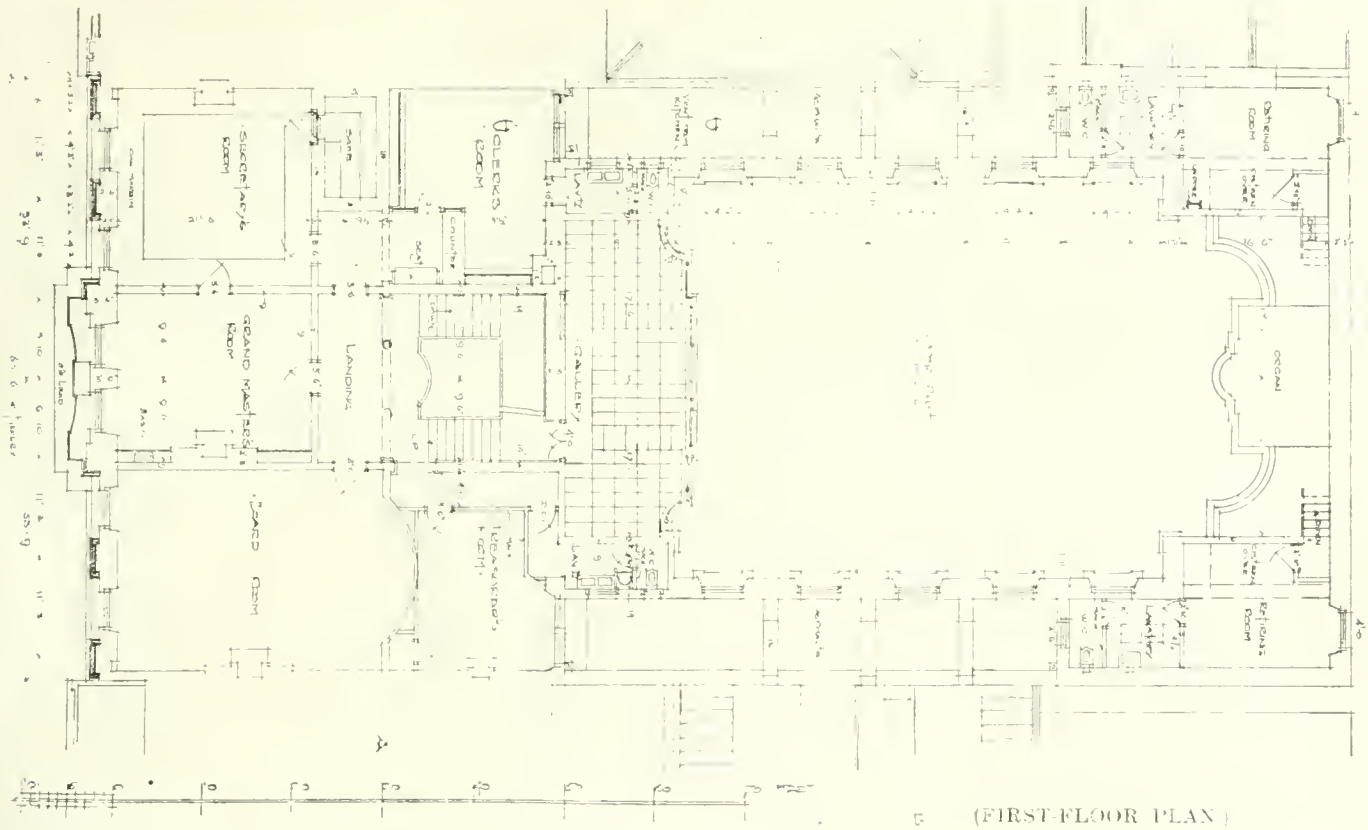
The buildings which have been taken down consisted of two of the original houses in George-street, with a hall at the back which was erected in 1858 from designs of Mr. David Bryce. The accommodation of the old buildings having proved inadequate, new premises are now in course of erection, and consist of a hall seated for 750, with supper rooms, smoking-room, retiring-rooms, cloak-rooms, etc., and having proper kitchen accommodation and storerooms in the basement. On the first floor are the offices of Grand Lodge and the board-room, and on the second floor three committee-rooms and museum and library, while the top floor gives accommodation for the hall-keeper and additional storage accommodation. There are no Lodge-rooms, nor is the hall, strictly speaking, a Masonic temple, although the quarterly communications of Grand Lodge will be held therein. The front is of Pasturehill stone from Northumberland, and the ground floor inside, including the staircase and the lower portion of the main hall, will be lined with Echaillon marble, while the supper-room and smoking-room will be panelled in Austrian oak, which will also be used for dadoes and panelling in the principal apartments. French stuc will be used on the upper walls of staircase and main hall. The contractors for the mason-work are Messrs. Neil, McLeod, and Sons, and joiner-work Messrs. Scott, Morton, and Co., both of Edinburgh; the plumber-work Mr. Arch. Low, of Glasgow, and the plaster-work Messrs. G. Henry Johnson and Sons, Liverpool. The cost of the buildings is above £30,000, and the architect is Mr. A. Hunter Crawford, F.R.I.B.A., Edinburgh.

THE LONDON CITY AND MIDLAND BANK IN LAIRD-STREET, BIRKENHEAD.

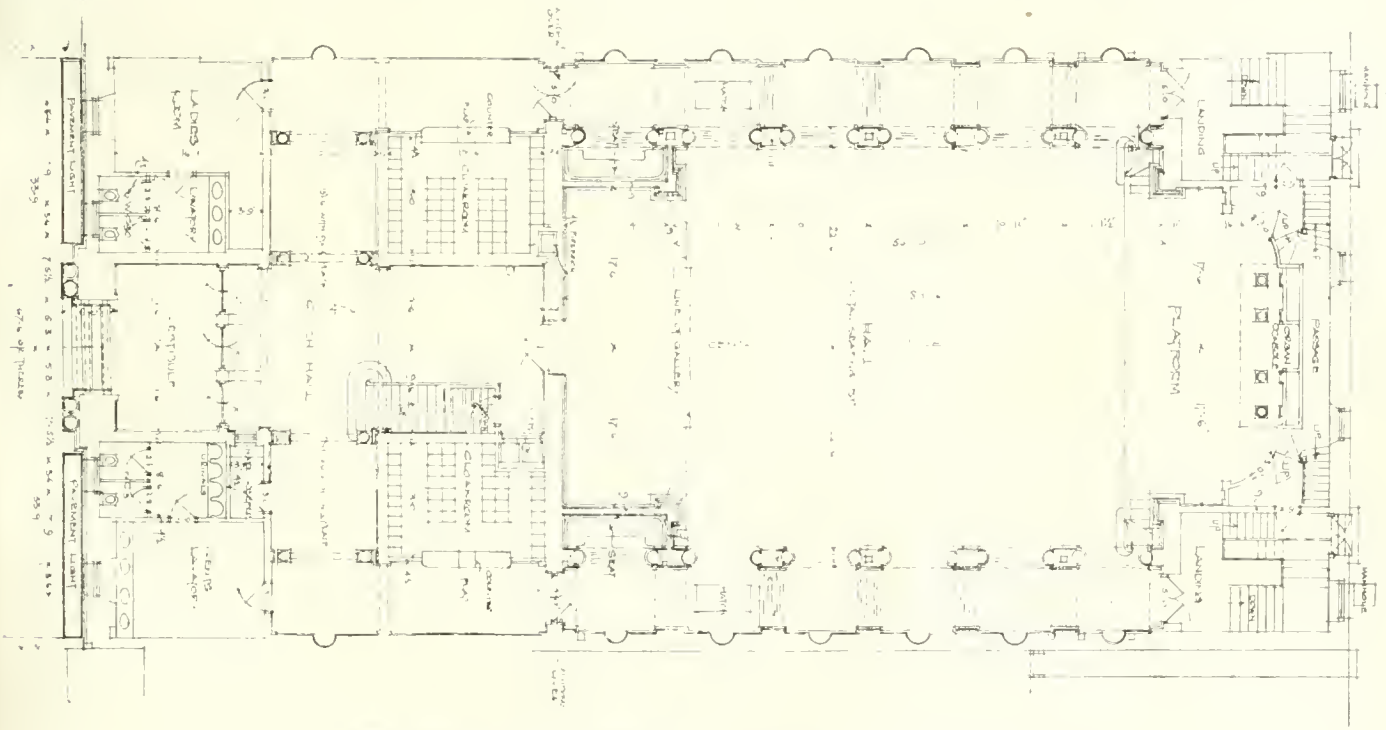
This building is faced with 2in. sand-faced red rubber bricks (supplied by Thomas Lawrence and Sons, of Bracknell, Berks), and has Cefn stone dressings. The roof is covered with green Westmoreland slates. The contractor was Mr. Peter Rothwell, of Conway-street, Birkenhead, and the contract for the structure was about £1,850. The internal fittings were carried out in accordance with the designs of the architects, Messrs. Edmund Kirby and Sons, of Cook-street, Liverpool. The dragon on the shield of the front façade is due to the fact that the bank was built for the North and South Wales Bank, which was absorbed by the London City and Midland Bank while the building was in course of erection, and this little explanation is necessary.

R.I.B.A. PUGIN TRAVELLING STUDENTSHIP COMPETITION, 1911: HON. MENTION DRAWINGS BY PHILIP D. HEPWORTH.

The Portail des Libraires terminates the extremity of the north transept of Rouen Cathedral, and opens on to a court approached from the Rue St. Roman by a charming and well-known stone screen (fourteenth century). Transept constructed 1430-1470 by Guillaume Pontifs, under Cardinal Estouteville. The work has been carefully—almost too carefully—restored. At the sides of the great door is carved a famous series of medallions, depicting the first chapter of Genesis. Louis XII. Pavilion, Palais de Justice, constructed from 1499 onwards, and finished about 1508; but Louis XII., thinking the façade as it was then too uneventful, commissioned Roulland Le Roux, the Architect of the Cathedral Façade (see Building News, March 10, 1911) to design the florid front, of which the pavilion depicted forms the central feature. This façade generally takes a very high place among Mediæval Civil French Architecture, both for its beauty of proportion and line, and the vivacity and imagination displayed in its sculptured decorations, the numerous gargoyles being especially delightful. The



(FIRST-FLOOR PLAN.)



MASONIC HALL, EDINBURGH.—(GROUND-FLOOR PLAN.)

Choir-Stalls from Amiens Cathedral, shown on the plate, are most beautifully designed in the richest type of exquisite detail, and Mr. P. D. Hepworth, who has lent us these charming drawings, has rendered the work in a most reliable and spirited way in accurate elevation.

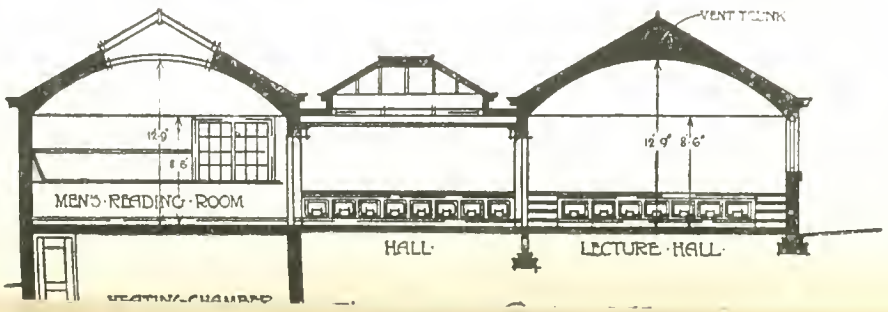
SELECTED DESIGN FOR THE CARNEGIE FREE LIBRARY, PENISTONE.

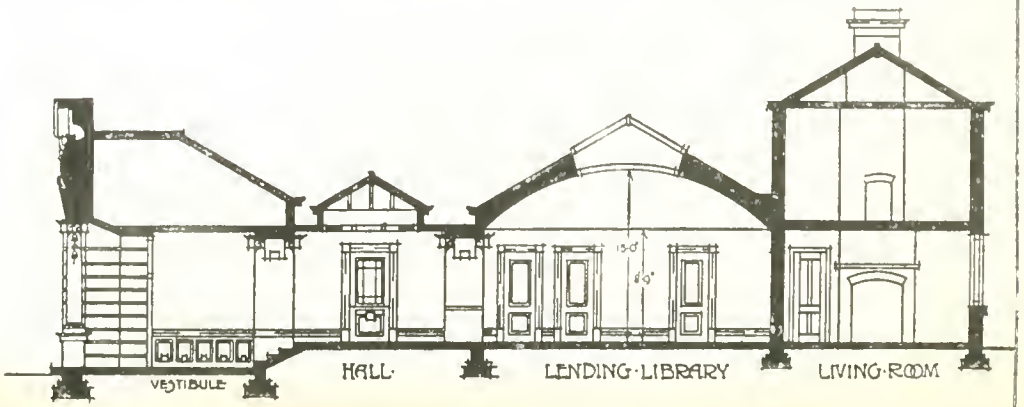
In this competition twelve designs were ultimately selected in order of merit by the assessor out of about sixty plans submitted. The names of the authors of the three premier designs, and the requirements of the library committee, were given in our issue of March 24. The author of the first premiated plan, of which we publish a double-page illustration, is Mr. Henry R. Collins, of Barnsley. The assessors report to the committee that they "had no hesitation in placing this plan first," and the executive committee, at their meeting when the assessor's report was received, unanimously endorsed this selection, and accepted the plans provisionally on Mr. Carnegie's approval. The scheme is well thought out and convenient. One of its main features is that a separate entrance is provided for the lecture-room or recreation-room, with connecting doors to the hall and lending library for supervision. It is suitably isolated from the reading-rooms, so that no noise proceeding therefrom would penetrate either to the men's or women's reading-rooms. A sectional movable platform is provided, also proposed seating is illustrated when in use for lectures, etc. A service door connects rear of this room with caretaker's house for convenience of "teas," etc. The separate entrance to the lecture-room is particularly convenient when it is desirable to use this hall apart from the library and reading-rooms, without in any way inconveniencing either of them. The lavatories (men's and women's) are provided with recessed doors, and located in an arched "ante," thus making entrance and exit therefrom as private as possible. A conveniently large borrowers' hall has been provided, which will obviate any inconvenience by overcrowding. The whole of one side of same facing main entrance is occupied by the borrowers' counter, giving ample breadth for the adaptation of the indicator system. It was more convenient to place the heating chamber under the men's reading-room, owing to the fall in the level of site. The utilisation of roof space has not been overlooked.

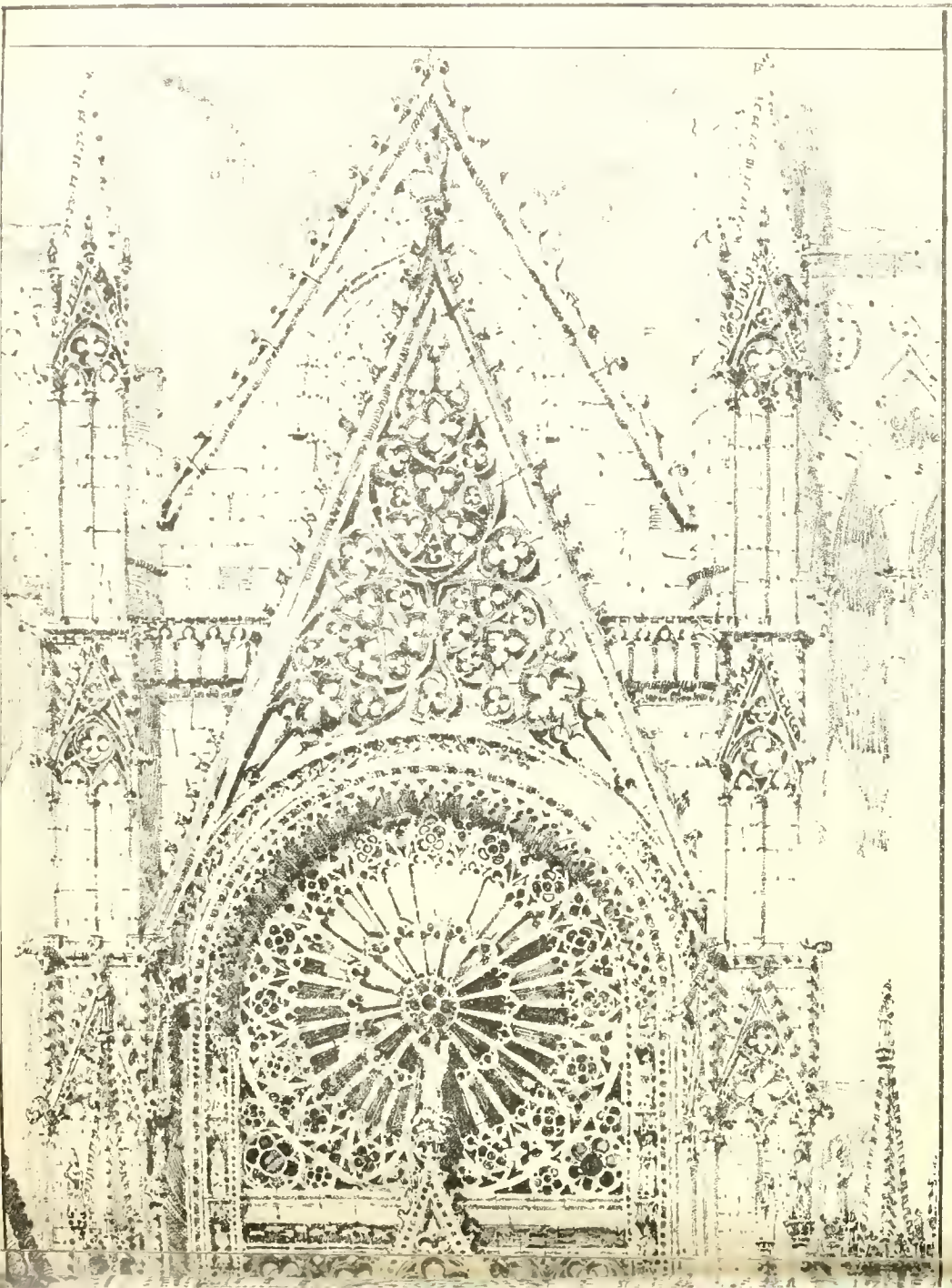
CARNEGIE FREE: LIBRARY: PENISTONE:

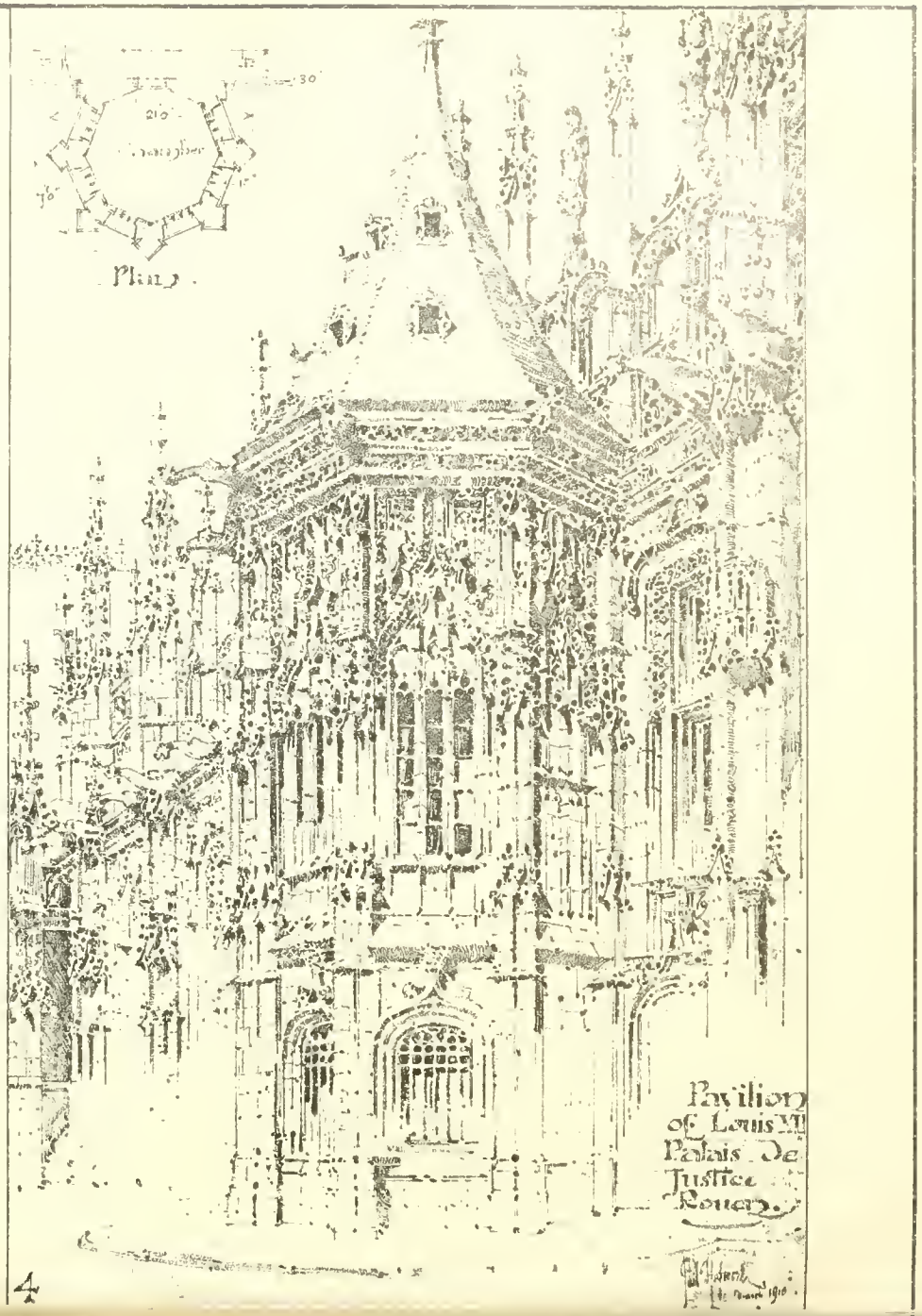
FRONT: ELEVATION:

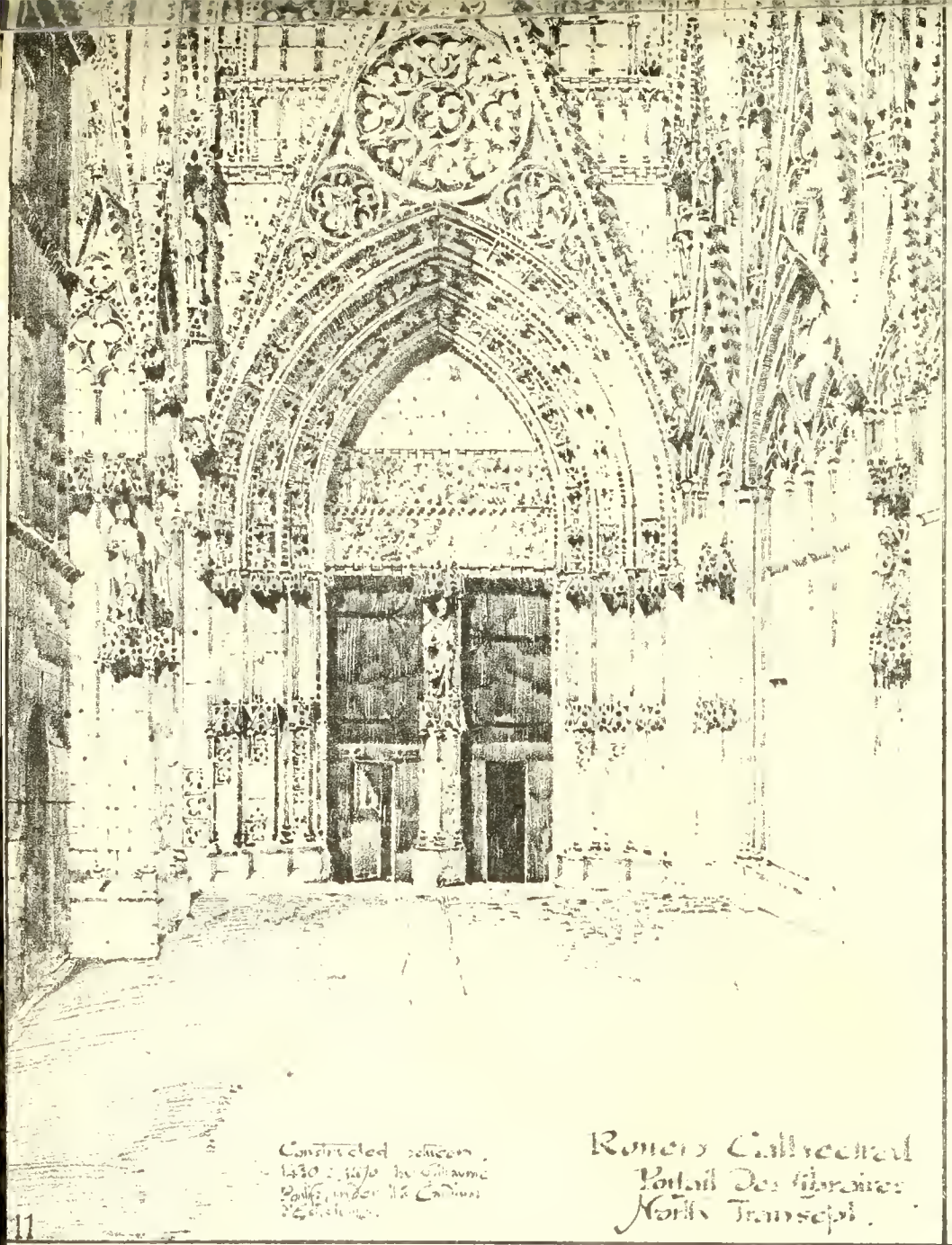
SIDE: ELEVATION:







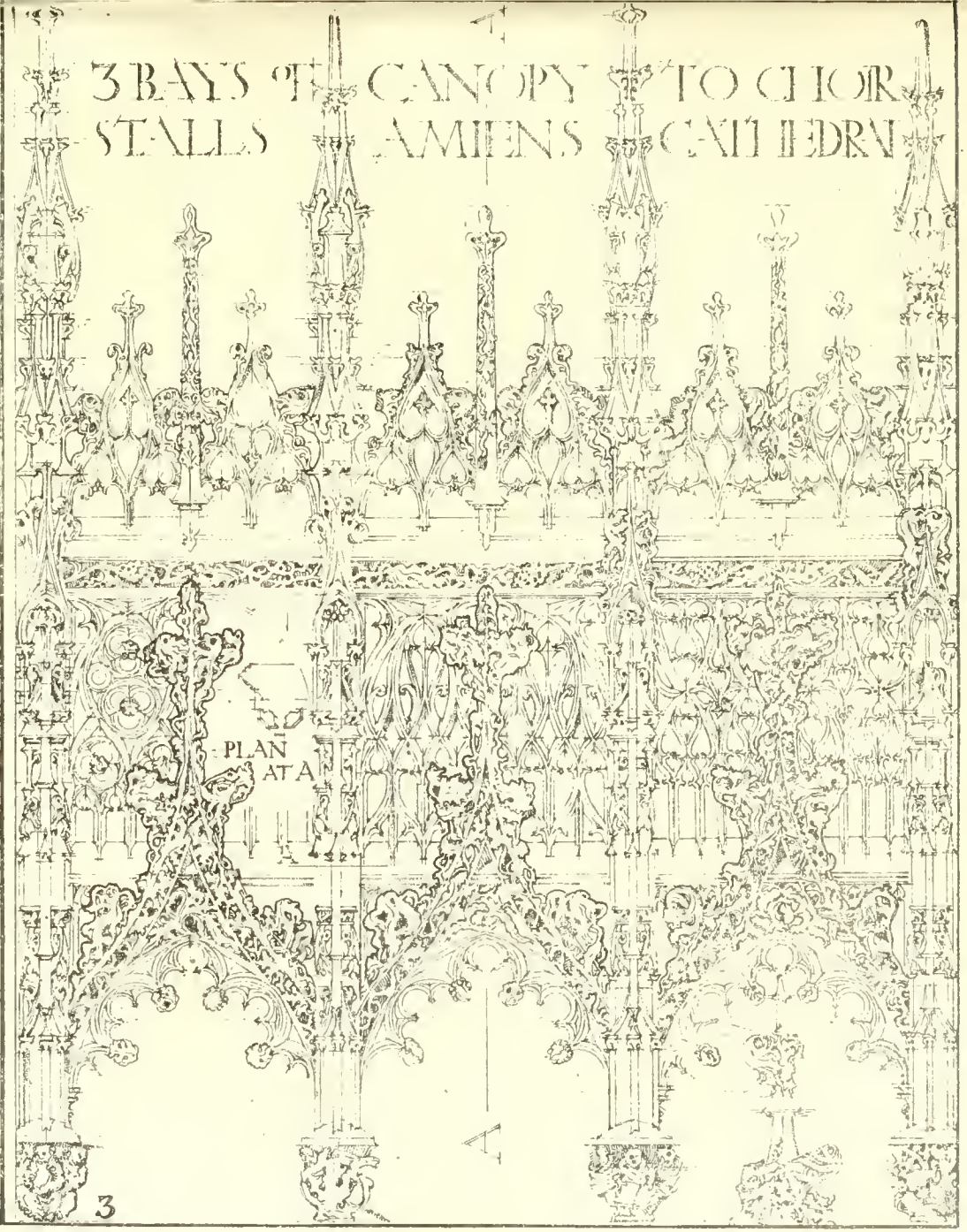

Plan.
Pavilion
of Louis VI
Palais De
Justice
Rouen.
4



Constructed between 1430 & 1450 by Guillaume Pontifz under the Cardinal d'Estouteville

Rouen Cathedral
Portail Des Libraires
North Transept.

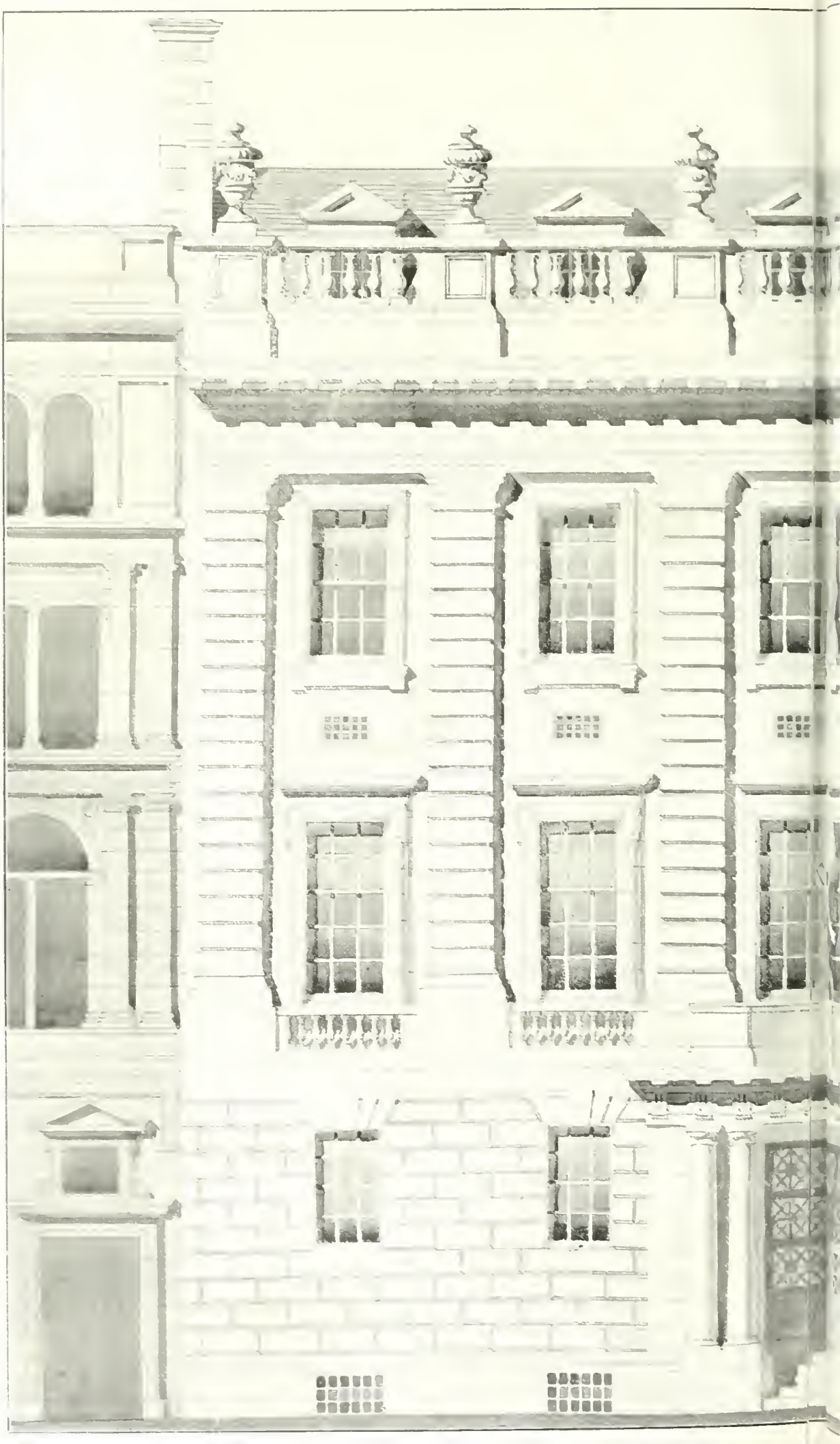
11

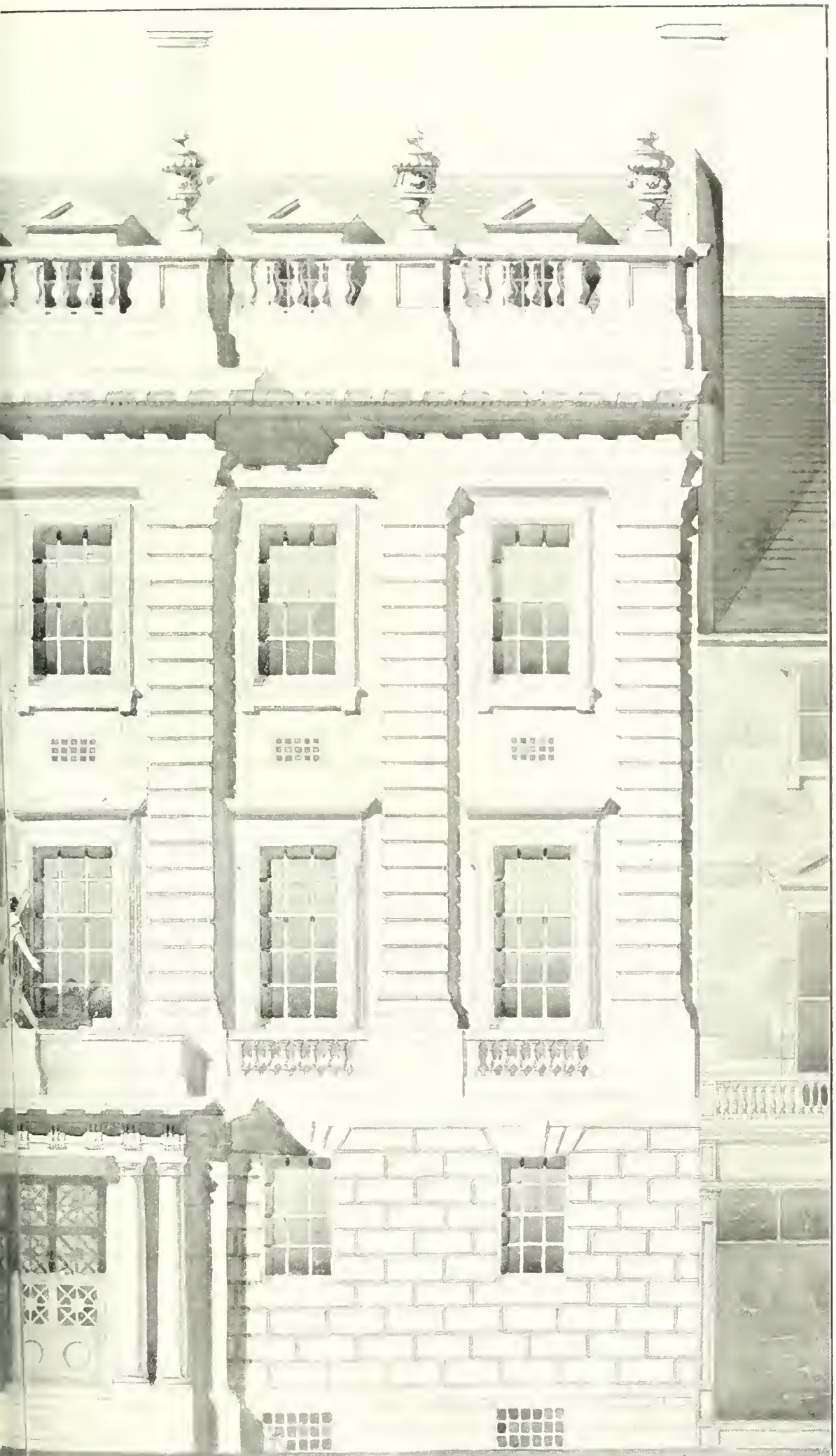


3

"PHOTO-TINT" by James Akerman 5 Queen Square London W

RIBA PUGIN TRAVELLING STUDENTSHIP COMPETITION 1911 · HON MENTION AWARDED TO PHILIP D HEPWORTH

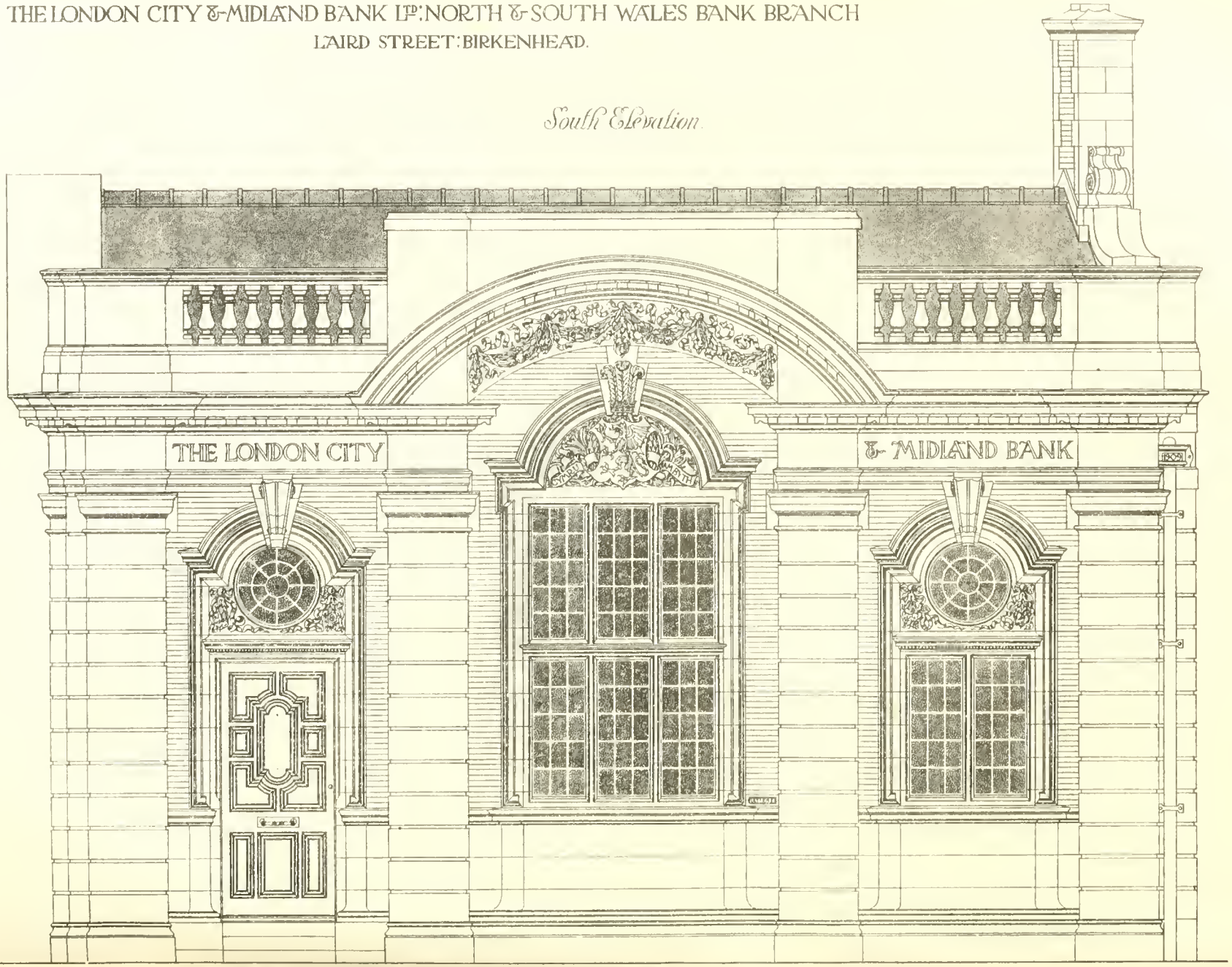




A. Hunter Crawford, F.R.I.B.A., Architect.

THE LONDON CITY & MIDLAND BANK Lᵀᵈ: NORTH & SOUTH WALES BANK BRANCH
LAIRD STREET: BIRKENHEAD.

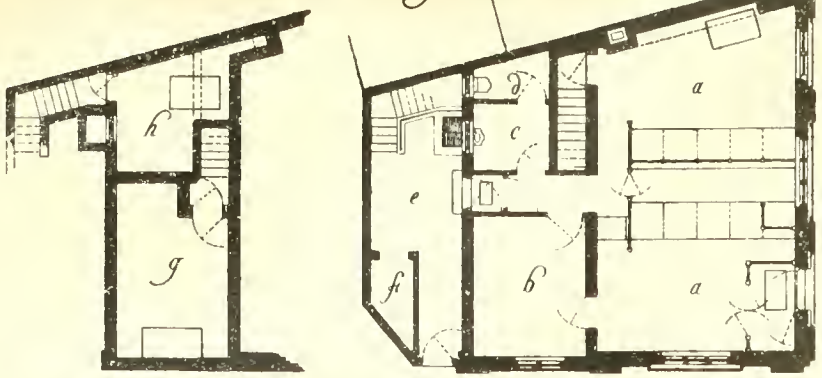
South Elevation.



THE LONDON CITY & MIDLAND BANK LTD: NORTH & SOUTH WALES BANK BRANCH

LAIRD STREET: BIRKENHEAD.

West Elevation.



Scale 0 5 0 10 20 30 of Feet.

Key of Plans.

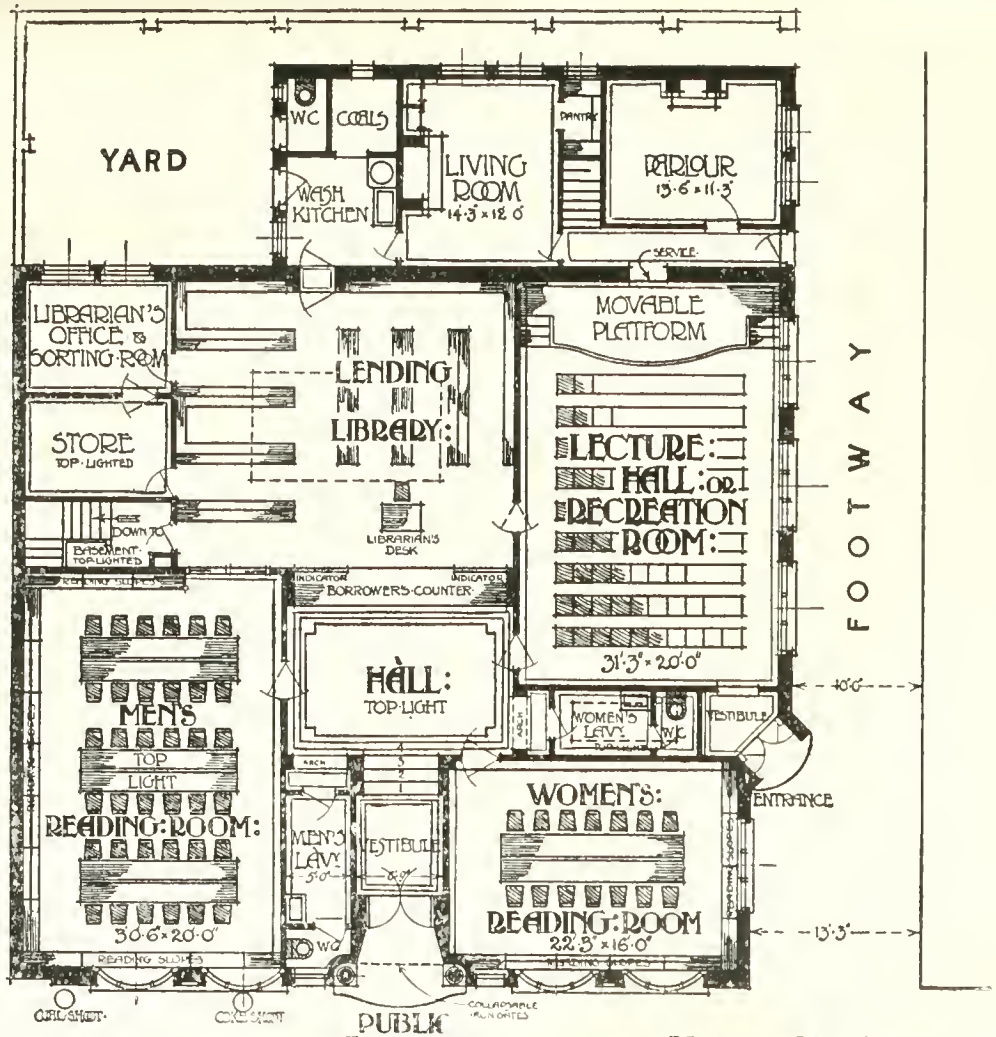
a.–Banking Hall.
b.–Manager's Room.
c.–Lavatory and Cloak Room.
d.–W.C. e.–Yard.
f.–Coal Store.
g.–Strong Room.
h.–Heating Chamber.

Scale 0 5 0 1 2 10 15 of Feet.

Edmund Kirby & Sons
5 Cook Street, Liverpool.

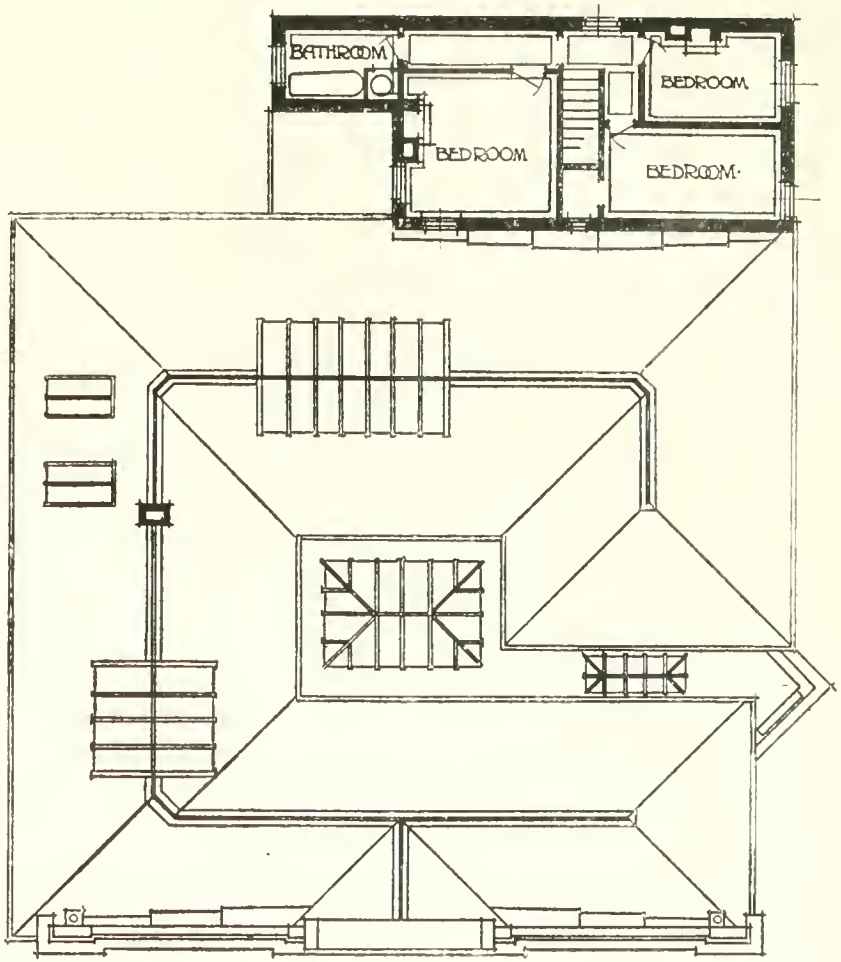
"PHOTO-TINT" by James Akerman, Queen Square, London W.

SELECTED DESIGN



GROUND: PLAN:

HENRY: R: COLLINS: ARCH:
REGENT: STREET: BARNSLEY:



ROOF: PLAN:

Building Intelligence.

ABERDEEN.—Specifications and schedules with reference to the contract to be made with the Caledonian Railway Company for the construction, completion, and maintenance of a goods shed, offices, and relative works, on the site of the existing Aberdeen goods station, have just been issued. The cost of the work is estimated at from £60,000 to £66,000. The whole has to be completed by December 31, 1912. A commencement will be made at once with the operations, which include the erection of a shed 320ft. in length and 260ft. in width. Loading and fish banks, with roadways, are also to be constructed. The whole of the existing permanent way is to be lifted and re-laid in a position to suit the new works.

ALDER HEY, LIVERPOOL.—The foundation stone of a large hospital, which is being built at Alder Hey, West Derby, by the West Derby Board of Guardians, for the reception of 1,000 chronic and bed-ridden patients, was laid on March 3 by Mr. J. S. Davy, C.B. The buildings are being constructed in common bricks, with red pressed brick binds and terracotta dressings, stone sills and heads, and fireproof floors. The total cost for the structural work, inclusive of all buildings, is about £109 per bed, and when the buildings are furnished and fully equipped, the cost will be about £132 per bed. The architect is Mr. Charles H. Lancaster.

SELBY.—Writing in the April issue of the *Selby Abbey Parish Magazine*, Dr. Solloway, the vicar, refers to the rebuilding of the south transept, and says the undertaking will occupy from twelve to fifteen months. He adds that he would like to find a duplicate of Mr. Wm. Liversidge, who would undertake the completion and repair of the west front. "That part of the Abbey was never finished. The foundations and piers of two west towers were built, and dwarf towers were actually erected; but probably through lack of funds they were never completed. Mr. Oldrid Scott, the architect, has drawn a west elevation, including the two towers, finished in the original style. Each tower will cost, approximately, £2,800, and the necessary repairs to the west front a further expenditure of £1,500.

Professor Kekulé von Stradonitz, who since 1887 has been Director of Sculptures in the Royal Museum at Berlin, and who also held the appointment of Professor of Classical Archæology at the University, has just died at the age of 72.

At Wednesbury a new organ which has been placed in the parish church of St. Bartholomew was dedicated on Wednesday week. It has been built by Messrs Brindley and Foster, of Sheffield, is driven by motor power, and contains 1 735 pipes.

The street decorations in Kensington on the occasion of the State visit of Queen Mary yesterday (Thursday) to receive an address of welcome from the borough council were devised by Sir Aston Webb, R.A. Mr. Walter Crane gave his services in illuminating the address.

Mr. Franklin J. Sawtelle, F.A.I.A., of Providence, R.I., died in his home in that city on March 9. Mr. Sawtelle was in his sixty-fifth year, and has been prominent in architectural circles for more than thirty years. He was twice President of the Rhode Island Chapter of the American Institute of Architects.

A memorial exhibition of the work of Sir Francis Seymour Haden, late President of the Royal Society of Painter-Etchers, will be held, under the auspices of the executors, at the Leicester Galleries, Leicester-square, during the coming season. Owners of fine proofs by this artist are asked to communicate with the organisers of the exhibition, Messrs. Ernest Brown and Phillips, at the above address.

The Local Government Board has sanctioned increases in the salaries of the undermentioned London sanitary inspectors: Borough of Bethnal Green—Mr. W. Rowsell, from £190 to £195 a year; and Mr. J. O. G. Weeks, from £190 to £200 a year. Borough of Holborn—Mr. A. Bennett, from £170 to £175, subject to a further increase of £25 in the event of his taking up his residence in the borough; Mr. G. F. Clark and Mr. S. Larard, from £185 to £200 by three annual increments of £5.

PROFESSIONAL AND TRADE SOCIETIES.

GLOUCESTERSHIRE ARCHITECTURAL ASSOCIATION.—The third meeting of the session was held at the Northgate Mansions, Gloucester, on March 30, the president, Mr. Walter B. Wood, being in the chair. A large number of members, and also representatives of the local authorities, who had been specially invited, were present to hear a lecture by Mr. Raymond Unwin entitled "The City Development Plan."

EXTENSION OF THE PERIOD FOR ELECTING LICENTIATES.—A special general meeting of the Royal Institute of British Architects was summoned by the Council under By-law 65, and held on Monday, March 20, the President, Mr. Leonard Stokes, in the chair. The President, having reminded the meeting that the period for electing Licentiates expired on March 23, moved that the Council be authorised under Clause 1 of the Supplemental Charter to continue to elect members of that class until December 31, 1911, and briefly stated the Council's reasons for proposing the extension. Mr. A. W. S. Cross seconded the resolution. Mr. J. Nixon Horsfield, seconded by Mr. George Hubbard, F.S.A., moved as an amendment that the time be extended till March 23, 1913. A suggestion by Mr. G. A. T. Middleton to extend the period until the end of June, 1912, having been accepted by the mover and seconder of the amendment, the proposal was put to the meeting, and upon a show of hands declared carried—32 voting in its favour, 9 against. The amendment being put as the substantive motion, it was by the same majority resolved, that under Clause 1 of the Supplemental Charter of 1908 the Council be authorised to continue to elect Licentiates of the Institute until the end of June, 1912. The chairman announced that the resolution would be brought before the general body for confirmation on April 10 (Monday next).

LIVERPOOL ARCHITECTURAL SOCIETY.—The sixty-third annual meeting of the Liverpool Architectural Society was held on Monday evening at 13, Harrington-street. The report and balance-sheet, which showed a steady progress of the society, were adopted. The report states that the present membership of the society consists of 53 Fellows and 73 Associates—a total of 126. The proposal to cut away the wall at the south end of St. George's Hall in order to prepare a site for the erection of a memorial of the late King Edward had met with the opposition of the council, who had petitioned the memorial committee and also the finance committee of the city council with respect thereto, pointing out that in their opinion no statue can be erected in that position without injury to the composition of the hall and danger to the beauty and dignity of the memorial, and suggesting that a less dangerous and more suitable site be found elsewhere. A national conference on details of practical town-planning administration, under the auspices of the National Advisory Town Planning Committee, was held in Liverpool on February 23 and 24 last. The council appointed Mr. Arnold Thornely and Mr. E. Percy Hinde to attend the conference as representatives of the society. There were indications that in the near future the application of the Town Planning Act was likely to have far-reaching effects in regard to the laying out of land for building purposes. The Royal Institute of British Architects had approved and published a new form of Regulations of Architectural Competitions. The new Regulations embodied several of the suggestions put forward by this and the Manchester Society; but the council thought it right to protest against the members of the allied societies being regarded as bound by the stringent terms of the Regulations unless and until the Regulations had been submitted to and approved by them. The Institute, in reply, regretted the misunderstanding, but submitted that, as the wording of the Regulations was considered sufficiently elastic to meet reasonable modification, it was hoped the society would support the Regulations as published. The council decided not to press their objections further. The following members were elected to form the council for the ensuing year:—President, Arnold Thornley (re-elected); vice-presidents, E. P. Hinde and C. H. Reilly, M.A.; hon. secretaries, Gilbert Fraser and Ernest C. Aldridge; unofficial members of council, W. Glen Dobie, J. Dod, T. E. Eccles, G. H. Grayson, L. Hobson, P. C. Thicknesse, W. E. Willink, L. P. Abercrombie, and F. E. G. Badger; hon. auditors, S. Woolfall and M. Honan. On the motion of Mr. W. E. Willink, seconded by Mr. E. P. Hinde, a vote of thanks was tendered to the president for his services during his year of office.

NORTHAMPTONSHIRE ASSOCIATION OF ARCHITECTS.—A new architectural society has been formed for the county of Northampton, to be called the Northamptonshire Association of Architects. The members consist of two classes—viz., Members, who must be architects practising in the town and county, and Associates consisting of architects' assistants and pupils. The objects of the association are to promote the general advancement of architecture and the arts and sciences relating to architecture; and the business of the session will include visits to buildings, the reading of papers, lectures, and discussions, and social amenities. Mr. J. Alfred Gotch, J.P., F.S.A., F.R.I.B.A., of Kettering, has been elected president. The secretary is Mr. Herbert Norman, Woodhill, Northampton.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—The paper by Mr. R. Anning Bell on "Coloured Relief as Decoration" is postponed from April 10 to May 22, and Mr. Laurence Weaver's paper on "The Interleaved Heirloom Copy of the Parentalia, and some Notes on the Wrens" will be read on June 26, following the presentation of the Royal Gold Medal.

THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.—An ordinary meeting of the Council of the above body was held on Monday last at No. 31, South Frederick-street, Dublin. The President, Mr. A. E. Murray, R.H.A., F.R.I.B.A., was in the chair, and there were also present: Messrs. W. Kaye-Parry, F. G. Hicks, Lucius O'Callaghan, C. H. Ashworth, G. P. Sheridan, C. J. MacCarthy, R. Caulfield Orpen, A. G. C. Millar, J. H. Webb, H. Allberry, and C. A. Owen (hon. secretary). The report of the Examination Committee was again under consideration, and, with a small amendment, was passed. The committee was asked to prepare a list of examiners and to suggest a date for the first examination. A report from the Arts Committee with reference to the portraits of past-Presidents and Vice-Presidents was adopted. The by-law as to the admission for members was under review. The next general meeting was fixed for 4.30 p.m., April 11.

SCOTTISH SOCIETY OF ORDAINED SURVEYORS.—At the thirteenth annual meeting of the Society of Scottish Ordained Surveyors, held at 117, George-street, Edinburgh, last (Thursday) evening, the general examining board reported that they held two diets of preliminary examination during the year. Four candidates in all were examined, of whom two were for re-examination. Of the four examined, two passed and are through the examination, one passed in two subjects and failed in one subject, and one failed. There were two diets of intermediate examination held; three candidates came forward, all being successful in passing. No candidates presented themselves for the final examination. The report of the Council stated that the modes of measurement for minor trades, after having been submitted to and approved of by the society, have been printed and circulated among the members. Copies have also been sent to the secretary of the Building Trades Exchange and others for distribution among the various contractors. The Charter and the Rules and regulations of the proposed Society of Chartered Surveyors of Scotland were submitted by the sub-committee at special general meetings of the society, and were finally approved, sub-

ject to the adjustment of one or two small items with the Glasgow Institute. The whole matter has now been adjusted with the Glasgow Institute, and the Charter is at present in the hands of Parliamentary solicitors with the view of its being presented to the Privy Council. The treasurer's balance-sheet shows that the funds of the society at the close of the financial year amounted to £540 4s. 6d.

CHIPS.

Among those elected on the Council of the Society of Knights-Bachelor is Sir Aston Webb, C.B., R.A.

The governors of the Llanrwst County School have decided to add to and alter the existing buildings, at an estimated cost of £3,485.

Mr. A. Bruce-Joy has been entrusted with the commission for the bronze statue of the late Mr. Hornby to be erected at Blackburn.

A Local Government Board inquiry was held last week at Finchley into the proposal of the urban district council to purchase over 40 acres of land at a cost of about £12,275.

The Sunderland Education Committee have decided to recommend the corporation to carry out a scheme, at a cost of £74,258, for the reconstruction and extension of the Bede Collegiate Secondary School, and for providing temporary premises to meet the requirements of the Board of Education.

The Governors of Hutchesen's Educational Trust, Glasgow, are erecting a new girls' grammar school in Kingarth-street, on the south side of the city, and the memorial-stone was laid on Monday. Messrs. Thomson and Sundilands are the architects, while Messrs. P. and W. Anderson, Ltd., are the contractors.

For years the London County Council have been negotiating with the urban authorities of Edmonton, Walthamstow, Leyton, Southgate, and Enfield respecting the proposed Lea Valley drainage scheme, and all the councils have now decided to abide by the decision of Mr. John Burns, who has consented to arbitrate.

The group of international pacifists have initiated a project for the erection of a monument to King Edward VII. in front of the Waterloo battlefield, on a plot of ground offered to the provisional committee by an admirer of the pacific action of the late King. The work will be entrusted to M. Julien Wendrickx, the architect.

The annual general meeting of the Roads Improvement Association (Incorporated) is fixed for the 27th inst., at 4.30, at Caxton House, Westminster. Delegates have been appointed to attend a meeting to be held in May in connection with the organisation of the arrangements for the third International Road Congress to be held in London in 1912.

The Abraham Lincoln Memorial Commission, provided for by a recent vote of 2,000,000 dollars by the U.S. Congress, held its first meeting at the White House, Washington, on March 4. It decided to ask the National Fine Arts Commission to suggest various plans for the proposed memorial to be erected in Washington to Lincoln. The Commission will be asked to take three or four sites in the national capital, and give its opinion as to various forms of memorial which might be appropriate to these places.

The new block, designed by Mr. William Wallace, to be built at the end of the quadrangle at Ridley Hall, Cambridge, will be in the same style as the block built in 1891; but as it will occupy a conspicuous position in the centre of the quadrangle, a few more architectural features will be added. In the centre there will be a wide octagon bay the entire height of the building, and at each end of the block at the second floor there will be a projecting oriel window corbelled out from the main wall.

The Kay-Cox collection of pottery and of English colour prints, which was bequeathed a year ago to the Whitworth Institute, Manchester, has now been arranged for exhibition to the public in a room of the Institute at Whitworth Park especially set apart and decorated for the purpose. The formal opening took place on Saturday. The English stipple engravings in colour are a notable set, and the Wedgwood and other pottery, which fills eleven cases, is an instructive and representative collection of examples illustrating certain phases and periods of English manufacture. Upstairs, in the large lecture-room of the Institute, an exhibition has been arranged of Japanese pictures, drawings, and prints lent by Mr. John Hilditch.

COMPETITIONS.

ATHENS.—With reference to our previous notice relative to an international competition of plans and designs for new Courts of Justice at Athens, H.M. Minister at Athens now reports the publication of an official notice to the effect that the detailed statements of prices required by paragraphs 7, 8, and 9 of Article 8 of the original notice will not be regarded as obligatory, and that competitors therefore need not present them. Projects, accompanied with the sum of 200 drachmæ (£8) will be received at the "Section d'Architecture, Service Central des Travaux Publics, Ministère de l'Intérieur," Athens, up to September 12-25. Further particulars of the competition (in French), as well as a plan of the ground on which the Courts are to be built, may be seen by British architects at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C.

BLACKLEY ESTATE SCHEME.—The sanitary committee of the Manchester City Council reported on Wednesday that Professor Adshead, of Liverpool, had been appointed to act as assessor in considering the merits of the competitive designs for laying out the Blackley Estate. The designs were now in the town-hall, and would be on view for a time. Mr. Alderman Turnbull said the competition was one of the most important that Manchester had known, and he thought the plans should be shown in one of the rooms of the School of Technology for a month.

HORSFORTH.—In the recent competition for St. Margaret's Parochial Hall and Sunday Schools, open to invited Leeds and Bradford architects, the assessor, Mr. Sydney Kitson, of Leeds, has awarded the first place to the design submitted by Messrs. Empsall and Clarkson, The Exchange, Bradford. Seven sets of plans were sent in.

PENRITH.—The following is a copy of the assessor's award in the competition for Penrith Grammar School:—"The number of competitors was very great—one hundred and eleven. I regret that two sheets of the plans numbered 19 seem to have been included in the wrong parcel, and I shall be very grateful for information as to their whereabouts. The eight selected sets of plans were:—1st (No. 104), Messrs. Harrison and Ash, Newcastle; 2nd (No. 67), W. P. Schofield, Leeds; 3rd (No. 7), Messrs. Holliday and Paterson, Manchester; 4th (No. 99), E. Cratney, Newcastle. The remaining four were not placed in order of merit:—No. 4, Newton J. Fatkin, Newcastle; No. 13, H. W. Thorp and Son, Leeds; No. 27, Cooper and Clarke, Chelmsford; No. 82, Connon and Chorley, Leeds."

As the result of inroads of the sea at Thorpe Ness, the low sandy spit two miles north-east of Aldeburgh and three miles south of Dunwich, there have been washed out of the sands hundreds of coins—gold, silver, and bronze—dating from early Saxon times, antique bronze rings and ornaments, and an old bronze bag-clasp with a silver inscription, said to be of the period of King John.

Mr. E. H. Hutchinson, inspector in the sanitary department of the Edinburgh Corporation, has been appointed sanitary inspector for Staffordshire out of nearly 300 applicants. The salary is £200, rising by £10 annually to £250.

The fish market at Southampton was re-opened last week after enlargement and improvement by the corporation, who have acquired adjoining premises in French-street. The contractor for the extension was Mr. J. Nichol, Bitterne Park, Southampton.

The Thirsk Rural District Council accepted at their last meeting the resignations of Mr. R. Wright, the surveyor, and of Mr. Watson, his clerk. It was decided, on the recommendation of the finance and works committee, to advertise for a surveyor for the whole rural district at a salary of £150 per annum, to include travelling expenses, and that he should devote the whole of his time to the duties of the office. The surveyor is to reside in the parish of Thirsk or Sowerby, to give a guarantee policy in the sum of £300 for the faithful discharge of his duties, and he is not to be allowed a clerk, but must have a good knowledge of surveying, levelling, road-making, drawing plans, etc., and is to keep the accounts.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We divide the guinea between Mr. L. D. Coneslant, 6, The Craiglands, Sunderland, and Mr. B. W. Hame, Municipal Buildings, Bournemouth. An accident to the illustration which accompanies Mr. Hame's reply obliges us to postpone its insertion till next week.

QUESTIONS.

[13030.]—DRAIN.—When is a drain not a drain? Will some readers give opinions as to what constitutes a drain and a sewer? I am aware that it is a very much discussed subject, but has a decision ever been arrived at?—Stud. Soc. of Architects.

[13031.]—PIGEON COTE.—I shall be glad of information on any points to be observed for making a cote for, say, 150 pigeons in the gable of a building. Space, light, and ventilation required; number, size, and position of nests, and any other hints. The birds will not be fancy varieties, but for table purposes.—Lever.

[13032.]—SOUND-PROOF DOOR.—I should be greatly obliged if someone could advise me as to the best means of making a sound-proof door in a partition 4in. thick. The partition is proposed to be constructed of Thompson's Terrawode bricks, and it is desired, if possible, that the door be a swinging one, in order to cause as little obstruction as possible in passing from one room to another. It is for a long room in an office, and it is proposed to close off one end, on account of the noise from the street.—J. G.

REPLIES.

[13027.]—THE CORONATION STONE.—In the volume Mr. W. H. Robinson refers to, "Woodcarving in English Churches" (1910), Mr. Francis Bond, M.A., gives an excellent photograph of the Coronation Chair itself, showing the mysterious stone in situ, directly underneath the seat. In this diligent author's exhaustive and valuable book upon "Westminster Abbey" (1909), he makes reference to the chair, and, in view of the approaching Coronation, it may be useful to quote his remarks in full. He states: "The stone is that brought from Scone Abbey, in Scotland, by Edward I. in 1296, where all the Scotch kings had sat on it. There was said to have been a couplet engraved on it by King Kenneth, A.D. 840, to the effect that the Scots shall reign wherever this stone be placed. The words were—

"'Ni fallat, Scoti, quocunque locatum,
Invenient lapidem, regnare tenentur ibidem.'

A prophecy disastrously fulfilled by the accession of the Scotch Stuarts to the English throne. There is a rectangular groove on the upper face, to which a metal plate with an inscription may have been affixed. In 1324, Robert Bruce appealed to Edward II. that the stone might be restored to Scotland. Scota, he said, daughter of Pharaoh, had it brought from Egypt, and Moses had promises that victory should follow the stone. It was even thought to be the identical one on which Jacob's head had rested at Bethel, when he saw angels ascending and descending from Heaven. On this very stone Edward I. had himself crowned King of the Scots, and in the chair in which it lies has been crowned every English Sovereign since his time. It has never left the Abbey, except when it was temporarily removed to Westminster Hall, when Oliver Cromwell was installed Protector." It is a curious coincidence that the late Sir G. Gilbert Scott, R.A.'s, "Gleanings From Westminster Abbey" (published in 1863) contains a carefully-drawn illustration of the Coronation Chair, taken from exactly the same point of view, as well as exactly the same size, as is Mr. Bond's photograph of it. Sir Gilbert, referring to a paper by the late Mr. W. Burges, states it was due to the late Mr. Joseph Hunter that so much has been unearthed relative to the history of the Coronation Chair. He calls attention to Vol. XIII. of the *Archæological Journal*, containing interesting matter written by Mr. Hunter, under the heading of "Edward the First's Spoliations in Scotland, A.D. 1296." It seems, from this account, that the monarch in question visited the Abbey of Scone in August of that year, where the Scottish kings had always been crowned, and where he found the "fatal stone" enclosed in a chair. Remarking it was said to have been that upon which Jacob's head rested at Bethel, and believed to have travelled later into Egypt, thence to Spain, thence to Ireland, and, lastly, to Scotland, it is stated that the rectangular

[illegible] the upper [illegible] portion, made [illegible] Kenneth, [illegible] Edward [illegible] [illegible] [illegible]

LEGAL INTELLIGENCE.

THE SANITARY APPLIANCES SYNDICATE, LTD. (Registered Office, 68, Victoria-street, London, S.W.)—The Senior Official Receiver and Liquidator of the above-named company intends to apply to the Board of Trade for his release, and any objections must be notified to the Board of Trade within twenty-one days from March 28 last. A summary of his receipts and payments as Senior Official Receiver and Liquidator is hereto annexed. The Receiver's address is: Mr. H. Brougham, Senior Official Receiver and Liquidator, 33, Carey-street, Lincoln's Inn, W.C.

STATEMENT SHOWING POSITION OF COMPANY AT DATE OF APPLICATION FOR RELEASE.

Dr. Receipts.	£ s. d.	Cr. Payments.	£ s. d.
To total receipts from date of Winding-up order—viz.,		By Board of Trade and Court Fees—viz.,	
There were no assets disclosed in the Statement of Affairs.		Fee amin respect of 114 Contributories, Creditors, and Debtors (including Printing, Postages, and Stationery)	7 4 0
Other receipts—		Percentage on 15s. 9d. assets realised	0 0 9
Book debts...	0 15 9	Court fees	0 10 6
			7 15 3
Total	0 15 9	Costs of Notices in Gazette and Local Papers	2 18 6
Balance, being the amount due to the Board of Trade ...	10 6 6	Incidental outlay	0 8 6
	11 2 3		11 2 3

No assets were disclosed in the statement of affairs, the managing director maintaining that the company did not complete the purchase of his business. As stated in the Observations issued in May, 1910, the books of account were imperfectly kept, and it has not been possible to arrive at the exact position. After investigating the facts as far as possible, the Official Receiver came to the conclusion that there were no grounds for making a claim against the vendor and managing director. In the above circumstances, there is no possibility of a dividend being paid to the creditors, and the Official Receiver proposes to close the liquidation. Creditors and contributories can obtain any further information by inquiry at the Department of the Official Receivers, 33, Carey-street, Lincoln's Inn, London, W.C.

GLASGOW ARCHITECTS AFFAIRS.—Albert Fountain, architect, Gordon-street, Glasgow, was examined in bankruptcy before Sheriff Fyfe on Friday. Bankrupt stated that he had been five years in business, and became embarrassed towards the end of last year. He attributed his insolvency to losses in connection with the erection of two skating-rinks and to bad trade. The state of affairs lodged by the bankrupt showed assets amounting to £15, and liabilities to about £400. The examination was closed.

BUILDER v. PLUMBER.—At the Scarborough County Court, on Tuesday and Wednesday in last week, before the Registrar, Mr. F. Bidwell, who sat as arbitrator, the hearing took place of a case in which Frederick William Plaxton, builder, 75, North-street, sued William Bellass, plumber, Manchester, residing at Ivy Cottage, Burniston, for £100, the price of goods sold and work done. There was a counterclaim for £171, damages and loss sustained in consequence of imperfect work and non-fulfilment of contract, the defendant claiming that, after allowing what was due to Mr. Plaxton, there still remained a balance due to him of £51 15s. 5d. Mr. Whitfield appeared for Mr. Plaxton, and Mr. Royle represented Mr. Bellass. Evidence was given by Mr. J. A. Iveson, surveyor to the Scarborough Rural Council; Mr. A. R. Parker, architect, Manchester; Mr. C. Foulds, contractor, Manchester; Mr. John Hall, J.P., architect, Scarborough; Mr. W. Burton, slater, 28, Gladstone-road, Scarborough; and others, in addition to the plaintiff's employees who carried out the work. Eventually the case was adjourned for legal argument, and the Registrar intimated that he would reserve his decision until after he had inspected the buildings.

The tower and spire that are being added to the cathedral of Kilkenny, from the designs of Messrs. Ashlin and Coleman, of Dawson-street, Dublin, are approaching completion. The tower occupies the crossing of nave, choir, and transepts, and, with its spire, rises to a height of 290ft. from the ground. Messrs. John Hearne and Son, of Waterford, are the contractors, and Mr. John Scannell is the clerk of works.

PARLIAMENTARY NOTES.

THE WHITGIFT HOSPITAL, CROYDON.—Asked by Mr. Whitehouse if he would refuse his assent to any scheme of road-widening submitted by the corporation of Croydon which involved the destruction or mutilation of the Whitgift Hospital, Mr. John Burns replied: I should certainly refuse my assent to any such scheme; but I think it is now most improbable that such a scheme will ever be submitted to me by the corporation of Croydon.

CHIPS.

A small collection of Persian and Rhodian pottery has been acquired for the Fitzwilliam Museum, Cambridge.

At Monday's meeting of the Bakewell Rural District Council, Mr. Milford Mann, road foreman, Hanley, Staffordshire, was elected highway surveyor for the northern district.

In addition to running trams to the model village of the Woodlands, the Doncaster Corporation contemplate an extension to the village of Warmsworth, now opening up through the enterprise of the new colliery at Edlington, where coal is expected to be reached in June next.

A new infant-school connected with St. Anne's Church, Willenhall, was dedicated by the Bishop of Lichfield on Monday. The new school will accommodate about ninety scholars, and has cost £650. In addition, a sum of £300 has been spent on the mixed department of St. Anne's Schools to meet the requirements of the Board of Education.

A Local Government Board inquiry has been held in Belfast into the application of the corporation for a loan of £21,000 to cover cost of erecting, lighting, heating, and furnishing extension to Purdysburn Fever Hospital. Mr. John Mackenzie, of the firm of Messrs. Young and Mackenzie, of Belfast, who prepared the plans for the extension, explained these in detail.

The rector and churchwardens of St. George's, Hanover-square, have decided to arrange the Chapel of the Ascension in Hyde Park-place, Bayswater-road, in accordance with plans drawn up by Messrs. Blomfield, with a view to its dedication shortly for the purpose of Divine service. The mural decorations, upon which the artist, the late Mr. Frederick Shields, expended many years of unwearied labour, were completed at the end of last year. The Italian style adopted in the building will be conformed to in designing the seats, which it has been decided shall be arranged longitudinally after the manner of a school or college chapel.

An inquest was held at the town-hall, Bradford, on Friday, on John Henry Preston, aged 46 years, a bricklayer, of York-road, Leeds, who was killed by a fall of scaffolding at the Bradford sewage works at Esholt two days previously. The evidence showed that whilst he was working on the scaffolding a corner pole swung away from the wall, allowing the plank on which he was standing to drop. Mr. H. W. Holroyd, of Central-avenue, Bradford, foreman, said that except in special cases of high buildings it was not usual to employ special scaffolders, and Preston was a very competent man. A bricklayer, William Bilsborough, said the top plank fell and struck the men as they were on the second ledger. The uprights of the scaffolding had been unlashed, but he did not know by whom. The jury returned a verdict to the effect that death was due to negligence, but not of a criminal or culpable character.

Perhaps the most remarkable instance of a derelict English railway has been that furnished by the Shrewsbury, Potteries, and North Wales Line, which was constructed in the early sixties, and over whose track trains ceased to run in 1880. This unfortunate speculation was the subject of twelve Acts of Parliament, and swallowed up a capital of two millions. Its main line extended from Shrewsbury to Llanymynech, and there were two short branches, giving a total route mileage of twenty-eight, while it had fifteen stations. After having been disused for more than thirty years, the main line and Criggion branch have been reconstructed as a light railway at a cost of £17,500, and re-equipped at a further outlay of £14,500. The reopening will take place this month. Under the present scheme the bridges have been put into thorough repair at comparatively small cost, and the old rails laid down years ago, but never used, were found in such excellent condition that it has not been found necessary to replace them except here and there. Not one of the 35,000 sleepers or 70,000 keys on the track was found useable, and all have been replaced.

WATER SUPPLY AND SANITARY MATTERS.

CARRICK-ON-SUIR.—The urban district council recently instructed Mr. James F. Reade, A.M.I.C.E., Waterford, to prepare a report on the whole question of a water supply for the town of Carrick. Acting on Mr. Reade's recommendations, the council have decided to adopt what is known as the Crotty's Lake scheme. On the slopes of the Comeragh Mountains, near a lake, are several springs issuing from the old red sandstone rocks. These waters will be gathered together and conveyed in an iron conduit to the town of Carrick, a distance of nearly seven miles. There are to be no large reservoirs, and no filtration is required, the supply being spring water, copious in quantity, and of the purest quality. The urban council have now instructed Mr. Reade to prepare plans, and to carry out the works with the least possible delay.

MANCHESTER WATERWORKS.—The waterworks committee of the Manchester Corporation at their last meeting received reports from their engineers as to the progress of the work of constructing a reservoir in Heaton Park and laying a third line of pipes and aqueduct between Thirlmere and the city. Fair progress is being made in the latter, and much the greater task. Messrs. Morrison and Mason, who have the contract for the length between Ambleside and Carnforth, have completed eight and a half miles out of fourteen. Of the adjoining length, Mr. John Moffat has laid thirteen miles out of eighteen. Then, coming nearer Manchester, Messrs. E. Nuttall and Co. are making rapid headway with the work of laying the new pipe between Little Hulton and Denton. In this section several railways and canals (including the Ship Canal) have to be crossed. Three miles out of twenty-two have been covered, and a good deal of preparatory work on the remainder has been done.

YORK.—In regard to the recent application of the York City Council to the Local Government Board for sanction to the borrowing of the sum of £57,637 for sewerage purposes, the Board have intimated that the scheme is generally satisfactory, but that in certain details they require the plans to be amended and amplified and re-submitted to them, together with a revised estimate. The plans are accordingly being amended and other particulars prepared for the information of the Board, in view of the Board granting their sanction to the necessary loan. The Board have granted their sanction to the loan of £737 (part of the application) for the purchase of land, repayable within the period of sixty years.

The Aylsham Board of Guardians at their last meeting adopted plans by Messrs. Morgan and Buckingham, of Norwich, for additions to the workhouse, including new kitchen, laundry, and boiler-house, estimated to cost £2,500.

Among the papers to be read before the Royal Society of Arts on Wednesday evenings after Easter are those by Frank M. Andrews, on "Architecture in America"; by Noel Heaton, B.Sc., F.C.S., on "The Production and Identification of Artificial Gems"; and by A. W. Gattie, on "London Transport."

Performances of the A.A. play will be given, by permission of the Council of the R.I.B.A., in the newly-opened galleries at 9, Conduit-street, on Tuesday, May 30, and three following nights. The plays to be performed will be a revival of the one-act play, entitled "Putting the Best Face Upon It," written by the "Purple Patch," and a new and original revue by the same authors.

The city surveyor of York, Mr. F. W. Spurr, has reported to the corporation as to the cobbled streets which the streets and buildings committee have agreed to tar-macadam within the next three years, showing how many streets they intend dealing with this year, and how they propose allocating them to the various wards in the city. Mr. Spurr's report states that there are still ninety-three cobble-paved streets in York, and that of these twenty-five will be laid with tar-macadam during the ensuing financial year.

At their last meeting the Port and Docks Board of Dublin adopted the recommendation of the engineer and harbour-master to continue the deepening of the Liffey along the south side from Moss-street to Butt Bridge. When this work is completed it will be possible for steamers to debark passengers quite near to the centre of the city. The deepening of the river to Moss-street is costing £4,000, and the remainder of the work will cost about £24,000. Of this amount, £9,000 will be expended this year.

Our Office Table.

Mr. Sydney Vacher has recently presented to the Victoria and Albert Museum a collection of [illegible] ornaments and miniatures [illegible] 1879, and a number of these are now arranged for exhibition [illegible] Entrance Gallery. [illegible] Room 70. Among other [illegible] room of the [illegible] tracings of Old Lace [illegible] from the Master [illegible] York, by Mr. Lawrence [illegible] Room 71; original designs for [illegible] Lyons in the second [illegible] 18th century, Room 72; [illegible] tools and materials [illegible] process of making Japanese [illegible] Room 71, a case has been added containing a set of Japanese brushes, the gift of Mr. B. H. Webb, and original drawings (unused), by Hiroshige, Kuniyoshi, and Kunisada II. In Room 65 a collection of Japanese colour prints is now exhibited, illustrating the treatment of landscape subjects in this method, by various artists.

The problems created by the continued growth of heavy motor traffic on the Surrey highways were discussed on Tuesday at Croydon by a conference of the road authorities of the county, convened by the Godstone Rural District Council. The chairman (Mr. R. Lindley, of the Surrey County Council) alluded to the great disintegration of the road surfaces, and he complained of the length of motor drawn trains of vehicles and a police laxity in enforcing the present law relating to heavy motor traffic. Mr. T. A. Rickman, of Chertsey, informed the conference that the Thames Valley Councils Association had passed resolutions recommending limiting the weight of motor vehicles, increasing the diameter and width of the wheels, and taxing them on the basis of horsepower or weight, the revenue to go towards road maintenance. The ruin of the roads was going on at a greater rate than the authorities, particularly the smaller ones, could afford to cope with. Pipes and culverts were being crushed and bridges weakened, while many of the old houses on the road side were developing cracks under the vibration of the heavy traffic. The conference eventually came unanimously to the opinion that the present laws regulating road traffic call for revision and should be made uniform for the whole of the country, except as regards necessary special exceptions. A committee was appointed to go further into the question, with the object of trying to unite the whole of the road authorities of the country for the objects desired.

The London County Council is prepared to award in 1911 not more than sixty Art Scholarships for full time students. Thirty of these scholarships are to be allocated in the first instance to persons engaged in artistic crafts, who may be prepared to give up their work for two or three years in order to devote their whole time to study. Scholars are required to attend as full time day students, including in certain cases attendance in the evening at an approved school. In the case of scholars who intend to become teachers of art, the scholarships will be tenable at the Royal College of Art only, and will be awarded subject to the passing of the entrance examination of the college. Each scholarship will consist of free education, together with, in certain cases, maintenance grant, to be fixed after consideration of the circumstances of each candidate, but not to exceed £50 a year in any case. The Council's intention in allocating these scholarships to persons engaged in artistic crafts is to provide a means whereby intelligent artisans who have already taken up a craft as their life's work, and who are prepared to devote themselves to study for a certain period with a view to widening their knowledge of that craft, may be given an opportunity of relinquishing their occupation for two years or more in order to receive advanced instruction.

The Kensington Borough Council has adopted a report of its law and general purposes committee reviewing the Report of the Royal Commission on the Land Registry Acts. The committee has come to the conclusion that the Land Registry Office has been a complete [illegible] success, and that the time is not sufficient to justify the County of London should any longer be hampered with this costly experiment. The Council has decided to write to the Privy Council urging them to revoke the order which makes the registration of titles in the County of London compulsory, and has also adopted the following resolution:

"That the London County Council be further urged to take action with a view of obtaining forthwith, in accordance with the recommendation of the Commission, the extension to the whole of the County of London of the existing Deed Registry, and to secure for the ratepayers the resulting profits, estimated to produce an additional income of £12,000 per annum; and that the London County Council and the Middlesex County Council be urged to claim in aid of the rates the fees received by the Middlesex Registry, estimated at £15,000 a year, thereby following the example of the Yorkshire county councils, who receive for the ratepayers the Yorkshire Registry fees."

In urging the necessity for periodic inspection of premises, the committee of the Bradford Sanitary Association, in their twenty ninth annual report, just published, mention that a house inspected by the committee seventeen years ago was re-inspected after that lapse of time. It was found that a long length of the soil pipe ventilator was eaten through by corrosion. At an office in Bradford a similar state of affairs was found, the ventilator being eaten through from top to bottom. In both cases the defect was at the back of the pipe in contact with the wall, where it could not be seen. Periodic inspection must of necessity have discovered the defect, by which a dangerous sewer ventilation was set up insidiously close to and alongside the walls of the house. In another house, which is annually re-inspected by the committee, existed a disused sink, the connection between the waste pipe and the drain being severed. In the interval between re-inspections the sink was again brought into use, and the waste-pipe connected direct to the drain. Fortunately the sink was in an outbuilding; otherwise sewer gas might have been laid on to the whole of the house.

At the London County Council meeting on Tuesday the Main Drainage Committee presented a report recommending the acceptance of tender of Messrs. W. Underwood Brothers, of Dukinfield, at £88,398 11s. 9d. for the construction of an extension sewer from Catford to Nunhead. The southern high level sewer No. 2, which was constructed as part of the general scheme for the enlargement of the main drainage system, extends from Catford to Crossness, and its gradient is such that its contents do not have to be pumped anywhere in its entire length. By further extending the sewer to Nunhead, as now proposed, it will be possible to intercept the Effra branch sewer, and convey to the outfall sewage from West Norwood, Dulwich, Peckham Rye, etc., which under existing conditions would have to be pumped to Crossness. The contract time for the work is eighteen months, and the expenditure will be divided approximately as follows: Financial year 1911-12, £50,000; 1912-13, £43,500. It was agreed, on the recommendation of the Finance Committee, that the St. Marylebone Borough Council be allowed to borrow for a term of sixty years £40,000 for acquiring a site for a new town hall. The borough council intends to dispose of the existing town hall, and apply the proceeds of the sale to the reduction of the loan for the new premises. The estimated cost of the new building is £65,000, and of the equipment £5,000.

At Monday's meeting of the Kent Education Committee, Mr. Pillman drew attention to the fact that the architect and builder were to meet in order to cut down the lowest tender of £8,122 to the architect's estimate of £7,500 for the proposed secondary school for girls at Dartford. He saw in this a dangerous element, and moved that the architect should readjust his plans, and that tenderers should then be invited. Sir E. J. Perry said Dartford were anxious to have a certain elevation, and, when it was found that this was too expensive, it was agreed to substitute another elevation, and under the schedule the architect arranged with the builder, through the quantity surveyor, for the substitution, and for a reduction equal to the difference between what they had to spend and the amount of the tender. Answering Lord Northbourne, Sir E. J. Perry said the cost of the school would be about £40 per head, and that, he thought, was within the limit suggested by the Department for secondary schools. The motion was defeated. The chairman suggested that the matter should be deferred for a month, in order to give the architect an opportunity of seeing whether, taking into account the alterations made, Messrs. Godden's tender was the lowest. Mr. Berry said this would enable every builder to lower his tender after the event, and that was not fair. He suggested that it should be referred back without conditions, so that the sub-committee would have a free hand. This was eventually agreed to.

In pursuance of section 104 of the Factory and Workshop Act, 1901, the Home Secretary grants to all factories and parts of factories which have been painted with at least two coats of a washable water paint as defined below, and are repainted with at least one coat of such paint once in every three years, a special exception that the provisions in subsection (3) of the said section with respect to limewashing shall not apply thereto: Provided (1) that the paint shall be washed at least once in every fourteen months; (2) that the name of the paint used, and the name and address of the makers of the paint, together with a certificate, in the form shown in the schedule hereto, from the makers of the paint, and the date of the original painting, and of each washing and repainting, shall be entered in or attached to the General Register. In this Order a washable water paint means a washable paint which when finished for use contains—(i.) at least half its weight of solid pigment containing not less than 25 parts by weight of zinc sulphide as zinc white (lithopone) in each 100 parts by weight of solid pigment, and (ii.) at least 10 parts by weight of oil and varnish to each 100 parts by weight of solid pigment.

Messrs. Fielding and Sons, builders and contractors, of North Shore, have offered to the corporation of Blackpool a plot of land of very irregular outline, measuring some fifteen or sixteen acres, on their Warbreck Hill estate at North Shore, as a free and unrestricted gift to the town for the purposes of a park, and they have accompanied the offer with detailed plans prepared by Mr. H. Wade, architect, of Birley street, showing how the land may be laid out to the best advantage as a park, and also how they propose to develop the remainder of the estate, particularly the land fringing the proposed park, on the lines of a garden suburb. The intention is to make a wide road around the park, and to build nothing but detached or semi-detached houses fronting to it, and to the streets immediately branching off it. Four tennis courts, bowling greens, an ornamental sheet of water, and a central band stand are among the suggested features of the park, which would be a few minutes' walk from the Gwynn, or from the New road.

Ordinarily, says a writer in the *Scientific American*, the life of a building as a business building is from twenty-five to thirty-five years. Buildings as constructed a score of years ago can be wrecked at little or no expense, sometimes in fact, frequently yielding a small profit from the reclaimed material over the cost of tearing down and hauling away. The other day it became necessary in New York city to tear down a reinforced-concrete building, and the actual cost of wrecking it was 22,500dol. Thus it will be seen, in addition to the cost of construction, one must also figure the cost of demolition of reinforced concrete.

"Country Homes and Cottages," by Sidney G. Scales (London: Kingsgate Press, 2s.), embodies a series of illustrations of cottages

and houses from £175 upwards, with plans and illustrations, and some preliminary hints to intending builders. We are glad to see the author does not skimp his kitchens and cramp his staircases, as some of the "garden city" builders do.

The report of the Val de Travers Asphalte Paving Company, Ltd., to be presented at the forty-first ordinary general meeting of shareholders, to be held at 18, Hamilton House, Bishopsgate, London, E.C., on Wednesday, April 12, at 12.30 o'clock p.m., sets out that, after making the following appropriations—depreciation and cost of maintaining plant and machinery, £2,726 4s. 8d.; written off cost of mining property, £1,000; written off cost of Neuchatel concession, £882 7s. 1d.; interest on Workmen's Compensation Act fund, £201 0s. 3d.; written off cost of buildings (London), £164 12s. 7d.; depreciation in value of horses and harness, £92 6s.—the net profits of the year 1910 are £21,508 13s. 7d., which with the sum brought forward, £3,070 9s. 9d., amount to £24,579 3s. 4d. From this has to be deducted the interest on the debenture stock, amounting to £6,900. An interim dividend of 6d. per share was paid in October last. A further dividend of 1s. per share, free of Income-tax, is now recommended, making together 1s. 6d. per share, or 7½ per cent., for the year. Out of the Compagnie Générale fund the board have placed to the credit of profit and loss £2,450, and recommend a bonus of 3d. per share in addition to the dividend proposed in clause 4, the balance carried forward being £529 3s. 4d. The dividend and bonus will be payable on April 20.

The foundation-stone of a new church has been laid at Ballyclare. The architects are Messrs. E. and J. Byrne, Belfast, and the contractor is Mr. Jas. Lees.

The death is announced of Mr. Morley Bray Collins, of Redruth, a Student of the Society of Architects. Mr. Collins, who was in his twenty-seventh year, was articled to his brother, the late Horace W. Collins, M.S.A., of Redruth, to whose practice he succeeded. He was one of the Senior Students, having been elected in 1901.

In preparation for the holding of the Royal Agricultural Society's Show at Norwich at the end of June, the Great Eastern Railway Company are building, in the triangular space between their lines to London, Cromer, and Yarmouth, at Wensum Junction, near Thorpe Station, up and down platforms for the use of passengers, and a new receiving and discharging depot, comprising, roughly, two miles of docks, sidings, and goods platforms. The platforms are each over 700ft. in length, and respectively 45ft. and 36ft. in width. A temporary wooden bridge for highway and foot traffic is being built across the river. The temporary station will be known as Crown Point.

It was reported to the London County Council on Tuesday that the Standing Orders Committee of Parliament have decided to allow the Council's Tramways Bill to proceed, subject to the omission therefrom of the following schemes, in respect of which the road authorities concerned have not given the necessary consents:—(i.) Chalk Farm to Child's Hill; (ii.) Maida Vale to Upper Avenue-road; (iii.) Swiss Cottage to Upper Baker-street; (iv.) Edgware-road to Upper Baker-street; (v.) King's road to Fulham-road (at Elm Park Gardens); (vi.) Fulham-road (at Elm Park Gardens) to Brompton-road; (vii.) Mare-street to Lauriston-road; and (viii.) Englefield-road and Stamford-road.

The Select Committee of the House of Commons which has been considering the Reading Corporation Extension Bill, delivered its decision on Wednesday. The Bill sought confirmation of an order of the Local Government Board, authorising the extension of the boundary of Reading by the inclusion of the urban district of Caversham and parts of the parishes of Tilehurst and Theale. The Committee decided that the populated part of Caversham and part of Tilehurst and Theale should be included. Mr. Crawshay's park was excluded. The Committee ordered the reconstruction of the existing Caversham Bridge and the widening of various thoroughfares in Caversham, with the object of improving the means of communication. The added portions will increase the population of the borough from about 80,000 to 100,000. It seems unlikely that any opposition will be offered to the Bill in the House of Lords.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, Effingham House, 1, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED, and crossed London County and Westminster Bank.

Telegraphic Address:—"Timeserver, London."
Telephone, Gerrard 1291.

GOOD FRIDAY.

Next week the BUILDING NEWS will be published on Thursday, April 13, at the usual hour. All advertisements for next week's issue must reach the office before THREE p.m. on WEDNESDAY, APRIL 12, instead of Thursday as usual.

TERMS OF SUBSCRIPTION.

One Pound per annum (post free) to any part of the United Kingdom; for the United States, £1 6s. 0d. (or 3dols. 30c. gold). To France or Belgium, £1 6s. 0d. (or 33fr. 30c.) To India, £1 6s. 0d. To any of the Australian Colonies or New Zealand, to the Cape, the West Indies, or Natal, £1 6s. 0d.

. The special rate to Canada is £1 1s. 8d. = 5dols. 27c, or 12 months, and 10s. 10d. = 2dols. 64c. six months.

NOTICE.

Bound copies of Vol. XCIX. are now ready, and should be ordered early (price 12s. each, by post 12s. 9d.), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XLI., XLVI., XLIX., LIII., LXI., LXII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXIX., LXXX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., LXXXVI., LXXXVII., LXXXVIII., LXXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., XCVII., and XCVIII. may still be obtained at the same price; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

Handsome Cloth Cases for binding the BUILDING NEWS, price 2s., post free 2s. 4d., can be obtained from any Newsagent, or from the Publisher, Effingham House, 1, Arundel-street, Strand, W.C.

ADVERTISEMENT CHARGES.

The charge for **Competition** and **Contract** Advertisements, **Public Companies**, and all official advertisements is 1s. per line of Eight Words, the first line counting as two, the minimum charge being 6s. for four lines.

The charge for **Auctions, Land Sales,** and **Miscellaneous** and **Trade** Advertisements (except Situation Advertisements) is 6d. per line of Eight Words (the first line counting as two) the minimum charge being 4s. 6d. for 40 words. Special terms for series of more than six insertions can be ascertained on application to the Publisher.

Situations and Partnerships.

The charge for advertisements for **Situations Vacant** or **"Situations Wanted** and **"Partnerships,"** is ONE SHILLING FOR TWENTY-FOUR WORDS, and Sixpence for every eight words after. *All Situation Advertisements must be prepaid.*

. Replies to advertisements can be received at the Office, Effingham House, 1, Arundel-street, Strand, W.C., *free of charge*. If to be forwarded under cover of advertiser an extra charge of Sixpence is made. (See Notice at head of "Situations.")

Rates for **Trade** Advertisements on front page, and special and other positions, can be obtained on application to the Publisher.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

RECEIVED.—Z. P. M. and Co.—G. J. and Son.—C. C.—Q. S. A.—G. B. Co. Ltd.—N. and W.—A. D. and Son.—J. F. and Son.—W. F. S. Co.—C. W.—H. J.—N. T. M.—Lieut. F. S. B.—F. W. Co. Ltd.—W. A.—W. H. B. and Co. Ltd.

M.—Yes.

T. R. B.—Please send.

DAGON.—Not in our province.

C. K.—We have no further particulars than appeared.

FUTILE.—We do not think you will recover the full commission.

ENQUIRER.—We know nothing of them. They are neither in our advt. pages nor our "Directory."

CYPHER.—It is hardly likely that what you suggest can have occured. Why not have the work measured up?

BUILDER.—The claims of the patentees of some of these systems are very doubtful. We should disregard the threat.

M. D.—One of the best is Mr. Alfred Whitehead's "Pentelica." See our illustrations of the new Victoria Palace, Westminster, in our issue of March 17.

STUDENT.—There are no "general rules" to guide him; that is why some "architects" make such wide estimates. You had better study some of the series of articles on Estimating we have given from time to time.

ROYSTON CROW.—The following illustrations of Peterborough Cathedral have appeared in the BUILDING NEWS:—Ground plan, showing arrangement of close buildings (by the late Rev. Mackenzie E. C. Walcott), Feb. 8, 1878; plan, monastery and its church (also by Mackenzie Walcott), July 5, 1878; photograph of the west front, Feb. 26, 1897; elevation of west front (National silver medal drawings by E. W. Turner), March 9, 1900; west front as seen from beneath arch of western gatehouse (by Edwin G. Hardy), Aug. 24, 1900; measured drawings of north-west gable of west front (by E. W. Turner), Aug. 24, 1900; measured drawings of north-west tower and adjoining bay of front (by E. W. Turner), Sept. 21, 1900; Cathedral from north-east (drawing by Maurice B. Adams, hung in the Academy Exhibition of 1882), Jan. 26, 1883; north-western transept and towers (by Thomas Cox), April 29, 1870; Cathedral from the Market-place (sketch by Joseph Pennell), Feb. 10, 1888; section of central tower, Jan. 26, 1883; section of transept (by the late Viollet-de-Duc), Dec. 13, 1873; pinnacle of south-western transept (by E. Wimbridge), Feb. 21, 1868; font, Sept. 25, 1908; cenotaph to Archbishop Magee (designed by the late F. L. Pearson, R.A.), Oct. 13, 1893.

"BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Harvey," "Half Time," "Bournemouth Queen," "Liver," "Showman," "Absque Labore Nihil," "Margis," "Prospero," "Lapsus Calami," "Sphinx," "Rising Sun" (device), "The Chocolate Soldier," "Oxonian," "Tnuster," "North Pole."

The Stoke-on-Trent Town Council have appointed Mr. J. H. Beckett as architect for the alteration and extension of Longton Town Hall, at an inclusive fee of £300.

The Chelsea Borough Council accepted, on Wednesday evening, the picture of "Old Chelsea," by Landells, from the executors of the will of the late Sir Charles Dilke. It is to be placed in the Public Library in Manresa-road.

The formal opening of St. William's College, York, as the meeting-place of Convocation for the Northern Province, after restoration from the plans of Mr. Temple Moore, F.R.I.B.A., has now been fixed for May 18, when the Archbishop of York will perform the ceremony.

Extensive alterations and additions are about to be carried out at the Gaiety Theatre of Varieties at Chatham, from plans by Messrs. Frank Matcham and Co. The accommodation will be increased from 900 to 2,500, adjacent business premises being taken in to the theatre.

In an address he gave on "The Uses of Decorative Sculpture" at Carpenters' Hall on Wednesday week, Professor W. R. Colton, A.R.A., expressed the hope that the chaotic school of architecture would not be given a hand in the construction of St. Paul's Bridge. In connection with that bridge, there was a chance of doing something beautiful. The approaches might be really fine, and in that direction he thought that some buildings could be cleared away around St. Paul's Cathedral to good advantage.

It is officially announced that, following upon the Investiture of the Prince of Wales at Carnarvon Castle, the King will open, on Friday, July 14 the new buildings of the North Wales University College at Bangor, and on Saturday, the 15th, lay the foundation-stone of the National Library of Wales at Aberystwyth. The University College at Bangor is being built from plans by Mr. Henry T. Hare, F.R.I.B.A., of Bloomsbury, whose design, selected in competition, was illustrated in our issues of January 4, 1907, and May 15 and 22, 1908, while an interior view of the Prichard Jones hall appears in our number for April 29, 1910. The builders of the hall are Messrs. Thornton and Son, of Liverpool.

Holy Trinity Church, Kingsway, which had to be rebuilt owing to injury to the old fabric by subsidence, caused, it was stated, by the construction of the London County Council's underground tramway and one of the tube railways, will be consecrated by the Bishop of London to-morrow (Saturday). The architect for the reconstruction is Mr. John Belcher, R.A., whose plan and design were illustrated in our issue of April 29, 1910. Messrs. John Godstone and Sons, of Kilburn, are the builders. The plan is unusual, six detached piers supporting a dome 47ft. in diameter over the nave. The church is set back from the main thoroughfare, segmental walls flanking a courtyard. The construction is of reinforced concrete, Portland stone being employed for the main façade. The projected tower has not been built.

LATEST PRICES.

IRON.

Steel Joists, Belgian and German (ex steamer, London) Per ton	£5	12	6	to	£5	17	6
Steel Joists, English	6	10	0	,,	6	15	0
Wrought-Iron Girder Plates	7	0	0	,,	7	5	0
Steel Girder Plates	7	2	6	,,	8	2	6
Bar Iron, good Staffs	6	5	0	,,	6	10	0
Do., Lowmoor, Flat, Round, or Square	20	0	0	,,	20	0	0
Do., Welsh	5	15	0	,,	5	17	0
Boiler Plates, Iron—							
South Staffs	8	0	0	,,	8	15	0
Best Snedshill	9	0	0	,,	9	10	0

Angles 10s., Tees 20s. per ton extra.

Builders' Hoop Iron, for banding, &c., £8 15s. to £9.

Builders' Hoop Iron, galvanised, £14 to £15 10s. per ton

Galvanised Corrugated Sheet Iron—

	No. 18 to 20.	No. 22 to 24.
6ft. to 8ft. long, inclusive of gauge	Per ton. £13 0 0	Per ton. £13 10 0
Best ditto	13 0 0	14 0 0

Wire Nails (Points de Paris)—

3 to 7	8	9	10	11	12	13	14	15	B.W.G.
6 3	8 9	9 3	9 9	10 3	11 -	11 9	12 6	13 6	per cwt.

	Per ton.				Per ton.		
Cast-Iron Columns	£6	10	0	to	£8	10	0
Cast-Iron Stanchions	6	10	0	,,	8	10	0
Rolled-Iron Fencing Wire	8	5	0	,,	8	10	0
Rolled-Steel Fencing Wire	6	5	0	,,	6	10	0
,, ,, ,, Galvanised	7	15	0	,,	8	5	0
Cast-Iron Sash Weights	5	0	0	,,	5	5	0
Cut Floor Brads	9	15	0	,,		—	
Corrugated Iron, 24 gauge	16	0	0	,,		—	
Galvanised Wire Strand, 7 ply, 14 B.W.G.	14	5	0	,,		—	

B.B. Drawn Telegraph Wire, Galvanised—

0 to 6	9	10	11	12	B.W.G.
£10 5 0	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.

Cast-Iron Socket Pipes—

3in. diameter	£6	2	6	to	£6	7	0
4in. to 6in.	6	0	0	,,	6	5	0
7in. to 24in. (all sizes)	5	7	6	,,	6	0	0

[Coated with composition, 5s. 0d. per ton extra; turned and bored joints, 5s. 0d. per ton extra.]

Pig Iron—	Per ton.						
Cold Blast, Lilleshall	110s.	0d.	to	117s.	6d.		
Hot Blast, ditto	70s.	0d.	,,	75s.	0d.		

Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.):—

Gas-Tubes	75	p.c.
Water-Tubes	72½	,,
Steam-Tubes	67½	,,
Galvanised Gas-Tubes	65	,,
Galvanised Water-Tubes	62½	,,
Galvanised Steam-Tubes	57½	,,

OTHER METALS.

Spelter, Silesian Per ton	£23	5	0	to	£23	15	0
Lead Water Pipe, Town	16	15	0	,,		—	
,, ,, ,, Country	17	10	0	,,		—	
Lead Barrel Pipe, Town	17	15	0	,,		—	
,, ,, ,, Country	18	10	0	,,		—	
Lead Pipe, Tinned inside, Town	18	15	0	,,		—	
,, ,, ,, Country	19	10	0	,,		—	
Lead Pipe, Tinned inside and outside Town	21	5	0	,,		—	
,, ,, ,, ,, Country	22	0	0	,,		—	
Composition Gas-Pipe, Town	19	15	0	,,		—	
,, ,, Country.	20	10	0	,,		—	
Lead Soil-pipe (upto 4½in.) Town	19	15	0	,,		—	
,, ,, ,, Country	20	10	0	,,		—	
[Over 4½in. £1 per ton extra.]							
Lead Shot, in 28lb. bags	24	15	0	,,		—	
Copper Sheets, sheathing & rods	70	0	0	,,	70	10	0
Copper, British Cake and Ingot	57	15	0	,,	58	5	0
Tin, Straits	188	10	0	,,	189	0	0
Do., English Ingots	187	10	0	,,	188	0	0
Do., Australian	187	10	0	,,	188	0	0
Do., Bars	188	10	0	,,	189	0	0
Pig Lead, in 1cwt. pigs	14	2	6	,,		—	
Sheet Lead, Town	16	5	0	,,		—	
,, ,, Country	17	0	0	,,		—	
Genuine White Lead	21	0	0	,,		—	
Refined Red Lead	19	0	0	,,		—	
Sheet Zinc	32	5	0	,,		—	
Old Lead, against account	11	18	9	,,		—	
Tin per cwt.	11	0	0	,,		—	
Cut Nails (per cwt. basis, ordinary brand)	0	10	6	,,		—	

TIMBER.

CONSTRUCTIONAL.

Per St. Petersburg Standard (100—12ft. by 11in. by 1in.)

Yellow Fine Deals, Quebec, 1st quality	£34	0	0	to	£42	0	0
,, ,, ,, 2nd ,,	24	0	0	,,	26	0	0
,, ,, ,, 3rd ,,	15	10	0	,,	18	0	0
Spruce Deals: St. Johns	8	0	0	,,	11	0	0
,, ,, Miramichi	7	5	0	,,	8	10	0
,, Boards: Swag	7	0	0	,,	8	0	0
Red Deals: Archangel 1st quality	20	10	0	,,	21	10	0
,, ,, ,, 2nd ,,	16	0	0	,,	17	0	0
,, ,, ,, 3rd ,,	11	0	0	,,	12	0	0
,, ,, St. Petersburg—							
,, 1st quality	16	0	0	,,	17	0	0
,, 2nd ,,	13	0	0	,,	14	10	0
,, ,, Wyburg & Ulcaborg	10	0	0	,,	12	0	0
,, ,, Gefle, Gothenburg, and Stockholm	10	0	0	,,	17	0	0
White Deals: Crown	10	0	0	,,	12	0	0
,, ,, Seconds	9	10	0	,,	10	0	0
Flooring: White and Planed—							
1st and 2nd quality mixed	9	0	0	,,	9	5	0
1st, 2nd, and 3rd quality mixed	8	5	0	,,	8	10	0
Red Planed, 1st quality	11	5	0	,,	11	10	0
Pitch Pine: Prime Deals and Boards	17	0	0	,,	20	0	0
Lignum Vitæ	5	10	0	,,	12	0	0

Per feet super, as 1in.

Yellow Pine Logs (wancy board)	0	2	9	,,	0	4	3
Pitch Pine Logs	0	1	6	,,	0	1	10
Birch: Quebec Logs	0	2	0	,,	0	2	6
Oak: Austrian Wainscot	0	7	0	,,	0	8	0
Mahogany: Gaboon	0	6	1½	,,	0	6	2½

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (50c.ft.)	£20	0	0	to	£21	10	0
,, Java ,, ,,	15	0	0	,,	18	0	0

Per cubic foot.

Oak Planks: U.S.A., imported	0	1	9	to	0	2	6
,, Boards ,, ,, Prm.	0	2	4	,,	0	2	9
,, ,, ,, Mdm.	0	1	10	,,	0	2	2
Sequoia (Californian Redwood)	0	3	0	,,	0	3	6
Birch: Quebec logs	0	1	8	,,	0	2	2
,, ,, sawn planks	0	1	0	,,	0	1	2
Oak: Austrian Wainscot	0	6	0	,,	0	7	0
Walnut: Prime boards & planks	0	5	0	,,	0	6	0
,, Mdm. ,, ,,	0	3	4	,,	0	3	6
Greenheart: Hewn logs	0	3	6	,,	0	4	6
Cedar: Cigar box	0	3	6	,,	0	4	8
Satin Walnut: Imp. sawn boards, prime	0	2	3	,,	0	2	6
Orham: Imp. sawn boards, prime	0	1	10	,,	0	2	2

Mahogany: St. Domingo, Cuba, and Honduras	Per foot of lin. 0	0	5½	to	0	0	6
,, African, Assinee, &c.	0	0	4½	,,	0	0	9
,, Lagos and Benin	0	0	3½	,,	0	0	4½
,, Sekondi and Cape Lopez	0	0	2½	,,	0	0	3½
,, Gaboon	0	0	1½	,,	0	0	0
Satinwood: West Indian	0	0	10	,,	0	2	2
Rosewood Per ton	7	0	0	,,	12	0	0
Lignum Vitæ ,,	4	0	0	,,	11	10	6

STONE.*

Red Mansfield, in blocks per foot cube	£0	2	4	
Darley Dale, ditto	,,	...	0	2	3
Red Corsehill, ditto	,,	...	0	2	2
Closeburn Red Freestone, ditto	,,	...	0	2	0
Ancaster, ditto	,,	...	0	1	10
Greenehill, ditto	,,	...	0	1	10
Chilmark, ditto (in truck at Nine Elms)	,,	...	0	1	9
Beer, ditto	,,	...	0	1	6
Hard York, ditto	,,	...	0	2	10
Ditto ditto 6in. sawn both sides, landings, random sizes per foot sup.	0	2	8		
Ditto ditto 3in. slab sawn two sides, random sizes	,,	...	0	1	

* All F.O.R. London.

Bath Stone, delivered on rail at quarry stations per foot cube	0	1	0	
Delivered on road waggons, Paddington Depot	,,	...	0	1	6½
Ditto ditto, Nine Elms Depot	,,	...	0	1	8½
Beer Stone, delivered on rail at Seaton Station	,,	...	0	1	0
Ditto, delivered at Nine Elms Station	,,	...	0	1	6

Portland Stone, in random blocks of 20ft. average:—

	Brown Whit	Bed.		White Base	Bed.	
Delivered to railway depot at the quarry per foot cube	£0	1	5½ ...	£0	1	7½
Delivered on road waggons at Paddington Depot ...	,, ...	0	2 1 ...	0	2	2½
Ditto, Nine Elms Depot ...						
Ditto, Pimlico Wharf ...						

BRICKS.

(All prices net.)

Hard Stocks	£1	6	6	per 1,000 alongside, in river	
Rough Stocks and Grizzles	1	6	0	,, ,, ,,	
Picked Stocks for Facings	2	10	0	,, delivered at railway station.	
Flettons	1	6	0	,, ,, ,,	
Pressed Wire Cuts	1	18	0	,, ,, ,,	
Red Wire Cuts	1	14	0	,, ,, ,,	
Best Fareham Red	3	12	0	,, ,, ,,	
Best Red Pressed Ruabon Facing	5	0	0	,, ,, ,,	
Best Blue Pressed Staffordshire	3	15	0	,, ,, ,,	
Ditto Bullnose	4	0	0	,, ,, ,,	
Best Stourbridge Fire Bricks	3	14	0	,, ,, ,,	
2¾in. Best Red Accrington Plastic Facing Bricks	4	13	0	,, Net, delivered in full truck loads in London.	

GLAZED BRICKS.*

HARD GLAZES. (PER 1,000.)

White, Ivory, and Salt Glazed. Best.	Best. Seconds.	Buff and Cream.	Other Colours.	Second Colours.
Stretchers—				
£10 17 6	£9 7 6	£12 7 6	£16 7 6	£10 17 6
Headers—				
10 7 6	8 17 6	11 17 6	15 17 6	10 7 6
Quoins, Bullnose, and 4½in. Flats—				
13 17 6	12 17 6	16 7 6	19 17 6	14 7 6
Double Stretchers—				
16 7 6	14 17 6	19 7 6	22 17 6	18 7 6
Double Headers—				
13 7 6	11 17 6	16 7 6	19 17 6	13 7 6
One side and two ends, square—				
17 7 6	15 17 6	20 7 6	24 17 6	17 7 6
Two sides and one end, square—				
18 7 6	16 17 6	21 7 6	25 7 6	18 7 6
Splays and Squints—				
15 17 6	14 7 6	20 7 6	23 7 6	15 17 6

Plinth and Hollow Bricks. Stretchers and Headers—

5d. each 4d. each 6d. each 6d. each 5d. each

Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres—

5d. each 4d. each 6d. each 6d. each 5d. each

Rounded Internal Angles—

4d. each 3d. each 5d. each 5d. each 4d. each

MOULDED BRICKS.

Stretchers and Headers—

8d. each 6d. each 8d. each 8d. each 8d. each

Internal and External Angles—

1/2 each 1/2 each 1/2 each 1/2 each 1/2 each

Cill Bullnose, Stretchers and Headers—

5d. each 4d. each 8d. each 6d. each 5d. each

	Per 1,000		
Majolica or Soft Glazed Stretchers	£21	17	6
,, ,, ,, and Headers Quoins and Bullnose	26	17	6

Compass bricks, circular and arch bricks of single radius £6 per 1,000 over above list for their respective kinds and colours } Not exceeding 9in. × 4½in. × 2½in.

Camber arch brick, any kind or colour, 1s. 2d. each

Stretchers cut for Closers and Nicked Double Headers, £1 per 1,000 extra.

* These prices are carriage paid in full truck loads to London stations.

	s.	d.	
Thames and Pit Sand	7	0	per yard, delivered.
Thames Ballast	5	6	,, ,,
Best Portland Cement	28	0	per ton, ,,
Best Ground Blue Lias Lime	19	0	,, ,,

Exclusive of charge for sacks.

Grey Stone Lime	11s. 6d.	per yard, delivered
Stourbridge Fireclay in sacks	27s. 0d.	per ton at rly. stn.

SLATES.

	In.	In.	£	s.	d.	
Blue Portmadoc	20 × 10	...12	12	6	per 1000 of 1200 at r.stn.	
,, ,,	16 × 8	.. 6	12	6	,, ,,	,,
Blue Bangor	20 × 10	...13	2	6	,, ,,	,,
,, ,,	20 × 12	..13	17	6	,, ,,	,,
First quality	20 × 10	...13	0	0	,, ,,	,,
,, ,,	20 × 12	...13	15	0	,, ,,	,,
,, ,,	16 × 8	.. 7	5	0	,, ,,	,,
Eureka unfading green	20 × 10	...15	17	6	,, ,,	
,, ,,	20 × 12	...18	7	6	,, ,,	,,
,, ,,	16 × 10	...13	5	0	,, ,,	,,
,, ,,	16 × 8	..10	5	0	,, ,,	,,
Permanent green	20 × 10	...11	12	6	,, ,,	,,
,, ,,	16 × 10	.. 9	12	6	,, ,,	,,
,, ,,	16 × 8	.. 8	12	6	,, ,,	,,

TILES.

	s.	d.	
Plain red roofing tiles	42	0	per 1000 at rly. stn.
Hip and Valley tiles	3	7	per doz. ,, ,,
Broseley tiles	50	0	per 1000 ,, ,,
Ornamental tiles	52	6	,, ,, ,,
Hip and Valley tiles	4	0	per doz. ,, ,,
Ruabon red, brown, or brindled	57	6	per 1000 ,, ,,
do. (Edwards)	60	0	,, ,, ,,
Ornamental do.	4	0	per doz. ,, ,,
Hip tiles	3	0	,, ,, ,,
Valley tiles			
Selected "Perfecta" roofing tiles:—Plain tiles (Peake's)	46	0	per 1000 ,, ,,
Ornamental do.	48	0	,, ,, ,,
Hip tiles	3	10½	per doz. ,, ,,
Valley tiles	3	4½	,, ,, ,,
"Rosemary" brand plain tiles	48	0	per 1000 ,, ,,
Ornamental tiles	50	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	6	,, ,, ,,
Staffordshire (Hanley) Reds or Brindled tiles	42	6	per 1000 ,, ,,
Hand-made sand-faced	45	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	6	,, ,, ,,
"Hartshill" brand plain tiles, sand-faced	50	0	per 1000 ,, ,,
Pressed	47	6	,, ,, ,,
Ornamental do.	50	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	6	,, ,, ,,

Delivered

OILS.

Rapeseed, English pale, per tun	£28	15	0	to	£29	5	0
Do., brown	,, ...	26	15	0	,,	27	5	0
Cottonseed, refined	,, ...	29	0	0	,,	30	0	0
Olive, Spanish	,, ...	39	10	0	,,	40	0	0
Seal, pale	,, ...	21	0	0	,,	21	10	0
Cocoanut, Cochin	,, ...	46	0	0	,,	46	10	0
Do., Ceylon	,, ...	42	10	0	,,	43	0	0
Do., Mauritius	,, ...	42	10	0	,,	43	0	0
Palm, Lagos	,, ...	32	5	0	,,	33	5	0
Do., Nut Kernel	,, ...	35	0	0	,,	35	10	0
Oleine	,, ...	17	5	0	,,	19	5	0
Sperm	,, ...	30	0	0	,,	31	0	0
Lubricating U.S. per gal.		0	7	0	,,	0	8	0
Petroleum, refined ,,		0	0	6½	,,	0	0	6½
Tar, Stockholm per barrel		1	6	0	,,	1	10	6
Do., Archangel ,,		0	19	6	,,	1	0	0
Linseed Od. per gal.		0	4	0½	,,		—	
Baltic Oil ,,		0	4	5	,,		—	
Turpentine ,,		0	5	9½	,,		—	
Putty (Genuine Linseed Oil) per cwt.		0	11	0	,,		—	
,, Pure Linseed Oil, "Stority" Brand ,,		0	10	0	,,		—	

VARNISHES, &c.

	Per gallon.		
Fine Pale Oak Varnish	£0	8	0
Pale Copal Oak	0	10	0
Superfine Pale Elastic Oak	0	13	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of churches	0	14	0
Fine Elastic Carriage	0	12	6
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	16	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Od	1	1	0
Eggshell Flatting Varnish	0	18	0
White Copal Enamel	1	4	0
Extra Pale Paper	0	12	6
Best Japan Gold Size	0	10	0
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	0
Berlin Black	0	16	0
Knotting	0	10	0
French and Brush Polish	0	10	0

GLASS IN CRATES.

	15oz.	21oz.	26oz.	32oz.
English Sheet Glass:				
Fourths	1¾d.	2¼d.	3¼d.	4¼d.
Thirds	2¼d.	3¼d.	4d.	5d.
Fluted Sheet	2¼d.	3¼d.	6d.	6½d.
Hartley's English Rolled Plate:	⅛in. 2¼d.	3/16in. 2¼d.	¼in. 3d.	

Figured, Rolled, and Repoussine:	White.	Tinted.
	3½d.	5d.

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Cottages and Shops, Kennington Estate, Oxford. Mr. William A. Daft, A.R.I.B.A., Architect.

Building News Designing Club: Designs for Memorial Bridge to King Edward VII. in a Park.

Column Capital for new Polytechnic Buildings, Regent-street, W. Messrs. E. J. and A. T. Bradford, Sculptors.

Expansion and Resilience.

THE ORIGIN OF BASES, CLASSIC AND POST-CLASSIC.

The pedigree of most features in the arched styles, whether Roman or post-Roman, has been fairly well made out. Arch mouldings and jamb mouldings began, as we all know, with square arrises at the external angle of each "order" of the arch. The projecting drip-stone or hood-mould, which encloses and protects them all, is a modified, or sometimes unmodified, architrave, and the other mouldings were developed by degrees; but they multiplied at last into clusters as complicated as those of the great arches in Peterborough west front or in the cloisters of Norwich Cathedral. Complex as these details look to a beginner, all this complexity has grown up by degrees. To anyone with Mr. Edmund Sharpe's or Mr. Paley's works in his possession, there does not seem in the end much mystery about it. Mediæval cornices and strings have been traced to their origin in pre-Christian buildings; but who has gone back to the first beginnings of the post-Roman base? We know its form was accepted by the Greeks; but beyond that, it would seem, the memory of man reaches not. We take it as if it were a first beginning—a point of origin in the development of mouldings—and honestly adopt it as such, though its type was 1,600 years old when English masons first got hold of it. Another eight hundred years and more have passed since then, and no very marked improvement on it has seen the light.

The Ionic is said to have been the first of the Five Orders to be adopted in Europe, and it certainly seems to have an Asiatic origin. Nothing at all like it is known in Egyptian architecture, where such bases as exist are few and simple. In the hypostyle hall at Karnac there are unmoulded bases of rectangular section and very small projection, and at Denderah, in the later Egyptian style, there are similar bases several stages in height, in which the taller members come above the shorter ones. But what was known to the Greeks of more than two thousand years ago as the "Attic base," and what afterwards became a favourite one in Roman architecture, is found in one of its simplest forms at the Choragic monument of Lysicrates in Athens. Here it begins at bottom with a torus, circular in section: it ends at top in a smaller convex feature whose profile is part of an ellipse; while between the two there is a scotia, also elliptical in section, between two small fillets, which have almost the effect of chamfers. At the Athenian temple of Erechtheus, Ionic columns have bases more elaborate than the last one, but with much general resemblance to it. In the temple of Erechtheus both the lowest and the uppermost tori are circular in section and not elliptical, only that the uppermost one is worked into a sort of horizontal flutings, which surround the column. The scotia which forms the middle part (in height) of the base is bigger than either of the tori which enclose it, and these, as in the last-named example, are separated from it by narrow fillets. In countries where, as in England during the Middle Ages, there was no workable white marble, such a base as this (apart from questions of style) would have been impossible because of the coarseness of the available material; and if this difficulty had been surmounted, by the darkness of the available colours. Classic architecture grew up amongst classic materials and classic workmen.

Messrs. Audsley's great Dictionary of Architecture, from which we have quoted some of these examples, passes from Pagan to Mediæval buildings by way of Byzantine ones. But for us in Northern Europe, this is hardly the most natural route: it takes us too far to the East. In our latitude, Classic forms passed into Mediæval ones through Romanesque ones — not through Byzantine ones at all; and where the Roman styles were modified into Byzantine ones, it was on the way, rather, to a Mohammedan than a Christian result. There exist, indeed, in Central and Southern France many churches to which M. de Verneilh long ago applied the name of "French Byzantine," and which for the most part agree in possessing domes, pointed in section and circular in plan. But they are not Byzantine in detail, any more than they are Romanesque: and we need not go out of our way to deal with them here. The late Mr. Edmund Sharpe was good enough to take a party of English students over them, and we do not know of any better illustrated work about them than the one which was the joint result of his measurements and theirs. In English Norman architecture, for instance, in shaft-bases at Peterborough Cathedral, a multitude of moulded examples may be met with which approach very nearly to what had been called in earlier times "the Attic base": and had been used, though on a comparatively large scale, in the Choragic monument of Lysierates, at Athens. We may just note, in passing, that the Byzantine bases of the 5th, 6th, and 7th centuries are often very high, with many mouldings, including a number of square "beads" or fillets, quite unlike what we are accustomed to see in English Norman. In the Norman doorway of Haddiscoe Church, Suffolk, the cushion capital inverted is used as a base; and a similar form inverted has been used in a modern restoration of an old church at Barnwell, near Thrapston. But before reaching this point we ought rightly to have faced the question "Where did the so-called Attic base first come from?" Messrs. Audsley agree with many other writers in thinking it evidently Asiatic: and they illustrate two "Asiatic" bases of unknown age, one of which, much injured, was found in a passage leading to what is known as the Treasury of Atreus, at Mycenæ; and the other discovered in the remains, and in the representations of, ancient buildings at Khorsabad. The lower moulding of the base in the latter example has been described as "bell-shaped": it is actually a cyma reversa, worked with two courses of bluntly-pointed leaves, so that the upper course overlaps the lower one. Above this bell-moulding are two circular beads—a large one and a smaller one; and from the smaller one the fluted column springs rather abruptly, without the usual apophyge of a Classic Order. The whole form, perhaps from Mohammedan imitations of it, is by no means unfamiliar to a modern eye; while, on the contrary, the Mycenæan base is at once novel and pleasing. It starts at top from the shaft with a very flat cyma reversa, which terminates at bottom in a very small upright fillet: under which the section may be described as a square with the angles rounded off. The shaft to which this detail once belonged seems to have a band of steeply-pointed zigzags around it, and the mouldings of the base are themselves covered with delicate surface-ornament. But to what style to refer it, or to find any style either ancient or modern with which it would completely harmonise, are very puzzling problems. It is highly artistic what little there is of it: but it no more seems to belong to earthly art than did "the stone which fell down from Jupiter" in Apostolic or pre-Apostolic times, and which commentators have conjectured to be a fragment of some forgotten meteorite.

Altogether, bases seem to have had a much less traceable history than arch mouldings. The "Attic base" points us back for its origin to a period long before that of Pericles, and to an architectural epoch on which history has never yet conferred a name. It looks older than archaic Greek, and more refined. When fairly introduced to the world, the world soon "took to" it; and perhaps it was never

Roman archit... Greek, the Late Classic... Classic, the Romanesque... new workers... Pointed ways... theorists of Late Classic... Pointed ... set up their own... and the Renaissance... Pointed architecture of that...

In other words, [illegible] ... term or another [illegible] ... into fashion ... years ago or more, and ... had friends at ... nobody seems ... It was even more refined in its first forms than we find it now in its most developments, for the world-wide was a really good feature when it was one and does not lightly let it go. This Attic base, in one modification or another, was commonly in use in Norman and Early Gothic work till near the end of the 13th century, and less commonly in later times. In English Romanesque the two torus of the base were usually of much the same size, but in France the lower torus was frequently what seems still call a "thumb mould." That is a moulding of which anyone can see the origin by looking at his own left thumb in profile, with the thumbnail downwards. The top of such a moulding in Early French bases is a beautiful curve rather flat at the beginning, but getting quicker and quicker as the top of the thumb is approached, and then almost a horizontal straight line where the outline of the nail itself is followed. We do not remember at the moment whether Mr Ruskin anywhere cites the thumb mould as an example of "man's delight in God's work"; but he could hardly have found a better one for his purpose, nor one which everybody who possesses two thumbs could more conveniently refer to.

In Late French Gothic detail, as in Late English, the base, and especially its plinth acquired more height, without at the same time requiring more projection. But before this stage was reached some other types of base had become almost as fashionable as variations on the "Attic base." The hollow of this base, especially in England, had become wider and more horizontal so as to be in many instances what in our ignorance anything but a recommendation it became "a water-holding base," and the past effects of the stone of such a section are still traced in many a building of the 12th and 13th centuries. The stone scaled and crumbled with the damp; at other times, when water had been [illegible] in the hollow and a frost had [illegible] the small upper bead was forced [illegible] out there by expansion; and in [illegible] case a notable exposure had arisen. This perhaps was why some mason who [illegible] had a bad colour with his employer [illegible] result which might easily have been [illegible] designed or founded [illegible] body to design for him a base without a water-holding hollow and one therefore, in which this special structure injury could not happen. This new base formed very often of three beads each projecting laterally beyond the one above it, and the lower bead of all being commonly the largest. In any case the newer moulding had these hollows between bead and bead and what began as the lowermost and [illegible] of the beads in such a base was [illegible] under roll and fillet, or a scroll [illegible] upside down, and later a [illegible] perhaps doubled [illegible] and a [illegible] But the old [illegible] quite out of [illegible] had copied and [illegible] the old Attic base and [illegible] retain that and avoid [illegible] engineering fault which [illegible] in the later English [illegible] Somerset [illegible] Early English [illegible] we find two minute hollows too small to hold much water in place of one which would hold a good deal, the mason's hope being apparently that the water in such minute cavities would dry up and evaporate before there was time for it to do much harm.

THE HONITON FIRE, WITH SOME NOTES UPON FIRES IN OTHER CHURCHES.

[WITH PHOTOGRAPHIC ILLUSTRATIONS.]

The disastrous and deeply to-be-regretted fire upon the 26th ult., resulting in the entire destruction of the interior of the fine fifteenth-century church of St. Michael at Honiton, in Devonshire, suggests some remarks not only upon that particularly deplorable circumstance, but also upon several others of a similar kind, which, during a somewhat long and proportionately active business career, I have happened to have been personally identified with. The first of these took place at least half a century ago, during the time I was an apprentice lad in Yorkshire. The church in question was that of

ST. PETER'S, BARNBY-UNDER-DON

(locally known as Barnby Dun) a small parish situated about six miles from Doncaster. The serious fire that then occurred was rather before the time I had made it a practice to take more or less careful notes of passing events; but I recollect very well the new screens we had to make after the conflagration in question. If my memory serves me correctly, the architects under whom we carried out the reinstated woodwork were Messrs. Charles Hadfield and Weightman, of Sheffield, whose fine church of St. Marie in that city (then a town), built during the years 1846–50, still holds its own as, perhaps, the best study in the 14th century Gothic work of its date in all England. It was, I believe, actually designed by the late Mr. Hadfield himself, whose mantle is still worthily worn by his son and grandson—both namesakes—Messrs. C. M. Hadfield and Son, Hon. FF.R.I.B.A., who's offices are also in Sheffield.

Next upon the list of my experiences comes a fire that occurred in quite a different part of England—

ST. PETER'S, LAMERTON.

In reference to this church, writing in the BUILDING NEWS for August 9, 1878, nearly thirty-three years ago, and dwelling more particularly on the effect of fire upon stones generally and upon granite in particular, I remarked:

"Granite, as is well known, was largely used for building purposes at Chicago, U.S.A., and after the great fire there in 1871 much interest was expressed in regard to the power that material possessed for offering resistance to heat. As a matter of fact, this had to be admitted to be practically nil. Not many months ago, upon the night of Monday, November 19 last year" (1877), "a good old parish church in the 'West Country,' that of St. Peter's at Lamerton was accidentally consumed by the devouring element. This edifice, like so many others in Cornwall as well as in some to be met with on the western frontier of Devon, was constructed largely of grey granite. Recently its rebuilding has been commenced under the professional superintendence of Mr. James Piers St. Aubyn, F.R.I.B.A., the well-known ecclesiastical architect of Lamb Building, Temple, London. It may, therefore, be profitable at this time, whilst the greater portion of the ruins are to be seen and examined, to make a few remarks upon the effect the untoward conflagration had upon the materials of which it was primarily built. The experience gained at Lamerton is precisely the same as was that of our American cousins at Chicago. I can say this with some confidence, for I had opportunities in turns of examining the ruins in that 'Windy City' shortly after its disastrous holocaust. As at Chicago, so at Lamerton, the most cursory inspection of the remains proves that of all the materials (i.e., the stone) used in the construction of its ancient fabric, and the one that can be least relied upon in case of fire, is undoubtedly granite. The church, like nineteen twentieths of our Western churches, belongs principally to the 15th century, the tower alone being, perhaps, somewhat older. It is pleasantly situated amidst delicious hedgerows and charming green lanes, some two or three miles from the little market town of Tavistock. It was at Tavistock, it may be remembered, at the time that Lamerton Church was erected, the great Benedictine Abbey of SS. Mary and Rumon was in the zenith of its prosperity, being then one of the great religious centres of early religious life in the West. Founded in A.D. 961 by Ordgar Earl of Devon, the church attached to it was 378ft. in length exclusive of its Lady-chapel (i.e., 66ft. longer than are the nave and choir of Exeter Cathedral itself!). 'All alas' was destroyed in 1670, and very few traces of it now remain.

"Two years ago Lamerton Church was conservatively renovated by Mr. J. Piers St. Aubyn, and the villagers were, with good reason, right proud of the restoration, until the unlucky night already referred to—a lamp placed in the organ-case to regulate the temperature of that instrument, is supposed to have set fire to the immediate surroundings, with the result that the edifice was completely gutted. So great was the heat on that occasion that five out of the half-dozen bells in the west tower belfry melted where they hung, and the molten metal ran down to the ground. The sixth bell fell, and remained entire. Unlike the church generally, the tower itself was not built of granite, but of freestone raised in quarries in the immediate neighbourhood. Curious to record, this comparatively soft stone resisted the action of the fire successfully, although the tracery of the windows in this same tower, being of granite, were burnt completely out. The heat was admittedly greatest near this tower. The massive granite arcades between the nave and its aisles were burnt completely through, and in many places the material seems to have burst by the action of the fire, and fragments were shot off some feet from where they had originally stood. Formerly some interesting old marble monuments adorned the walls of the structure. These were wholly consumed; but the plaster of Paris by which they had been attached to the walls resisted the heat, and, whilst marble and granite crumbled to dust, and the vegetable floor was burnt up, the plaster remained hard and perfect. All this is conclusive proof that granite does not stand fire. Further, whether in comparison with ordinary stone, it withstands satisfactorily the action of weather is not altogether certain. Only yesterday I compared the north-west window, built of grey Dartmoor granite, with the western tower doorway, fashioned in local freestone, of the Church of St. James in Ilfracombe, a remote village in North Devon. Both belong to the 15th century. The old stone doorway is certainly in a much better state of preservation than are the granite jambs

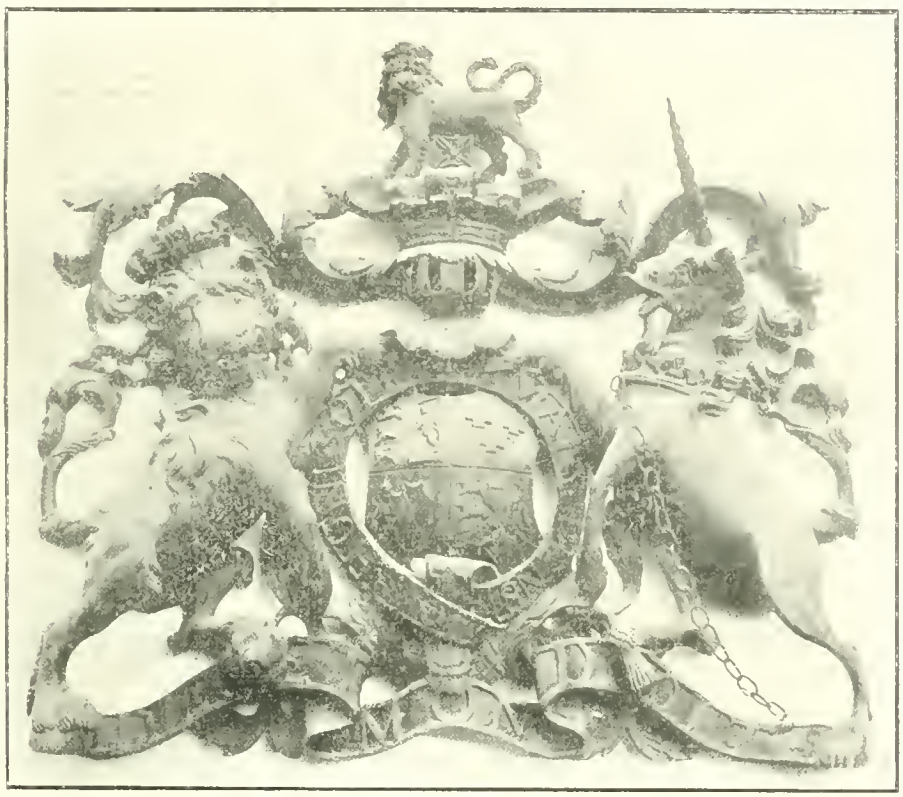
and tracery of the west window. I am fully aware that, in Mediæval days, what we now call 'surface granite' was all too often used. No quarryman would think of supplying anything but quarried stone for architectural purposes nowadays. Still, to use a homely expression, granite seems, at times, after a number of years, to 'wear very rough.'"

ALL SAINTS, HUNTSPILL.

This old 15th-century church was noted as one of the finest examples of Perpendicular work in Somersetshire. The village itself is situated upon lowlands hard by the Bristol Channel coast—about a couple of miles from the fair market-town of Bridgwater. The fabric, in the main, consists of a spacious nave, chancel, and flanking aisles, together with a typical western tower. All had been carefully restored from the designs of Messrs. Hans-Price and Wooler, architects, of Weston-super-Mare, when, only eight months after the completion of this undertaking (in 1878), a fire broke out, and the roofs and interior were practically consumed. The reason of the disaster was traced to some tarred felt, foolishly wrapped around a flue-pipe, which, becoming ignited, quickly led to the whole place being presently in flames. Fierce as the conflagration was, the exterior walls, as well as the internal arcades, withstood the heat fairly well. The masonry was of Ham Hill stone, a well-known cream-coloured local material. The result was that although the whole of the stone itself was left intact, it was burnt a warm red, not at all unlike Mansfield, the effect being distinctly pleasing. A destructive fire took place some centuries ago in the grand old Abbey Church at Sherbourne, in the neighbouring county of Wiltshire. This structure, with its central tower (154ft. high) is also built of Ham Hill stone, and similar marks made by the heat may still be seen upon some of its arcade columns. Huntspill Church itself was completely gutted, the pulpit (Jacobean), organ, an old oak chest, and the altar being all that those who promptly responded to the cry of rescue were able to save. Thanks to the liberal response made afterwards to the appeal for financial help, the building, Phœnix-like, rose from the flames, and we were able to carry out the work again, much upon the original existing lines. This was also done, from drawings, and under the personal supervision, of Messrs. Hans-Price and Wooler, at an expenditure of about £5,000. Particulars concerning this will be seen by a reference to the Building News for April 16, 1880. The fabric was re-dedicated by the then Bishop of Bath and Wells upon the 8th of that month, the day being, according to the Old English Calendar, the Feast of St. Lethard, and 31 years ago to a day upon the writing of these notes.

ST. MICHAEL'S, HONITON.

The ruins of this unfortunate church, to whose sad fate public attention is now universally directed, stand isolatedly upon commanding ground about half a mile outside the actual town. An earlier building, probably of cruciform plan, and possessed of a central tower, appears to have preceded it on the same site; but the present edifice is entirely of late 15th-century date. It is recorded in the issue of the Building News of the 31st ult. that it was built by Peter Courtenay (twenty-fourth Bishop of Exeter), who was a son of Sir Philip Courtenay of Powderham, and the Lord of the Manor. This doughty prelate was translated to Winchester in 1487, and died there in 1492. The superb rood-screen, also described in the same number, appears, in part, if not wholly, to have probably been erected by a local family, the head of which was a wealthy merchant and burgess of Honiton, named Takell. In the will of his widow Joan, which was proved in 1529, it is recorded she bequeathed the sum of £3 6s. 8d. to the "making of the Rode loft in St. Michaels," and these good people were also instrumental in the enlargement of the fabric, for it is mentioned that they added "the new ile of our Lady" about the same period. Around one of the stone capitals was carved the inscription "Pray for ye souls of John Takell and Jone hys Wyffe," and upon another capital hard by was (alas, this has to be written in the past tense, for not a vestige of the stonework now exists') a *fer de moulin*, or mill-ring, probably Takell's merchant's mark, together with his monogram. He predeceased his wife, and when, in her turn, she went hence, she directed her body to be buried in "the new chappell of our blessed Lady at Honyton." In the disposal of various gifts, the dame includes "a brazen pott of the weight of 10 pounds, the which I have delivered of myne owne hands." Further, she bequeathed "to the church of Sainte Michell, a silk cloth called a pall, and to the Altar of our Lady in the new ile, my best tablecloth of Dyaper. . . . and to our Lady in the aforesaid new ile, my best girdle of blew colour harnessed with silver and gilt."



Carved in Wood. Date A.D. 1730.—(Photo. by H. Turner Hems.)

A description of Honiton Church, as it was something more than sixty years ago, is to be found in "Rough Notes of the Deanery of Honiton," published by the Devon and Exeter Architectural Society in 1848, and of which I possess one of the few copies now in existence. It reads:

"The chancel measures 24ft. 6in. long, and is 17ft. 1in. wide. It has two good Perpendicular arches to the aisles, and its oak rood-screen is handsome, and painted grey (?) and is also gilt. The doors are complete, and it has Parcloses. The work is attributed to Bishop Courtenay. There is an exterior rood turret on the north side. The nave is 50ft. 6in. by 22ft. 9in. The piers and arches are of good Perpendicular work. There are two clerestory windows, foliated, circular, in segmental triangles. The roof at the intersections of the transepts is bold. The carved bosses are gilt. The north aisle is 30ft. by 10ft., the transept 19ft. 8in. by 13ft. There is a north chancel aisle 26ft. 3in. by 14ft. 3in. The arch at the east end is good, the windows are of Perpendicular type. The south aisle is also 30ft. 10in. by 10ft. 2in., the transept 19ft. 8in. by 12ft. The south chancel aisle is 26ft. 3in. by 14ft. 9in. There is a good arch at the east end, and the windows, like those on the opposite side, are 15th Century. The west tower, on plan, is 22ft. 6in. by 20ft. 6in., 63ft. high, and very handsome, of Perpendicular character. The masonry is good. It is buttressed, of three stages, set on the square. There is a stair turret on the south side, half-square. The font consists of a small, odd stone basin, on a plain eight-sided stem. It stands under the west arch. There is a north porch, with a Parvise chamber over it. Part of the church seems to have been built by Bishop Courtenay, 1477—1487. The aisles were erected by John and Joan Tassel, prior to 1529. Although some of the windows are of Perpendicular character, others are Debased."

In a paper read by myself before the Society of Architects at St. James's Hall, Piccadilly, W., upon April 21, 1896, entitled: "Rood and Other Screens in Devonshire Churches, Past and Present," and reported in full in the Building News in its issue three days later, the following reference to our subject occurs:

"The screens at Honiton, under the direction of the late Mr. Ashworth, architect, I restored in 1880. The rood-screen itself is groined on both sides. It consists of 11 full bays and 2 narrow ones (N. and S.) and measures 46ft. from end to end. The three double doors are complete. Doors to Devonshire screens are as often missing as otherwise. The fine coat of arms carved in wood (3ft. by 3ft. 6in.), and with what seems to be the original colour and gilding upon them, was placed where the Rood itself had originally stood in 1730 (George II.), and remained there 150 years.

I took them down by order, at the time the screens were renovated. The fleur-de-lis of France are in the second quarter, and upon the fourth quarter the Hanoverian horse. Recently at Hampton Court I saw a facsimile of these arms in one of the compartments there, which looked to be the handiwork of the same carver. Everybody knows something of the less and less of this exquisite fabric now left in the Honiton district every year. It is curious that the only actual tomb to a specified lace worker in all Devon may be seen just outside, and to the east of the priests' door at Honiton Church. The brass inserted into it, like the memorial itself, is well preserved, and reads:

"Here lyeth y^ body of James Ridge, of Honiton, in y^ county of Devonshire (bone-lace-siller), who hath given unto the poore of Honnton pishe the benefit of £100 for ever. He deceased y^ 27th day of July, A^o D. 1617, aetata sue 50. Remember the Poore."

It is a distressing fact to realise, that the only example of old wood-carving once at Honiton Church—for so long the glory of its country-side—in existence to-day is the self-same coat of Royal Arms mentioned above. Turned out of the fabric by the direction of the then churchwardens and those in authority 31 years ago, it was rescued from possible destruction on that occasion by myself, and still forms a most interesting feature in my collection of old West Country oak-work, which is perhaps the most extensive of its kind in this country. A report of the restoration that took place at the time referred to may be read upon reference to the Building News for February 18, 1881.

I happened to be upon the scene of the disaster whilst the ruins were still smoking, and the most striking feature then presented was the almost entire extinction of everything within the four walls. With the exception of a few roof-timbers over the western end of the north aisle, and some modern oak panelling remaining just within the entrance to the West tower (as at Lamerton and Huntspill), every bit of the woodwork had entirely disappeared, nor was there more of the charred fragments left than would have filled a couple of wheelbarrows. Of the interior masonry, two bays at each side of the western end and their connecting arches spanning the aisles, are still *in situ*; but all the rest of the stonework, mostly split into small fragments or crumbled into little bits, lay piled in heaps where it had fallen. The internal walls were stuccoed. This coating, save on portions of the east wall, has also all disappeared. One interesting fact, previously generally unknown, has been revealed by the conflagration. For generations the masonry, everywhere of an excellent type, has been covered by whitewash, etc. The fire has burned this material (many layers deep) entirely off, with the result that the fragments of mouldings, mostly lying in heaps upon the ground, but, in some instances, still in its original place, are now seen to have been profusely, if somewhat crudely painted with colour. The lime or other wash, licked off by the heat, has gone; but the original decoration is left to mutely tell the tale, suggestive of how ornamental the edifice must have originally been in Mediæval days. The tracery and mullions of the various windows have all withstood the fiery ordeal, and in some instances the painted glass has been saved. Not a vestige of the oak waggon roofs nor their coverings remain. Those over the chancel were of slate, but over the nave of lead. The former have split and fallen, the latter melted, and much of the molten metal, running down the walls, now rests here and there upon their surfaces, assuming quaint forms, reminding one of hoar-frost, and, in a few instances, clustered so thickly as almost to suggest stalactites of bright metal.

In the tower the charred backs of two oak poor-boxes mark their former position, and near by are several blackened charity-boards, their gilded lettering now quite illegible. The lower floor is intact, and so is its fine arch. The whole of the stonework used in the original work is Beer, a material largely employed in the building of old Devonshire churches as well as of Exeter Cathedral. It does not appear to have successfully withstood the heat, and (save in the still standing arcades) few blocks, of even moderate size, are left.

The Beer stone quarries are situated, as the crow flies, seven or eight miles from Honiton. They are amongst the oldest subterranean ones in Great Britain, having been worked continuously ever since the time of the first Roman invasion, if not still earlier. I gave a lengthened description of them in the Building News for September 19, 1879.

Of the several cenotaphs that adorned the walls, the only one that has escaped entirely is situated immediately over the priests' door. All the rest are more or less badly injured or completely destroyed. An elaborate tomb at the south-east end, fashioned in white and black marbles, remains in part, but the heat has cracked both materials, and it is now in a fragmentary state. An ornamental wrought-iron railing around has been twisted and distorted by the fiery ordeal it has gone through. This particular memorial was erected over the vault of James Sheppard, Serjeant-at-Law, who for many years represented Honiton in Parliament. He died at the age of 49 in 1730. A pretty feature in the charming churchyard is a superb avenue of fine yew-trees that border both sides of the path leading from the lych-gate (situated at the north-western corner of God's acre) to the north porch. These trees were planted by the deceased ten years prior to his death.

A marked feature, suspended over the nave, was an exceedingly handsome brass chandelier of early Georgian date. It has almost completely melted, only a few short pipes of blackened metal now lie amongst the debris exactly beneath the spot where they had hung for nearly 200 years. The wooden block flooring in the body of the church, as well as the encaustic tiles in the chancel, etc., have all been consumed. In 1895 I placed a handsome font, designed by Mr. E. H. Harbottle, F.R.I.B.A., the diocesan architect and surveyor of Exeter, in Honiton Church. The bowl was of polished Staffordshire alabaster, resting upon an octagonal shaft of Devonshire marble. The latter has successfully resisted the great heat; but the base below is broken in twain, and of the bowl itself, only a small portion still remains in place. One of the firemen, himself an intelligent artificer belonging to the building trade, who was on the spot at the time of the conflagration, told me that, notwithstanding the terrible heat, the polished alabaster stood the test for a while, and then, going off as if with a bang, its fragments scattered in all directions, only the little piece already mentioned being left upon the marble base below.

As to how this most regrettable catastrophe originated, no satisfactory explanation has yet been offered.

Harry Hems.

Mr. W. E. Kinsey, Assistant Conservator of Forests Federated Malay States, has succeeded Mr. F. O. B. Donnys as Deputy Conservator of Forests.

THE INTERNATIONAL SOCIETY.

We cannot honestly say that the eleventh exhibition of the International Society of Sculptors, Painters, and Gravers, which is held once again at the Grafton Galleries, in Grafton-street, Bond-street, is any improvement on last year's, and that was indifferent enough. It is really difficult to understand why some of the blobs and smears are sent which find place on the walls.

The sculpture is less generally bad—what there is of it. Mr. John Tweed's "Study," in marble, in the centre gallery, is good, and so is his "Frau von Guillaume" (351), in plaster, in the end gallery; and "The Blind Child," by Mr. Fleming Baxter, is passable, as is the Group of Children for a Sundial (105), in the large gallery, by Countess Feodora Gleichen. M. Rodin's small bronze mask, "Le Visage Emerveille" (160), is the best piece of work he has sent here for some time. The "Sleeping Child," in marble (354), is most creditable to its author, whose initials, "O. W.," only are given. Among the exhibits which give fair promise of still better things, the best is Miss Gladys Holman Hunt's "Beatrice" (355).

Of the oil paintings, Charles Cottet's "Vieille Femme de l'Ile de Sein et son Fils, Bretagne," is a welcome relief from the contemplation of some of its near neighbours. Gerald Festus Kelly's "Marmaled" (in yellow) (54), and the same in orange (92), are two very fair renderings of an Oriental type. The "Old Houses at Espalion" (96), by Isabella Dods-Withers, are quiet and satisfactory, and so is "The Beanfield" (125), by P. H. Padwick. The "Man with a Banner" (164), in the Alcove, by Eric B. George, is one of the best in the exhibition. We are certainly not impressed with Mr. John Lavery's "Anna Pavlova" (33). Mr. Glyn Philpot has two good exhibits. We like "The Plague" best (26), which is hung in the Octagon gallery; but "The Yellow Scarf" (102) is, in its way, excellent. Among other more or less pleasing pictures are Mr. W. L. Bruckman's "Maastricht" (99 or 98—which is it?); "The Vestibule" (100), by Mr. James Pryde; "The Plague" (101), by Mr. Charles Ricketts; and "Cliff and Rock" (103), by Mr. W. W. Russell. Mr. William Strang's characteristic exhibits do not lack brilliancy. "Spring" (50) is vivid and fairly satisfactory; but "The Elders in the Garden" (52) is a somewhat sampler-like mixture of colour. By the way, is the face of the elder Elder that of the friend named by more than one beholder last Friday? Mrs. Vera Willoughby's "Judgment of Paris" (334) is, presumably, a satirical burlesque of some of the crude designs of the earlier Greek vases.

The water-colours and etchings in the end gallery are less obtrusively disturbing than most of the oils; but there is a regrettable preponderance of rubbish. There is, however, much to admire in M. Foram's fine series of etchings (211 to 218), and a set of pen drawings by S. J. Sullivan (222 to 231) may attract. Mr. Joseph Pennell's two lithographs are satisfactory—especially "Old Million Eyes" (260), and so are the five etchings by Mr. Charles Storm Van's Gravesande (282, 283, 286, 287, and 288). M. Boutet de Monval has two really very nice water-colours for a child's book: "Départ pour la Promenade" (332) and "A la Promenade" (387).

In the House of Lords the Rights of Way Bill has been referred to a Joint Committee of the two Houses.

WHEELS, ANCIENT AND MODERN.

Before the Royal Society of Arts, on Wednesday week, a very interesting lecture was given on "Wheels, Ancient and Modern, and their Manufacture," by Mr. Henry L. Heathcote, B.Sc. He referred to the Egyptian wheel in the British Museum. This is of wood, disc-shaped, flat on both sides, and probably off a cart or truck used about 1550 B.C. It is still in excellent preservation, and is about 2ft. in diameter, about 7in. thick, with a cylindrical hole in the centre about 7in. diameter. It appears to have been cut from a solid tree trunk. Persian wheels show an advanced development, and the illustration put upon the screen showed a wheel with twelve ornamental spokes fitting into a rim, carrying a studded tire. The number of studs suggested strongly that even in those very early times they appreciated the need for some non-skid device. Referring to early British wheels, it would be remembered that Cæsar found our ancestors possessed of war chariots, which they managed with great skill, implying a long-previous acquaintance with the use and manufacture of wheels. As early as 500 B.C. wheels had reached a very advanced stage of development even in Europe, due partly to their use in war, partly to the sports of the Stadium, and partly to the rough roads and tracks they had to traverse. The earliest of records he had been able to find of wheel trouble was when the Egyptian chariots, in crossing the Red Sea, became bound, so "that they drave heavily." This happened about 1490 B.C.; but the oldest of Indian literature mentions wheels, showing their use as parts of vehicles, as far back as 1700 B.C.

In passing to the next stage in wheel development, which dates from the use of bicycles, a gap of about 2,500 years occurs, during which the only changes of any importance were the dishing of wheels to resist lateral stresses due to ruts and rounding corners, and arranging the spokes on two cones instead of one. Strange though it may appear, wheels were not used generally for facilitating transit in Britain till comparatively recent times. The very first carriage was made for Queen Elizabeth in 1568; the first that plied for hire in London were in 1625, and the first stage coaches were in 1659. Broadly speaking, all the early wheels were compression wheels, with radial spokes. The introduction of the suspension wheel for bicycles marked a great advance in the shock-absorbing powers.

"BUILDING NEWS" DESIGNING CLUB.

A MEMORIAL BRIDGE TO KING EDWARD VII IN A PUBLIC PARK.

To enable the general reader to see what this scheme was intended to comprise, and understand the proposal, before examining the accompanying designs, it would be well to look through the following reprint of the conditions issued for the guidance of the competitors, and we may remark that in some ways it is singular we should have set this somewhat similar problem before we had heard of the now abandoned proposed bridge which the National Committee for the King Edward VII. memorial intended to erect in St. James's Park. The two ideas are really very different in detail, principally because we prepared for a terrace to accommodate a band, and the national scheme—so prominently brought before the public lately—included a statue of the late King 50ft. high, on a pedestal. Nevertheless, the coincidence in a way increases the interest of the subject for the Designing Club, specially as our problem is actually quite new and somewhat out of the ordinary routine of architectural classwork. This circumstance accounts, no doubt, for the comparatively few designs sent in, and, further, it is a matter of regret that not one of the competitors adopted our suggestions as to the treatment being in the Edwardian style. With so many old English Gothic bridges by way of precedent, it should not have been difficult to follow out the lead which we gave. Presumably, the work in most offices just now is done on the lines of Late Classic, and, to be in the fashion of the hour, our members have elected to adhere to that type of design, though one, if not more, of the competitors favour Art and Craft modernism, and in defence of doing that, possibly, the authors of such designs would urge that every building erected now should avoid too rigid a regard for precedent, and, in fact, that it should be as modern-looking as one can make it. There need be no anxiety in that respect, for however adept a contemporary architect may be, there is little risk of his productions being mistaken for historic works of architecture, and the more he adheres to precedent the more unhesitatingly modern will his productions appear to the cultured eye, and, anyway, it is far preferable to copy old work than indulge in a sort of shandygaff of all the styles or the eggflip of the Baroque.

Nevertheless, we are bound to admit some disappointment at the unexpectedly restricted numerical results of this particular competition; while, also, we cannot say that the schemes placed one, two, and three are quite what we had hoped for. Here are the instructions:—

A stone bridge of two archways, with substantial abutments, in memory of King Edward VII., to be built over a connecting stream between the northern shores of two ornamental lakes in a public park. Two boathouses are to be attached to the abutments of the bridge, one on each side at its northern end, and these are to be formed under a raised platform built all in stone, with brick arches inside the longitudinal walls, being set at right angles to the bridge. This raised platform, elevated about 10ft. high from the ground-line, is to be used as an open air terrace for band performances, and to have a flight of steps the whole width of its depth at either end. Both flanking walls to have balustraded parapets 3ft. 6in. high on its N. and S. frontages, and raking down with the approach steps. Each of the two boathouses to have arched open fronts in the embankment façade towards the water, and the interiors are to be 20ft. deep by 15ft. wide, with windows inserted at the far end towards the north; these lights to make a feature in the wall of the band terrace towards the park. Space for seats to be provided below these windows for public use, and buttresses and piers may be introduced to give architectural character to both façades. The water level is 8ft. below ground-line at either end of the bridge, and a through-way arch 9ft. wide under the terrace will make a feature at the northern end of the bridge, the width of which is to be 12ft. between the parapet walls. The water-way is 30ft. wide from shore to shore. In front of the boathouses a 6ft. wide timber-formed landing-stage to be shown the length of the extremity of the boathouse wings, which on the plan, together with the bridge, will assume a T-shape in general outline. Two plans, two elevations, and a cross section looking north, so as to include river front of boathouses. The contour of the bridge and its footway may rise towards the centre of the stream, and footway as well as band-terrace floor to be asphalted. The architectural style is left to the competitors; but Edwardian would be appropriate. A view from south shore looking N.W. is required. Drawings due on April 1, 1911.

We place "Liver" first, "Showman" second, and "Margis" third. "Liver" has recognised that in park and garden architecture quiet dignity is of pre-eminent importance. The broad simplicity of his bridge is partly due possibly to somewhat over-extended abutments, seemingly dictated by the flight of steps down to the boathouse landing stages and foreshore of the lake. The flower-beds are out of place where boats may be knocking about. Perhaps a through-way from N. to S., to connect the two landing stages, would have been an improvement for convenience of access, and such an opening would have added interest without interfering with the dignity before mentioned. The omission of lamp standards on the parapet piers increases the sense of restfulness obtained by "Liver"; but we rather expect that he has merely avoided a difficulty which ultimately would have to be faced if the structure were built. No band could play in the dark, and it is our fault if we expected them to perform in the open—no shelter or band kiosk being stipulated for. The wide steps to the terrace which we required would not be needed for the band; but when there is no performance of music the raised terrace is for public enjoyment, to watch the boats and get a more extended view of the gardens.

"Showman," taking second place in order of merit, makes much of lamp provision, and brings his lesser stairways down parallel to the main building, so saving space, which tends to pinch his scheme in effect. The bridge is not so pleasing as the first, and the segment arches to all the openings of consequence are not so graceful as semi-circular ones. All this goes without saying, as any reader can see; but it does not do to let even the obvious pass without mention, lest the competitors may fancy points are not noted. The wide piers and stern emphasis shown in this scheme justify the distinction thus accorded to it.

"Margis" is unequal in his work; but we must recognise his cleverness and the suggestive manner in which he has responded to the invitation which we issued. The sunk auditorium is a distinct idea—not, perhaps, original, but suggesting thoughtfulness—and the kiosk in the midst shows what might have been, even though we demur to the erection of a garden temple of this sort perched up on high, which feature would have a tendency to mere sportive gaiety, if not vulgarity, scarcely in keeping with the broad beauty of park scenery. The water side of his proposal, but for the central treatment adopted for the archway at the end of the bridge, is distinctly good and well managed, though circular lunettes in lieu of the mullioned lights above the boathouse arches possibly would have been an improvement, unless rooms were found to justify the type of fenestration adopted. They seem to interfere needlessly with the solidity and breadth of the composition, and this restlessness is increased by the gaucherie sort of feature formed by the segmental archway and broken parapet line above, while the little half-columns along the park elevation look indifferently well, owing to their lack of proportionate scale.

"Harvey" extends the boathouse arches up too high, and his central opening at the termination of the bridge has a lintel over it, with a mass of masonry above, while, as terminating features of the lake façade, two pleasingly managed staircases landings are introduced, with an arched front and obelisk terminations at the angles which look befitting. The general treatment of this scheme is massive and dignified, though the vast archways somewhat diminish the scale of the bridge by comparison, and the view fails to do justice to "Harvey's" proposal.

The Brobdingnagian statue of King Edward VII. surmounting the archway of "The Bournemouth Queen's" design, which comes next, if more in proportion to the boathouse elevation, ill befits the park side, which is not a success, and the bridge is too ambitious in its handling for so small a structure of its kind. We do not like the way in which the window-heads of the north front run up under the cornice, and the dwarf imposts of the middle opening, set plinth-high, give a diminutive appearance, showing an absence of thought on the part of the author on essential points which he ought to have noted. It is not clear, either, how his embankments, shown in his section, would be maintained, unless the land is composed of rocks hewn vertically; but this his perspective hardly suggests.

"Absque Labore Nihil" spoils a meritorious proposal by introducing little Ionic columns flanking his middle archway and the segmental, stablelike windows towards the park. From the water side the simple contour of his scheme is rather commendable, and the bridge is unpretentious. There is not space enough below the cornice of the terraced building and the keystone of the middle opening, which, as a result, looks squeezed in. The drawing does not heighten

the effect of the design being [illegible] executed in bald outline.

"North Pole" exhibits merit of a much higher order in several respects, and we should have given him a more distinguished position in this competition but for the fact that he disregarded [illegible] numerous stipulation in the [illegible] the provision of steps the [illegible] raised terrace. He has [illegible] in this respect by [illegible] right angles with the [illegible] and so fails to solve the [illegible] we set him to master. [illegible] correct; but we could not, of course, [illegible] circumstance, although [illegible] and the general usefulness of the scheme submitted, with its separate detached, by no means follows that this Art and Craft type of work which he affects is the most appropriate; indeed, some of his parts are more curious than commendable. For example, the consoles or trusses set against the parapet piers, where they would get trodden on and knocked about by the public, besides looking out of place by the side of the plain balusters made of stone and presumably set upon end, done to a scale better suited to timberwork. One other point: the semicircular arches spring off the caps of the columns with a feather edge, owing to the pilaster treatment on the front face, and though the springer, of course, would be all in one piece, a carved boss is suggested over where the joint would come, and the bed thus trifled with would chip off and look very bad, even if it stood without splintering, which is more than doubtful, to our mind. "North Pole" may be praised for trying to do contemporary work in a modern way; but he would do better if he let sound construction govern his aspirations after novelties. The bridge is the best part of his design, and even that looks a little odd with the obelisk over the central pier.

"Oxonian" has a curious idea of a boat enclosure, which he evidently understood to be a dub place reached by steps in a sort of upper chambers opening out of the central through way, which would never do in public park use, and, of course, no boat could go up the staircases here provided. His semi, or nearly semicircular arches to these places have a vertical mullion in the middle very like struts to keep the key-stones up. His façade to the park really looks rather well; but the lamps are somewhat overpowering, and in the view they suggest cockshies like pineapples, though there are fourteen, all told. Half the water-way under the second archway of the bridge is encumbered by the wooden landing-stage.

"The Chocolate Soldier," if not sweet, is at least severe, with big, sentinel-like piers at the ends of the band terrace rather suggesting chimneys. The ways down to the landing-stage project in front of the big stairs up to the band platform in an awkward and thoughtless way. The author gives no view, which is a fault.

"Rising Sun" (device) is too ornate; but his bridge in itself is rather better than some, though the view adds nothing to its chance. The virgins resting on the apex of the central pediment have a grotesque look, and so do the sprawling figures reclining on their backs at the end of the bridge on the parapet, suggesting the unemployed taking a siesta, as they are often seen doing in most parks.

"Lapsus Calami" devotes the whole of one bay of his capacious bridge to the landing stage and boat slide, and he runs his bridge up level with the band parade, so we cannot compare his proposal with much exactitude with the rest, and the central archway towards the park is filled in with masonry. Such is the "lapsus" which the author has made.

"Prospero" makes a similar mistake, and carries us "heavens high" with a wide promenade on one side of the stream banks and the landing stage on the other, under the viaduct.

"Tunster" omits a perspective and keeps his boathouse arches very low, and just above the water line for the platform, so users would have to creep in, as it were; but, all the same, this scheme is architecturally fit and quiet in treatment, if commonplace in idea, and it is not the least vulgar.

"Sphinx" is rather that, and puts a big pavilion over the bridge, with oriels corbelled out over the central pier. The whole thing is loud and pretentious, drawn to too big a scale to come in on the sheet of paper.

ROAD TRAFFIC AND MAINTENANCE.

At the ordinary meeting, on Tuesday, April 4, at the Institution of Civil Engineers, the papers read were "The Improvement of Highways to Meet Modern Conditions of Traffic," by J. Walker Smith, M.I.C.E., and "Recent Development in Road Traffic, Road Construction, and Maintenance," by H. P. Maybury, M.Inst.C.E. The following are abstracts of these papers:

The present-day methods of transport on roads are first considered, and statistics are submitted in diagrammatic form, showing the growth of motor-vehicles and the decline of horse-drawn vehicles, but also indicating that the ratio of motor vehicles to horse-drawn vehicles is very small, both in number and in mileage. Dealing next with road construction, the two general methods of preparing and laying bituminous bound macadam are described—namely, the formation of tar-macadam, or tar-concrete, and the penetration of macadam with bituminous grout. The costs of these are considered in general terms. The advantages of bituminous bound macadam may be summarised as suitability for both horse-drawn and self-propelled traffic, comparative freedom from dust, economy in maintenance, imperviousness, and density, power of distribution of weight, decreased camber, and noiselessness; against which may be set the disadvantages of increased cost of construction, possible bad foothold on gradients, and the effect of weather conditions during construction. The question of tractive effort is also dealt with. Passing to the materials comprising the road-surface, the physical, mechanical, and chemical agents of destruction of road-stone are described, and the author considers what has been attempted and what may profitably be attempted to predetermine, by laboratory means, their effect upon various stones under service conditions. For this purpose a number of physical tests—fully described in the appendix—and petrological observations are suggested, for record with the practical results obtained, in order that they may be correlated. The promising field for experimental work may thus be further and more thoroughly exploited, and the laws which appear capable of being deduced may be determined from organised research. With reference to the bituminous binder, after pointing out the possibilities of the natural asphaltes and petroleum residues in the construction of bituminous macadam roads—which is yet in its infancy—the tar and its products are fully discussed. Statistics are given, tests are suggested and described, and specifications for different grades of tar are submitted. The financial considerations affecting the reconstruction of existing macadam roads in the bituminous-bound form are submitted in the form of curves, whilst similarly are shown the fluctuations of the mileage and costs of the various classes of roads. Upon the basis of the beneficial results, financial and otherwise, which will accrue from the adoption of this form of construction, it is suggested that certain classes of roads should be so reconstructed. To illustrate this proposal, the reconstruction of about 50,000 miles of roads in England and Wales is considered, upon the principle of spreading the cost over a period of seven years. The net result of this—upon the data assumed—is that the whole of this length of roads would be entirely reconstructed in a period of thirty four years; at no period would the present cost of maintenance be exceeded; whilst at the twenty-third year a gross annual saving would commence, increasing until, in the forty first year from commencing, there appears a maximum permanent saving of between £2,000,000 and £3,000,000 per annum. In the concluding portions of the paper the author makes recommendations for the standardisation of materials of construction, and for the accumulation of data for the design of future roads. In the case of standardisation, it is suggested that there should be commenced, and thereafter continued, systematic laboratory tests and analyses of stones, the physical and petrological results of which should be recorded for each trial length of road laid under service conditions. These records are suggested with a view to correlate the various physical tests, and, further, to correlate the physical tests with the petrological descriptions. It is desired to establish ultimately—at least, for physical qualities—relative values of stones for bituminous-bound and water-bound macadam. It is suggested that there should be laid down three or four standards for the bituminous binder, and that the subject should be pursued further in the laboratory. The standards for tar itself would thus be greatly improved, and such correlation in laboratory-test results might be found as would enable a number of tests to be eliminated and reliance to be placed upon a very few. Further, the effects of blending tar with other substances such as petroleum residues and asphalte in various proportions could be ascertained, and also the effect of introducing various proportions of inert matter. Consideration is then given to the second suggestion, "that data should be accumulated to admit of the design of roads to meet any known conditions of traffic." The dominating factor, "traffic," is proposed to be dealt with by enumeration under certain headings, and the relative potential damaging effects of various vehicles upon various grades of road would be reduced to a common denominator by a scale of average weights and a scale of coefficients. It is suggested then that a number of lengths of experimental roads should be constructed in localities having different intensities of traffic, and that records in connection with these should be kept. A form is suggested to include records of materials and methods of construction, first cost, cost of complete resurfacing, intensity of traffic, cross-sectional wear, longitudinal unevenness, general condition of the surface, cost of maintenance each year, average annual cost of cyclic maintenance, annual repayment of capital cost by instalment, with interest. A table has been prepared upon these lines, and the results are plotted in diagrammatic form, from which may be seen at a glance the points—in terms of traffic—at which each class of road becomes the most economical. From these results a certain formula has been deduced for the construction of roads when certain data are available. Such formula, of course, will need to be used with due regard to the recorded conditions of the road-surface throughout the whole cyclic period of its life, and also to the type of foundation and subsoil, gradient, prevalent weather, general meteorological conditions, and any special local conditions obtaining. In addition, as already mentioned, the composition of the units of traffic making up the total weight of traffic used in the formula will have to be taken account of, a single heavy vehicle often having a greater damaging effect than several smaller ones of the same aggregate weight.

The author of the second paper first draws attention to the vast development of self-propelled traffic during the past few years, and states that on December 31, 1910, there were 218,680 self-propelled vehicles in the United Kingdom licensed and registered for use. He points out that this new form of traffic was legalised without any inquiry as to what effect it would have upon the roads, and without any provision for strengthening them, thus creating a very difficult position for those responsible for their construction and maintenance. The first essential condition for successful road-construction is a good foundation, and the author states that to provide a proper foundation for the 27,000 miles of main roads in England and Wales would cost £55,000,000. He then refers to the heavy motor-car traffic and the anomalous position of the heavy or commercial motor, which is permitted to have an axle-weight of 840lb. per inch width of tire on a wheel 3ft. in diameter, while a traction-engine is only allowed a weight of 616lb. per

inch width. He gives examples of the damage caused by these heavy motor vehicles, and suggests that steps should be taken to remedy this anomalous state of affairs. He then deals briefly with various ways of using tar in the construction of roads, and suggests a standard specification for suitable tar, to be applied in accordance with the circumstances obtaining in particular districts, and, finally, he describes the treatment of the surface of roads with tar, the laying of tarred macadam, and pitch grouting of ordinary macadam, and defines the desirable qualities of the tar or tar compounds.

THE NEW POLYTECHNIC BUILDINGS, REGENT-STREET, W.

An important addition to the buildings in the West End of London is now being erected for the Polytechnic Institute on the site of their old buildings in Regent-street. Our illustration shows one of the column capitals, which are being carved by Messrs. E. J. and A. T. Bradford, from models made by

Column Capital for new Polytechnic Buildings, Regent-street, W.
E. J. and A. T. Bradford, Sculptors.)

Mr. A. T. Bradford, of that firm. The columns are 3ft. in diameter at the top, projecting a little more than half; the width across the volutes of the cap is 5ft. 6in. The elevation, which is severely Greek in general character, was designed by Mr. F. T. Verity, F.R.I.B.A., and is being built in Portland stone by Messrs. Holloway Bros.

A THREATENED LEADEN SPIRE.

Dr. J. Charles Cox, writing in the *Athenæum*, calls attention to the danger which threatens the lead-covered spire of the parish church of Great Baddow, near Chelmsford. "This most interesting fabric is," he points out, "chiefly remarkable for the excellent early sixteenth-century brickwork of the upper parts and battlements of the aisles and nave, and also of the south porch. Much of the rest of the church, including a good western tower, is of fourteenth-century date; but there is some older rubble walling with Roman tiles. The tower is crowned with a graceful lead-covered timber spire of considerable elevation. About four years ago, when visiting this church, I noticed the great masses of ivy with which much of the tower was burdened, right up to the battlements. I ventured to speak of this to a local wiseacre, expressing a hope that the ivy would be removed or considerably curtailed, for otherwise mischief must shortly accrue. The reply was: 'O! Baddow people would never hear of that; we think the ivy by far the most picturesque thing about our old church.' My prophecy, I am sorry to say, has now come true. A short time ago a gale of wind turned the weather-vane at the top of the spire half-over. This vane is of somewhat unusual size, and bears the date, I am told, of 1828. An architect was summoned in consequence of this disaster. On examining the steeple, he reported that the upper parts of the tower were so much damaged by ivy that they would require renewal or rebuilding for several feet. He also reported that the lead-covered spire was generally in a perilous condition. As a result of this report, a proposal is being put forward to cover as much as possible of the expense of these repairs by the demolition of this remarkable spire and the sale of its lead." Dr. Cox vigorously, and with reason, protests against such mean economy, remarking that he does not know any other example of a lead-covered spire in which the leaden sheets have been applied with so much symmetry after a rectangular fashion, tier above tier.

The Bunyan Memorial Window in Westminster Abbey is almost completed, only two of the nine lights now remaining to be placed in position. There will be a public unveiling some time after the Coronation, but the date is not yet fixed.

THE BUILDING LINE OF REGENT-STREET.

The Improvements Committee of the Westminster City Council report that they have had an intimation from the London County Council of an application for consent to new building lines for portions of Glasshouse-street, the Quadrant, Piccadilly, Piccadilly-circus, and Regent-street.

The plan shows a straightening of the building line of Regent-street from Jermyn-street to Piccadilly-circus, some land being given to the public way and other land taken from it. The corner of Messrs. Swan and Edgar's premises is proposed to be set back some 12ft. and the land added to the public way, while a small strip on the west side of Regent-street is to be taken from the footway. The plan also shows a rebuilding of the existing columns of the County Fire Office in slightly altered positions, and a slight setting back of the building line on that side of Regent-street, while it is proposed to provide a short passageway for foot passengers under the corner, at the junction of Regent-street and Glasshouse-street. A narrow strip of land on the south side of Glasshouse-street is taken from the footway at that spot.

The Improvements Committee of the Westminster Council consider the application objectionable, and are suggesting to the London County Council that, in order to facilitate traffic at that spot, opportunity should be taken of the rebuilding of the property in that part of Regent-street to set back the projecting corner of Glasshouse-street and Regent-street to a distance of 45ft., and to widen Glasshouse-street to 44ft.

THE EVOLUTION OF FORM IN SILVER PLATE.*

By Percy MacQuoid.

The subject of silver plate is such a very vast one that I propose to-day only to deal with the matter in connection with the growth and development of its form, excluding all that is strictly ecclesiastical, and limiting myself to the domestic plate of this country produced during Tudor times and onwards. The possession of gold and silver plate has always been a mark of wealth and distinction, highly important gifts between persons of distinction or to colleges and municipal guilds invariably comprised plate in some form—hence the spirit of emulation was aroused for the production of the most beautiful and ingenious variety of workmanship, and to fulfil these demands we find records in early times of a very high class of intellect devoting its artistic endeavours to this craft. To design fine plate, as, indeed, to design anything, it is necessary to be able to draw with skill and accuracy, so we find that in the fifteenth and sixteenth centuries many of the greatest painters abroad were designers of goldsmiths' work. Unfortunately, there were but few fine draughtsmen in this country, and this without doubt accounts for the fact that so much of our early English plate owes its origin in form to foreign sources, for we had to go to France, Italy, or Germany for designs in the Tudor, Gothic, and Renaissance times, and very frequently employed foreign workmen so that the plate made here during these periods invariably reproduced foreign motives; but later on, as painting and architecture became individual to this country we clearly see the development of free spontaneous impressions, and eventually the separation of foreign ideas which is strongly marked by simplicity and solidity. It is useless to attempt to describe examples of English Gothic plate anterior to the middle of the fifteenth century, for with the exception of a few chalices and spoons, no specimens remain that can be conscientiously assigned to this date, but there is no doubt from the pre-Reformation inventories, such as those of Winchester College, the City Companies, and certain private individuals, that the amount of Gothic silver plate made in England must have been very great. In an inventory taken of the Winchester College plate in 1535, several thousand ounces

* Read before the Society of Architects, April 6, 1911.

...examples ... are now ... on the ... some ... plate ... I propose to speak ... I think, I can ... explain the meaning ... example those depicts that ... best known to all. There have been ... kind of drinking vessels ... horns, to which we need not ... the bowl developing into the cup, ... turned outwards and the beaker. The ... form of cup was a bowl of metal ... wood, generally the latter, and ... Mediæval times called a mazer. They were ... generally turned out of the polarded and ... consequently knotty portions of the maple ... other trees, and owing to the hard quality ... the wood were almost impervious and ... of a high degree of polish. In the ... 14th century, these wooden mazers were sur... mounted originally, no doubt, to preserve ... their edges, by a band of silver gilt an inch ... or so deep, frequently ornamented with a ... motto, and for strength on the inside a ... strip of silver gilt, also called a print, engraved ... and sometimes enamelled with a sacred ... emblem. A considerable number of these ... mazers are in existence preserved chiefly ... in the museums and colleges. The drinking ... cup belonging to Oriel College, Oxford, is of ... the second half of the 14th century, and is ... the earliest form of drinking cup for ... domestic use. The shape is Oriental, and it ... was probably brought over by the Cru... saders. This must have been an extremely ... awkward vessel to handle, and it soon ... struck someone to improve matters by ... mounting the bowl on to a stem or foot, ... making it at once more decorative and con... venient for use, as in the case of the well ... known specimen in the possession of Caius ... College, Cambridge, called the Cup or ... Standing mazer of "the three Kings." The ... so-called "Anathema Cup," belonging to ... Pembroke College, Cambridge, which bears ... the very early hall mark of 1481, the bowl and ... foot being cast to form together in a completed ... design, the bowl becoming bell shaped and ... departing from the mazer form. This cup ... owes its name to the circumstance of the ... donor, Thomas Langton, a Bishop of Win... chester, having had engraved on its base ... the following: Anathema sit. Whoever ... steals this bowl shall be accursed. Most ... effectively, and after 420 years the cup ... still remains in its original place. Twenty ... years later another development took place ... the cup becoming straight-sided, with a ... flattened base, but the beading is still appa... rent of a bowl mounted on a truncated stem. ... This rare specimen bearing the London hall ... mark of 1500 and the Anathema Cup originally possessed a cover, the cup would have ... been fairly flat and tapering to a point on ... which a finial of small top shape probably ... enamelled with the arms of the owner or ... sometimes a precious stone supposed to act ... as an antidote to poison completed the de... sign of the cup. The extreme simplicity of ... the stems of the cups up to this period ... should be noted for, another few years ... elaboration of design in this part of the cup ... commences. These decorated stems were ... first introduced from Italy. Lorenzo the ... Magnificent was an ardent collector of ... early Christian and one of his most ... prized possessions being antique Roman ... [illegible] ... cups [illegible] ... and some artists of the Renaissance [illegible] ... [illegible] ... [illegible] ...

by the small demand for more important pieces, all spare money being required for the King's army or the opposing Parliamentary forces. Whilst many historical collections of old plate were melted down by loyal subjects for the King's cause, and every form of art languished, as is invariably the case under socialistic tendencies, with the reign of Charles II. all fresh design in the form of the Standing Cup died out, and when it reappeared it was as an evolution of the porringer. Porringers and Caudle Cups are practically the same class of vessel. They were introduced midway throughout the 17th century for the possets and hot drinks that were so much indulged in then. The earliest are rather gourd-shaped, narrowing at the neck, and have a cover and dish on which they were carried, and always have handles. The bowls and covers are ornamented with the form of decoration prevalent at the moment, and those of Charles II.'s reign are generally found bossed out with large fat flowers and fruit, later again with Classical design in the form of acanthus or spiral gadrooning. This latter pattern goes on into the following century. The handles were originally ornamented with a recumbent female torso in the Renaissance taste. In fact, the bulbous form of the porringer does not lend itself to beautiful decoration, and it is evident that the artist, having ceased to design, the silversmith had taken the fashioning entirely into his own hands, and was turning them out by scores. With the exception of pseudo-Chinese engraving, all porringers seem to be decorated in a variation of one of these three grades of style. The evolution of form in their handles is most interesting to note. There is still some attempt at grace of modelling in the figures; but in the constant repetition by the craftsman, without any fresh design, these develop into lumps, then beads, and, finally, into two protuberances to rest the thumb on. Another curious detail like this is the whistle at the end of a tankard handle, originally in Jacobean times, constructed as a real whistle, with a view to ordering yet another drink, it deteriorated through reproduction, like the third eye of the Antediluvian Saurian, till it became a useless cavity. By the commencement of the 18th century the handles have become quite plain, and the porringer being no longer in requisition, the next evolution of design was to mount it on to a base, hence the beginning of the two-handled cup, and the shape that for some mysterious reason has ever since been consecrated to the racing prize. The base gradually becoming taller, and the bowl narrower, it developed in the reign of George III. into the well-known classical urn-shape, bearing the strong "Adams" stamp. It will be evident how very vividly plate bears the imprint of form and decoration of the moment in which it was made, and that the decoration of plate reached its zenith in the middle of the 16th century, for there was a realism of thought at that time and a straightforward convincing power of strength, conveyed by the masterly touch of artist and craftsman working in unison, that has never been surpassed. Its detail and design, too, had then reached to such an art that though concentrated down into a piece but a few inches high, it is so full of detail, so marvellous in proportion, that the same motives could be applied to an object twenty times its size, and nothing be lost. When the influence of Benvenuto Cellini and the goldsmith artists of that time began to wear itself out, plate commences its decadence, for the simple reason that the intellectual power is lacking. The Steeple Cup of James I., many of which were designed by George Herriot, the king's goldsmith, prove that the best goldsmith of that time was not comparable with those that had gone before, and in Stuart times, though there is much that is exceedingly beautiful, the lack of artistic feeling becomes more still evident, and the elements of quantity, not quality, begin to supplant all individual interest. A very favourite form of decoration at the time of the Restoration, and which kept in favour for thirty years, was large, shapeless, boss d-out flowers and fruit, amongst which, doubtless in an ecstasy of newly-discovered loyalty, a fat lion and unicorn gambol; and one turns with relief to the severer taste introduced during the reign of William III. This, as well as the plate of Anne and George I., is dependent for beauty only on its proportions and mouldings. What greatly set off the proportions in the silver of this period was the extreme beauty of surface. This is caused first by the actual quality of the metal, which was of Britannia standard, between 1696 and 1720, and by the numberless hammer-markings, which produced an irregularity on the plain surface, distributing the effect of light softly over the curves. In the plate of George II. and III. the hammer-marks are visible on the interior; but generally a polish was put on the outside by the workman before parting with the piece, and, in consequence, plate of that period much resembles the smooth manufactured efforts of to-day, on which the high brilliancy of the silver is concentrated into a diamond like spot by the combined efforts of butler and footman. In old plate the charm of surface is no doubt added to by the infinite amount of little points and imperceptible scratches consequent on wear, that reflect the light and give a curious whiteness to the metal. It is a minor detail, but it is also a minor attraction that the modern manufacture cannot give. Many collectors prefer to keep their specimens with the surface oxidised and uncleaned; but I doubt whether in this way they do not lose much beauty of undulation of surface, especially in the instance of only slightly-decorated articles. Metalwork is intended to look like the metal it is chosen to represent, and in all ages its exterior form has been considered with a view to brilliance. To obviate much cleaning in the highly-decorated pieces, these were generally gilt; but in early times you will find the plainer portions left in the silver, and this is called parcel gilding. There is a praiseworthy attempt in these days to revive the hammered surface; but at present the effort to obtain the result is too apparent. The art of using a tool sufficiently large to give the infinite variety is no longer understood, and the results, therefore, are purely methodical and mechanical.

(*To be continued.*)

A faculty has been granted in the York Consistory Court to the rector and wardens of the parish church of Foston, to reflloor, reroof, and reseat the nave, to erect a north aisle, to build a new vestry on the north side of the chancel with a heating-chamber beneath, to fix a new heating apparatus, to erect a new bell-cot, and effect other alterations.

The Tonyrefail (Glam.) Boys' Council School, erected about seven years ago, was burnt out a few weeks ago, nothing remaining but the bare walls, and they were badly damaged. The school is now being rebuilt under the superintendence of Mr. D. Pugh-Jones, M.S.A., the county architect, Cardiff, with solid concrete floors covered with wood blocks, and cement dados, in order to reduce the risk of fire to a minimum.

The parish church, Coldstream, situated in High-street, Coldstream, N.B., replaces the old parish church, of which the tower and belfry are incorporated in the new building. The exterior is somewhat similar in style to the old building, the chief features being round-headed windows with architraves and projecting key-blocks, and the wall head finished with a simple cornice and parapet. The architect is Mr. J. M. Dick Peddie, M.S.A., of Edinburgh.

The prospects for the successful carrying out of the scheme for building an international highway from New York to Montreal are now very favourable. A Bill appropriating £320,000 to complete New York State's share of the highway from New York City to Rouse's Point, has passed the State Senate and will probably pass the Lower Chamber of the Legislature shortly. A Bill appropriating £50,000 for good roads has already passed the Quebec Legislature. This is nearly four times as much as was ever appropriated by the Province before for similar purposes. The Dominion Government is also aiding in the building of a dyke between La Prairie and Montreal to protect the proposed highway from flood waters of the St. Lawrence. The villages, towns, and counties along the proposed route between Rouse's Point and Montreal are also voting funds towards the building of the road, indicating that Canadians will finance their portion of the construction of the highway.

PUBLIC HEALTH LAW.*

This will be found a very useful textbook by architects, surveyors, and municipal officers and members of local authorities. Each subject is dealt with under its own heading, and the tables of statutes and cases are exhaustive.

The author deals successively with local authorities and their officers, the meaning of "sewer" and "drain"—a chapter a querist in our own columns last week may read carefully with advantage—sewers and sewage disposal, drainage and sanitary fittings, rivers pollution, nuisances, miscellaneous sanitary provisions, diseases and hospitals, streets and buildings, municipal undertakings, open spaces, cemeteries and allotments, markets and slaughterhouses, etc.

We should many times have been glad of a book like this, in many capacities, and have no hesitation in recommending its purchase.

CHIPS.

The city council of Winchester are about to build new council schools at Dammemark, at an estimated cost of £5,000. Accommodation will be provided for 350 scholars.

It was reported at the last meeting of the Malling Rural District Council that the threatened litigation with Professor Robinson, M.Inst.C.E., as to fees had been settled by the payment to the professor of £400.

The Countess of Lovelace has given £100 to a fund for the restoration of the tower and clock of Ockham Church, Surrey, of which living she is patron. She also makes herself responsible for the necessary building plant and materials.

The Cabinet has approved plans for the proposed Plaza Laurier at Ottawa, and the work will be undertaken at once. The Plaza will be 280ft. wide at the western end and 290ft. at the eastern end. A group of statuary will occupy the centre. The masonry abutments of the bridges will be replaced by steel structures.

The opening of a new Liberal club took place at Port Isaac, North Cornwall, on Saturday. On a 50ft. site some old cottages were purchased for £170, and premises have been erected by Messrs. W. H. Oaten and T. Remick for £278 15s., the furniture involving a further expenditure of £100. A billiard-room and reading-room have been provided.

Mr. Assheton Smith has offered to present to the Crown the freehold of three houses which would obstruct the view of many thousands of people in Castle-square of the Queen's Tower of Carnarvon Castle, where the King is to present the Prince of Wales to the people. It is hoped that it may be possible to demolish these houses before the Investiture takes place.

The new branch library for Crumpsall, which fronts the Cheetham Hill-road (North-West Manchester), was opened on Monday by the Lord Mayor of Manchester. Besides a general reading-room the building contains juvenile and special study rooms and a lecture-hall in the basement to accommodate over 200 persons. It has been built from plans by the city architect.

A faculty has been decreed to the vicar and wardens of the parish church of Brotherton, to enlarge the heating-chamber and to place a new heating apparatus, to reflloor the nave and vestry, and to refix a new carved stone pulpit and reading desk, to remove the entire seating of the nave and reseat it, to form a panelling round the church constructed out of the old benches and box pews, and to provide new inner entrance doors.

The National League for Physical Education and Improvement publish details of the proposal for erecting a public health museum, which the Lord Mayor, as chairman of the committee for the London memorial to King Edward, has consented to submit to that committee for consideration. The proposal is the outcome of a resolution passed at a conference opened by the Lord Mayor, and held last December at the Guildhall.

The dedication and unveiling of the carved teak pulpit and brass tablet which have been placed in St. Luke's Church, Maidstone, in memory of the late Mr. R. J. Fremlin (who was churchwarden from its consecration in 1897 until his death), were performed by the Archdeacon of Maidstone on Wednesday week. Designed by Mr. W. H. Seth-Smith, F.R.I.B.A., of Lincoln's-Inn Fields, the architect of the church, the new pulpit is in thorough harmony, architecturally, with its surroundings.

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* Public Health Law. By Sydney G. Turner, Barrister-at-Law. London: St. Bride's Press, Ltd. 10s. 6d.

Mr W [illegible]

Lytham [illegible] Mr [illegible] Derby, Corstorphine, and Queensferry, Midlothian, planned by Mr Court.

The Mersey Docks and Harbour Board at their last meeting received a recommendation to forward by the traffic committee to purchase a movable coaling crane capable of lifting two loaded trucks containing twenty tons of coal each. Estimated cost £13,000.

The [illegible] of the Welsh Calvinistic Methodist Chapel, Cemetery Road, after the erection of a [illegible] and [illegible] took place on Saturday last. The renovation was carried out by Mr W A Parton, Manningtree, from plans by Mr T Dommichan, Colchester.

Mr Rudolka Gyelonkiai has invoked a [illegible] archæological [illegible] the other day in his native Wink on the Rhine. The [illegible] has expressed the opinion that the [illegible] house still occupied, in Europe. It was formerly the dwelling house of the Bishops of Maycnce. Kibum Manour, who died in 850.

The Mitchell Lord Bishop's Appeal on Thursday last week for the Church Army's new Central Workmen's Home and Relief Depôts, at 187, Marylebone Road, Paddington, Carlisle described the [illegible] which have been erected on the Brewery premises adjoining Queen Charlotte Street, and said that about £3,400 was required to pay for the undertaking, the cost of which would be about £20,000. The buildings would be [illegible] with accommodation for [illegible] separate workshops for [illegible] work and for resting [illegible] time for [illegible].

The Local Government Board Inquiry at the Town Hall, Rosyth, on Thursday last week, was held to consider the proposal of the Dunfermline Town Council to extend the boundaries of the burgh so as to include the new naval base at Rosyth, which is situated within the boundaries of the county of Fife. The population of Rosyth is estimated at 5,000, and the proposal is that the whole of this number will be included in the extended burgh. The Chairman of the Rosyth Commissioners stated that [illegible] to the proposal to include Rosyth within the boundaries of Dunfermline, as the whole of the [illegible] and the [illegible] were in the county of Fife, and the [illegible] would be [illegible] to the Dunfermline Town Council. The Inquiry was adjourned.

PROFESSIONAL AND TRADE SOCIETIES.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The [illegible] business meeting of the Association was held at the Edinburgh Architectural Association rooms, 117, George Street, on Thursday evening, when it was stated that the [illegible] had been a satisfactory and progressive one, and twelve new members had been elected, [illegible] had resigned, the [illegible] due to members leaving this country. The following office-bearers were elected:—Chairman, Mr W J Walker; Vice-Chairman, Mr Sydney D Mitchell; and Honorary Secretary, Mr Archibald Prodgers.

THE LIVERPOOL ARCHITECTURAL SOCIETY.—In the early hours of Saturday morning, April 8, the president and many members of the Liverpool Architectural Society set out on a visit to the cathedral town of Bangor to inspect the latest work of their much respected brother architect Mr H T Hare at the new University building. At Bangor the members were met by Professor Lloyd, the Registrar of Bangor University, who joined them at lunch at the British Hotel. At the entrance doorway of the building, Mr Stanford, the clerk of works, subsequently received the party. The drawings were produced, and the president and the rest set out to minutely inspect every detail in a building that has been treated with the most careful thought and consideration at every turn. The cane-coloured stone, with the slight relief of red here and there, was much admired. The lines of the building are simple in their design, and it is this simplicity that has made the result so entirely successful. The hillside has allowed much terrace work to be provided, and no opportunity has been neglected of making the most of the sloping land. Out of their study windows each of the staff professors may emerge on to the asphalte balcony under the eaves of the south elevation. The tower, with its sloping sides, gives the note of dignity so necessary to a building of such importance. Of the first portion taken in hand, only the great hall remains to be finished, it being now close on four years since the late King Edward VII. laid the foundation-stone of this scholastic edifice, and the whole is to be completed and opened by King George next July. There is much yet to be done before the whole is accomplished. The large quadrangle is to be surrounded, and other buildings required to form the necessary part of a university college have yet to be provided on the lower road lying under the shadow of the already completed work. A farewell to Professor Lloyd and grateful thanks to the clerk of works closed a happy and memorable Saturday afternoon.

THE SOCIETY OF ARCHITECTS.—On the invitation of the Committee of the Festival of Empire, the Society of Architects last Saturday visited the Crystal Palace. The members were received by Sir Melville Peacock, who presided at the luncheon, and proposed "The Society of Architects," which was acknowledged by Mr Herbert Matthews, who referred to the coming Exhibition with the RIBA, and Mr Percy Dibbin. A tour was afterwards made of the grounds, when the various buildings, both [illegible] were inspected, everything being well forward towards completion.

SCOTTISH SOCIETY OF QUALIFIED EXTRACTORS.—The thirteenth annual [illegible] of the Society of Ordnance Surveyors was held on Saturday last week at the Society's rooms, 117, George street, Edinburgh, Mr [illegible] presiding in the absence of the president. A summary of which was [illegible] was approved, and the [illegible] were appointed. President, Lieut. D. Cole; vice-presidents, Mr A. N. Smith; secretary, Mr Robert Smith. [illegible] of the city and county [illegible] for the general examining board, Mr D. E. Wallace, C.A.

COMPETITIONS.

BLACKLEY ESTATE COMPETITION.—The successful competitors in this competition are as follows:—1, Messrs. Cooper and Slater, Blackburn; 2, Mr Jas. Carruthers, Glasgow; 3, Messrs. Salmon, Son, and Gillespie, Glasgow. The designs have been open to public inspection from 10 to 3 o'clock each day on the 7th, 10th, 11th, 12th, and 13th inst.

COVENTRY.—There are, we understand, 130 sets of designs submitted for the Municipal Buildings competition. Mr. E. Guy Dawber, Vice-President of the Royal Institute of British Architects, is the referee, and some of the best known architects in London are, we hear, taking part in the contest, the result of which may be known shortly.

HAMPSTEAD GARDEN SUBURB.—The result of the competition for a school on this estate is as follows:—1, Mr W. G. Wilson, 5a, Bloomsbury Mansions, Hart-street, W.C.; 2, Messrs. Spalding and Myers, 36 and 37, King street, W.C.; 3, Mr. John Hudson, 24, York place, Portland square.

LIVERPOOL.—The finance committee of the Liverpool Corporation considered, on Friday, plans which had been prepared by the city surveyor, in consultation with the late Mr W. R Court, the superintendent of baths (whose death on Saturday is recorded in another column), for new Pierhead baths proposed to be erected on the site between the Dock Board Offices and the Overhead Railway. The committee approved generally of the scheme, and decided to invite competitive designs from architects for the elevations of the building. Premiums of 100, 50, and 25 guineas will be awarded to the authors of the designs adjudged to be the first, second, and third respectively in the order of merit. The estimated cost of the scheme is about £70,000. The baths committee have long advocated the provision of new baths at the Pierhead, and there is now a prospect of the proposal being approved by the city council.

A new Primitive Methodist chapel at Bugle, Cornwall, was opened on the 5th inst. It replaces a small iron edifice, and has been built by Mr. Jacob, of Bugle.

The Birmingham Extension Bill has passed through the Select Committee of the House of Lords, and has been ordered to be reported. It has already passed through all stages in the House of Commons.

The rood screen which has been presented by Mr Mewburn Garnett to St. John's Church, Felixstowe, as a memorial to his late wife, was consecrated by the Bishop of Norwich on Wednesday week. The design was prepared by Mr G. Cogswell, of the firm of Whitcombe and Cogswell, of Thobell road, London. The design takes the form of seven arches, the one in the centre being a double arch of double width, supporting a pair of solid brass gates which guard the entrance to the nave. The arches are surmounted by a rood beam, ornamented by buttresses, cornices and chevrons with open parapet. From the centre of the beam, supported by the double arch, rises the rood, supported on one side by the Virgin and on the other by St. John. Limed Hungarian oak has been used throughout.

At the town hall, Bradford, a Government inquiry has been held regarding the application of the city corporation to confirm an order made in 1902 for closing the 1,053 persons displaced by the Listerhill improvement scheme. It was stated that the corporation had erected 166 houses at Fixby, [illegible] with accommodation for 432 persons, and five blocks of tenements on the Listerhill site, accommodating 468, a total of 930, leaving 423 persons not provided for. The corporation asked to be relieved from the obligation with regard to these 423, and it was stated that all the tenants displaced had been accommodated elsewhere. There were within a radius of one mile of the Lower Ambleside Houses providing accommodation for 1,600 persons, and further empty houses which could be made fit for habitation to the immediate 288, whilst the Midland Railway Company, in connection with their new scheme, would have to house to the extent of 80 persons. The rents of the empty houses varied from 2s. to 5s. per week.

CURRENTE CALAMO.

In the House of Commons, last Friday, the Copyright Bill was read a second time and sent to Grand Committee. Mr. Buxton introduced the measure, which he said was designed to give the same terms, obligations, and remedies, and the same advantages to all classes of works, and bring them under a uniform and simple process. The time during which copyright should subsist should be the life of the author and fifty years after death. Sir Gilbert Parker, moving the rejection of the Bill, remarked that its consideration should be postponed until after the Colonial Conference. If there was a copyright for fifty years without restriction no author, painter, or sculptor could complain, but the provisions in the Bill struck at the very root of property itself. Under Clause 4 a publishing firm could go to the Comptroller-General and represent that the reasonable requirements of the public with regard to the work of a certain author were not satisfied, and ask for a license to publish his works. Mr. Joynson-Hicks seconded the rejection of the Bill. Mr. Birrell urged that the measure should be read a second time, and criticised in Committee. Mr. Balfour criticised Clause 4, remarking that he did not like the growing practice of handing over to a Government office, without check, the interests of any class of his Majesty's subjects.

We confess we share Mr. Balfour's doubts. It is noteworthy that Parliament is about to extend, on the one hand, a measure of protection to a species of "property" which, on the other hand, it guarantees for a much longer time than it does to kindred "property," created by the mind—invention, for instance, for which only fourteen years' monopoly is granted, with a limited extension in special cases. Why is the invention of a great discovery—like the telephone, say—still only to get fourteen years' protection, while the author of a book, picture, or play is to get fifty?

Surely, moreover, the discretion given to a Government official to shorten or diminish that protection must, we should think, raise more or less apprehension in the minds of the holders of the sorts of property we have hitherto been accustomed to regard as much more "real" and inalienable? Mr. Balfour, and those who with him are in a way the more special guardians of property of that kind, may not unreasonably begin to wonder whether a thicker wedge of "Socialism" than usual is not being driven into the hitherto solid fabric of all sorts of vested interests.

That, however, is not our immediate concern. It is with the clauses extending a still more limited, and, to our thinking, a very uncertain measure of protection to architecture that we have to deal, and we confess to disappointment that none of the members of the profession who are members of Parliament had a single word to say. The only legislator who dealt with the architectural clauses was Mr. Birrell, and it is rather a tribute to his open-mindedness than carping criticism to say that Mr. Birrell's "Obiter Dicta," enjoyable as it is to read or listen to them, usually leave us just where we were. Mr. Birrell confessed that

"When he heard of the introduction of architecture he was startled. He said to himself, 'You must remember you are not an architect.' (Laughter.) Then he was informed that in France and Germany architectural designs of originality were protected, so here again he was perfectly willing to listen to reason. He expressed no opinion, but he did not see why they should not be protected. Someone asked where was the originality in an architectural design. Well, but what was an original book? (Laughter.) The law said that you must prove your originality. Few authors had been subjected to the test. (Laughter.) Most of the cases that had come into the Courts had been about books like 'Kelly's Directory,' which represented more shoe-leather than original thought. (Laughter.) One thing, no one could get an injunction to remove a house which infringed his design. (Laughter.) He supposed any remedy there was would be in damages. He was glad the Bill had received such friendly consideration, and he could promise members of the Committee they would have much food for interesting discussion. He believed in the long run they would be able to place on the Statute Book an Act which would ease the paths of lawyers, and also put very little money indeed into the pockets of authors. (Cheers)."

We agree with Mr. Birrell that there is plenty of room for discussion of this measure in Committee, and trust it may emerge therefrom in some more definite terms, as regards architecture, at any rate. Otherwise we are certain the Act will share the fate of many similar measures. It will startle some of us by occasional instances of anomalous and ludicrous injustice. It will be disregarded by most people, flouted with impunity by some, and gradually sink into the limbo of obsolete statutes which are found unworkable, but which are now and then invoked to catch the little flies while the big spider bursts through scatheless.

Mr. Maurice Hewlett, for some years chairman of the Society of Authors and a member of a Joint Committee of the Publishers' Association and the Society of Authors, which is considering the terms of the Bill, shares our doubts as to the value or applicability of the provisions in the Bill relating to the copyrighting of architecture. Mr. Hewlett points out that it is exceedingly difficult to copyright an architectural design. "So far as I can see," he observes, you cannot copyright a single new church in England, unless somebody invents quite a new form. They are all copies of existing churches. I suppose Mr. Lutyens's houses could be copyrighted. But you could not copyright Liverpool Cathedral or Southwark Cathedral or Truro Cathedral. I doubt also whether you could copyright Westminster Cathedral. That is based on the Cathedral of Padua, and follows the Byzantine style."

The Lord Mayor frankly admitted last Friday at the Mansion House meeting that the Memorial Committee would have to begin its work over again, so far as the site for the King's Statue was concerned, but expressed regret that the premature publication of the selection of the St. James's Park site had led to its being condemned before it was properly understood. A resolution was passed recommending the abandonment of this site and instructing the Executive Committee to select another. Several suggestions were made as to the choice of a place for the statue. The Broad Walk from Buckingham Palace to St. James's Park was proposed, while others advocated Charing Cross. One member of the committee, however, objected to the statue of the King being placed in competition with the Nelson Monument. Sir Melville Beacheroft mentioned that the late King, four months before his death, sent for him as the then chairman of the County Council, and strongly urged that a proper outlet should be made from the Mall to Charing Cross. Sir Melville Beacheroft believed that this would be one of the greatest improvements that London had known for generations. Another site suggested was St. Paul's Churchyard.

"Those who live in glass houses should not throw stones" will become an obsolete proverb, or give place to some more modern rendering, such as "Dwellers in glass houses need fear no microbes," should the first adapter here of the new "crystal palace" which a Dutchman has built in Yokohama infuse enough "artistic character or design" into it to manage to snatch "architectural copyright" for his production. The Dutchman's palace appears to be a cheerful abode. It is about 40ft. long, about 21ft. wide, and 16ft. high. The glass employed is in the form of rough plates, each nearly 3ft. long, about 2ft. wide, and 1ft. thick. Each wall comprises, indeed, two walls, separated by the space of a foot, and filled with a strong liquid solution of sodium. The plates forming the walls are enclosed in cast iron frames, and united laterally by nuts and screws in such a manner as to form rows of glass tiles ranged one above another. These are separated by felt and wood to the height of the roof. The ceiling is also formed of glass, the interstices being filled with india-rubber. Over these tiles is a layer of ashes, on which thin wood is laid, that in its turn is covered with cement. The whole, we are told, thus prevents the loss of interior heat, while not allowing the sun's rays to enter. The house has neither doors nor windows, while the absence of chinks or crevices, preventing the admission of air, forms a barrier equally to microbes, insects, or damp.

The necessary air is renewed by means of pipes placed vertically at some distance from the dwelling, and which communicate with other pipes opening into one of the lower chambers; but before reaching this it is filtered by passing through cages filled with cotton. It is then driven over a large plate of glass covered with glycerine, that acts as final catcher of any microbes that may have eluded the cotton. In the floors of the different rooms, which consist of two layers of boards separated by a bed of sawdust, are gratings through which the highly purified air can be admitted at will. Outside, and at the level of the ceiling, the house is surrounded by a sort of glass pipe, which communicates with openings by which the contaminated air from within is driven out. The heat generated in this pipe, either by the sun or by an ingenious discharge of rain-water, or by the action of a stove in one of the lower rooms, sets up a draught, and the current of air is driven towards a chimney. By these arrangements the air is always pure, the temperature equable, and the expense for combustion reduced considerably. The saline solution inclosed between the two walls can be coloured so as to admit of a soft and agreeable light. The advantage of this solution is that during the daytime the heat generated by the sun warms the liquid instead of passing through the glass, and melts a great quantity of the salt. During the night the temperature being lower, there is a tendency to crystallisation on the part of the saturated solution—a tendency that manifests itself by a loss of heat. As the building is surrounded by a kind of shallow verandah closed by glass of the ordinary kind, the heat thus freed cannot escape from the building, and serves to raise the interior temperature. The arrangement for entrance is no less ingeniously managed. Four plates of glass light an underground room, and it

[illegible] apartment that the interior of the [illegible] reached the visitor passing through [illegible] corridor and rising to the level of the ground by an enclosed staircase. The doors [illegible] this corridor are so adjusted that only [illegible] leaving the floor at which the lift may [illegible] enter.

The new [illegible] is called, [illegible] Baker-street station [illegible] approximately [illegible] on the [illegible] [illegible] [illegible]

LEGAL INTELLIGENCE.

MEASURES BROS., LTD.'S FORMER MANAGING DIRECTOR SUMMONED. ACCUSATION OF FALSE BALANCE-SHEET.—At Bow-street Police-court, on Friday, before Mr. Marsham, Robert Herbert Measures, formerly managing director of Measures Brothers (Limited), the well-known firm of engineers and iron merchants, of Southwark-street and Croydon, appeared to an adjourned summons charging him with having made, circulated, and published a profit and loss account and balance-sheet for the year ended December 31, 1906, which account he knew to be false in a material particular, with intent thereby to deceive the members and shareholders of the said company, and to induce divers persons to become shareholders therein. It was stated at the previous hearing (fully reported in our issue of the 31st ult., p. 470) that the magistrate, at the conclusion of the police-court proceedings, would be asked to commit the defendant for trial upon similar charges with regard to the profit and loss accounts and balance-sheets for 1904 and 1905, and also for issuing a false certificate as to the value of the stock belonging to the company in each of those years. Mr. W. H. Leycester and Mr. A. F. Rowe conducted the case on behalf of the Director of Public Prosecutions. Mr. C. F. Gill, K.C., and Mr. J. R. Randolph appeared for the defendant. Mr. Walter Frampton and Mr. Gray Phillips held watching briefs for interested parties.—Francis Minchin, a clerk in the office of the Registrar of Joint Stock Companies, Somerset House, produced the file of Measures Brothers (Limited). It showed that the company was registered on May 5, 1899, with a nominal capital of £285,000, divided into £1 shares. The witness dealt with the subsequent acquisition in 1903 of the business carried on at Croydon by H. and G. Measures, and for this purpose the nominal capital of the company was increased to £315,000. — Walter Dunmore, foreman to Measures Brothers (Limited), stated that he had been in their employment for about twenty-nine years, his duties being connected with the wharf at the Southwark-street premises. There were always many tons of goods in stock. The stock was generally taken once a year; but it was sometimes taken again at the half-year. The witness and several workmen and clerks assisted in counting the stock and the numbers were entered on sheets of cardboard, of which there were generally eighteen or twenty, and these were afterwards sent to the office. The stock was always heavy. There was another wharf a short distance away, and two yards in Lavington-street. It sometimes happened that mistakes were made in counting the stock, and occasionally there were queries sent from the office as to a particular portion of the stock having to be recounted. There were generally mistakes and queries at every stocktaking. The witness kept a book in which he entered the details of the girders, etc., which were received by barge. He could not say what had become of these books for 1905 and 1906, but he believed they had been destroyed. When the books were filled he threw them on one side at the back of the office. If a barge arrived at the wharf while the stock taking was in progress, it was not unloaded until the work had been completed; but if part of the load had been landed when the stock taking commenced, the whole of the consignment was taken into account. As the goods were counted, the quantities were written on stock boards, and these were sent to the office at the close of the work. Each stack of girders was marked with a daub of paint after it had been counted. The witness was unable to say if in 1906, the year before the defendant retired, the whole of the stock had to be recounted. Cross-examination of the witness was reserved. —Sydney Maurice Croker, a clerk who has been in the employment of Measures Brothers for about fifteen years, explained in detail the method of ascertaining the value of the stock in hand. The quantities were first of all written on stock cards, and the figures from these were entered on to sheets of foolscap from which stock summary sheets were prepared. The stock sheets sometimes numbered as many as two hundred, and were kept in the defendant's private office. The totals of the stock sheets were generally dictated by the defendant to a clerk, who entered them in the summary sheets. The price per ton at which the iron stock was to be valued was estimated by the defendant. Witness was occupied for several weeks in assisting the committee who investigated the company's affairs. He understood that the stock summary sheets for 1905 could not be found. The witness was shown one of the stock sheets for 1906, and said it was not intelligible to him. He proceeded to say that, in addition to the goods at the yard at the time of stocktaking, there was a quantity which had not been landed. This stock would be taken into account in ascertaining the total value of the stock in hand; but it should have been entered upon a separate stock summary sheet, and not on the sheets relating to stock actually on the premises. It was no part of the duty of the clerk who checked the stock sheets to examine the stock boards. He would only see that the calculations were correct. Sometimes—generally on Monday mornings witness made entries as to the joists that had gone out during the previous week. He did not see the stock summaries for 1904 when he was assisting the Investigation Committee, but he made an analysis of the stock for that year from the books and documents of the company. He had no recollection of making out sheets and summaries at the defendant's house when the latter was ill at home, during the stock-taking, shortly before his retirement. He was at defendant's house during a portion of two days shortly before his retirement, but could not say it this was at stocktaking time. Witness didn't think he took stock sheets with him, nor could he remember whether defendant had some stock sheets at his private house.—Mr. Leycester: Do you remember what you did? No. Did you go there on a friendly visit? No, I went on business. Don't you remember what you were doing during those two days? I have entirely forgotten. Were you writing? Yes, I was writing part of the time. What was the work?—I only recollect writing a private letter for the defendant. Had it anything to do with stock-taking?—I cannot say. It may have had. Were there any books or papers at the house? Yes, they were taken there by Mr. Ridley. The cross-examination of the witness was postponed.

Albert Edward Tarling said he was in the employment of Measures Brothers as a clerk for about eight years, and left their service in June, 1909. From time to time he assisted in the stocktaking arrangements, his work being to enter on the stock sheets the contents of the stock boards. As a rule, the figures were dictated to him by the defendant. With one exception all the stock sheets for 1906 were in his handwriting. Mr. Leycester: Look at sheet No. 147. Is the total weight there 311cwt. 3qr. 25lb.?—Yes. And is the weight again written 15 tons 11cwt. 3qr. 23lb.?—Yes. And on the back the value is entered as £117 13s. You see you have entered the weight correctly; but the money is entered as £311 3s. 3d. The hundredweights are entered as though they were pounds in money. Could you have made that mistake in copying?—I don't think so. How could the mistake arise? It must be a clerical error. Look at the next sheet. Exactly the same kind of thing occurred. The total weight is given as 422cwt. 1qr. 27lb.; it also appears as 21 tons 2cwt. 1qr. and 27lb. The price at the back is £147 11s. 4d. Yes. Is it nevertheless taken into the stock summary sheet as 21 tons 2cwt. 1qr. and 27lb.?—Yes. And at £422 1s. 7d. in money? Yes. Exactly the same kind of error twice over. The witness said it did not seem possible that he could have made such a mistake in copying. He might have taken some of the particulars from dictation. At this stage the case was adjourned until Thursday, the 27th inst.

LIGHT AND AIR CASE. FARMER v. CEFN RURAL DISTRICT COUNCIL. This action, in which the plaintiff, John Farmer, of Meadow Farm, Milverley, Denbigh, sought to restrain an alleged interference to the light and air coming to property belonging to him in Wells-street, Cefn Mawr, by the erection of a memorial-hall, was heard on April 5 and 6 before Mr. Justice Neville in the Chancery Division. Several witnesses were called for the plaintiff to prove interference with the light and air, and that damage was done to the plaintiff's premises; and Mr. Jenkins, K.C., opening the case for the defence, said he would admit that some slight damage must have been caused to the plaintiff's property by the erection of the hall, but he should rely upon leave and license from the plaintiff. It was a case, he submitted, where the one party was doing on his own land that which he was justified in doing, but which at the same time would cause damage to his neighbour, and the neighbour had acquiesced in and approved of what was being done.—Mr. Christmas Jones, J.P., a member of the defendant Council, said he was a member of the Memorial Hall Committee. In 1906 a deputation waited upon the plaintiff and discussed with him the building of the hall. Other witnesses were called. His Lordship, in giving judgment, said that it appeared that the plaintiff had both a legal and an equitable right. The legal right he had lost before the action was brought, and it was quite impossible to say that the plaintiff was now entitled to have the building that had been erected pulled down. With regard to the equitable right, he could not altogether approve the conduct of the plaintiff because he had acted in a very dilatory manner. The defendants, however, knew that before they could go on they must have the plaintiff's consent, and they actually wrote for that consent, and though they did not obtain it they went on. Under those circumstances, therefore, he awarded the plaintiff £90 damages and the costs of the action except so far as they related to one particular window. The defendants must have the costs of the interlocutory motion, except so far as it had been treated as a summons for directions.

ACTION BY ARCHITECTS FOR FEES.—The case of Fair and Myer v. the Harper Electric Piano (1910) Company, Ltd., came before Mr. Justice Grantham and a special jury in the King's Bench Division on Wednesday and Thursday last week. An action by the plaintiffs, a firm of architects, practising at 39, Furnival-street, Holborn, to recover from the defendant company, of Holloway road, N., £275 for professional services rendered. Mr. A. Neilson appeared for the plaintiffs, and Mr. Thorn-Drury for the defendants. Mr. Neilson stated that in the spring of last year, in pursuance of an agreement entered into between the parties, the plaintiffs were engaged to prepare plans and specifications for a cinematograph theatre, rink, and café which it was proposed to build at 321, Holloway-road, London. The plaintiffs prepared two sets of sketch plans and two sets of working drawings, and a specification, and they also obtained a tender. For that they charged £150, that being 3 per cent. upon £5,000, the amount of the tender, according to the scale of charges authorised by the Royal Institute of British Architects. For taking quantities, they had charged £125, that being 2½ per cent. upon the sum of £5,000. These charges, as evidence would be called to show, were fair and reasonable. Mr. Thorn Drury, for the defendants, said that from the first the plaintiffs were told that the defendants were getting out a prospectus to go to the public for capital. Plaintiffs were told that if the capital were secured the building would be proceeded with; but that if the capital were not forthcoming, the project would not be proceeded with. His case was that the plaintiffs were asked by the defendants as to what would be their position regarding the plaintiffs if the building did not go on, and that they said "Oh, you pay us for the work we have done, and we shall not quarrel about that." His clients, the defendants, had agreed to pay plaintiffs 5 per cent. upon the actual cost of the building, and it was to be an inclusive charge. Counsel declared that his clients had never abandoned the scheme. They were at this moment negotiating for the capital to enable them to build, and it would probably be forthcoming next week. Counsel reiterated that Mr. Harper told Mr. Fair that he would have nothing to do with such a basis as 2½ per cent., but would agree to an inclusive charge on the actual cost of the building.—Mr. Justice Grantham said he did not know whether that would entitle the defendants to get work out of the plaintiffs for nothing. Mr. Neilson: My friend says that we were to be paid only if the building were carried out. Up to the issue of the writ they have not agreed to pay us for the work done. Mr. Thorn Drury: There are letters offering twenty-five guineas. Mr. Neilson said that the plaintiffs were employed in accordance with the terms contained in the schedule of the Institute of British Architects, a copy of which had been sent to the defendant. His clients, who were not quite novices in their business, recognised that the scheme might fall through, and in this schedule there was provision for the remuneration of architects when schemes did not go through.—Evidence was given by Mr. Val Myer, F.R.I.B.A., and partner in the plaintiffs' firm, to the effect that the charges they claimed were fair and reasonable, and in accordance with the Institute scale. Mr. Thorn-Drury put it to the witness in cross-examination that they had never let it be understood at the outset that they would charge for taking out quantities; but that, on the contrary, they had proposed to do the quantity work as part of the work they had to do for 5 per cent. The witness: Quite untrue. Answering another question by counsel, the witness said: "We take out quantities for our own jobs, but not for other people's jobs."—Mr. John William Fair, in the course of his evidence, said there was no truth in the suggestion that they agreed to look for payment from the defendants only if the building were erected. He added that 2½ per cent. was a customary and reasonable charge for taking out quantities. Mr. Thorn Drury: If the scheme had gone through, what would have been your remuneration? Seven and a half per cent., including 2½ for quantities. In answer to further questions, the witness said that in the North of England, of which he had experience, architects almost invariably took out their own quantities. But architectural work did not include taking out quantities, which constituted quite a different branch. One might as well say that if he went into Selfridge's to buy a pipe, he was entitled to another article as well from

A church and Sunday schools are to be erected for the trustees of the Wesleyan Church, St Helens, from the designs of Mr. William F. Bird of Middlesex Newton.

The Otley District Council have made to the application to the Local Government Board for authority to prepare a town planning scheme in respect of land at Warley.

The new Central Schools in Moorland road, Bolton, which have been built at a cost of £21,500, and replace smaller premises in Swan Bank, will be opened for the reception of scholars after Easter.

The contract for the construction of the Quebec Bridge has been awarded to the St Lawrence Bridge Company, of Montreal, on its own design. The structure will be for purely railway purposes, but will also have two 42ft. walks for pedestrians. The estimated cost is £1,730,000.

The annual general meeting of the Association of Water Engineers will be held at Buxton from May 18 to 20 next. The ordinary proceedings, which will open on the first mentioned date at 11 a.m., will be preceded at 10 a.m. by a special meeting to consider the question of incorporation.

A Government Bill has been introduced in the New Brunswick Legislature to prevent the export of wood from Crown lands and to compel the manufacture of such timber within the province. The regulation applies to all licenses hereafter to be issued, and also to the renewal of licenses heretofore issued.

A National Gallery is about to be built in Athens at the cost of M. Merlinos Cergalenic, of London, to house the collection of pictures, now numbering between five and six hundred, and including notable examples of old masters of the Dutch, Italian, and French schools which have been bequeathed to the Greek nation during some years past, chiefly by wealthy Greeks abroad. The site is on the Patissia road, facing the National Museum of Antiquities.

Mr. Cecil Harmsworth, who has purchased the house occupied from 1748 until 1758 by Dr. Johnson in Gough-square, Fleet-street, desires that it shall, if it is thought advisable, be established as a Johnsonian Museum. A condition laid down would be that every relic connected with Johnson or his circle should be absolutely authentic, that the books, pictures, prints, etc., even to a bent sheet should be of the first quality. There is no intention that the building shall become a storehouse for the uninteresting bric-a-brac of the past.

The new infant council school at Wombridge consists of four classrooms, grouped around a central corridor, 16ft. wide, with the cloak and staff rooms at the front. The elevation is simple, but effective, being built with Randlay wire cut bricks with white dents relieved with a Portland stone. Owing to the treacherous nature of the site it was necessary to construct a reinforced concrete raft upon which the superstructure rests. The building was erected from the designs, and under the supervision, of Messrs. Dickens, Lewis and Haynes, architects, of Shrewsbury.

A Bill to provide for the registration of architects has been introduced in the House of Commons by Mr. Thomas Dickson, M.P. for Colchester. It provides that no person shall practise as an architect unless he is registered under the Act, and that no person shall be entitled to be registered unless he has passed the examination of the Royal Institute of British Architects, or such other examination as may be approved by the Board of Education. Penalties are imposed for the wrongful use of the title of architect, and for the fraudulent obtaining of registration. The Bill is to be administered by a Board of Architects, consisting of nine members, of whom seven are to be elected by the Royal Institute of British Architects, and two are to be appointed by the Board of Education.

LEGAL INTELLIGENCE.

A BUILDER'S CLAIM.

At the Liverpool Assizes, on Thursday, before Mr. Justice Bray, Mr. Thomas Dickson, builder, of Liverpool, sued Mr. Thomas Dicey, of Liverpool, for £70 7s. 10d., the balance of £140 9s. 9d. for building a house in Rodney-street, Liverpool, which was practically completed in October, 1909. The defendant admitted that he owed £70 0s. 10d., but he counterclaimed for £7 7s. 2d. per week for 52 weeks, or £370 7s. 0d., for loss of rent, alleging that the plaintiff had delayed the completion of the building by his bad workmanship. Mr. Thomas Dicey, the defendant, in opening, said that it was understood that the plaintiff was to put a certain amount of money into the building, but the scheme had never been carried out. It was also understood that certain moneys were to be paid upon the total cost of the building. Mr. Sidney Clegg, Harold Hamer, the manager of the defendant's property, examined, said that he always was prepared to borrow money on mortgage for the purpose of the building. The County Council passed the plans in March, 1909, and gave notice to the Hollow Excavator Company to demolish certain property. Witness wrote to the Hollow Excavator Company on March 31, 1909, stating that the Council had passed the plans, and that they would be required to commence building operations within one month from that date. The Company replied that they were prepared to begin at once. The County Council had given

Our Illustrations.

HONITON CHURCH, DEVON.

(For description of these sketches of Honiton Church, which was recently destroyed by fire, see Mr. Harry Hems's article on pages 514-16.)

DUTTON HALL, CHESHIRE. ENTRANCE PORCH.

This porch is thoroughly characteristic of the Domestic architecture of the Tudor period, the general scheme and the construction being purely Gothic in style, without any suspicion of the Classical feeling which was typical of the following Elizabethan style. Italian influence is noticeable in the arabesque-like motives of the ornamental detail. It is placed centrally in the existing block of buildings, and is crowned by a small gable. To its right, the house wall is flush with its surface, while to the left it is set back until in line with the large inner door of the porch, which thus possesses two faces, a front and a side. The whole of the ornamented and moulded structure, together with the massive door, is of oak. The outer door is, of course, a modern innovation. The woodwork of the entrance is mounted on a pair of stone plinths. From these the impost moulds run up without a break to the summit of the archway, which is the depressed example of the Perpendicular period. Moulded stiles, similar in section, flank the arch and terminate in kings' heads. This feature is repeated on the side of the porch. Between these two heads, and split by the apex of the arch, is a panel, with an inscription in Gothic letters, which records the erection of the hall by Sir Piers Dutton in 1542:—

Syr Peyers Dutton, knyght, Lorde of Dutton, and my Ladye Dame Julian his wiffe made this hall and buyldyng in the yere of
Oure lorde God A. M. CCCCC. XLII. who thanketh God of all.

Resting on this and the crowned heads is a band of carving, which, in section, tilts forwards. It is continued round the side of the porch. Its ornament consists of a foliated meander, emerging from the mouth of a mask placed centrally. A convex moulding above takes the surface back to the plane of the arch, whence a bold cavetto springs outward and upward. This moulding is also continued round the side, and supports the wall above, which thus projects beyond the lower portion. Its ornament displays, in the centres of both front and side, a wreath supported by winged figures, which terminate in sprays of foliage. On the front of the porch there is placed, at either end of this, a grotesque head of considerable projection. That of the left-hand side is placed diagonally to the corner, whilst the other faces directly in front. The two transom beams immediately above are also carved, each having two wreaths with supporting figures and numerous foliations, and are inscribed with the initials of Sir Piers and his wife. The corresponding beams round the side are not carved. These last two beams, together with the faces of the grotesques, have been restored. Within the porch the heavy-traceried door is flanked by the arms of the Duttons in high relief, with helms and mantling. Above it are ranged six shields, the two centre ones being charged with the arms of Dutton and Hatton. The ceiling has been plastered. None of the porch has suffered much from wear, but the detail is partly obliterated by paint. This drawing, by Mr. Sydney Wilson Chetwoode, of Warrington, won a National Prize at South Kensington.

COTTAGES AND SHOPS, KENNINGTON ESTATE, OXFORD.

These four cottages, including two shops, have a plinth of random local stone, with brick walls covered with roughcast, finished off with whitewash. The roof is covered with black tiles. The eaves gutters and rainwater pipes are painted dark brown. The total cost is £1,200. Mr. William A. Dutt, A.R.I.B.A., of Oxford, is the architect.

A MEMORIAL BRIDGE TO KING EDWARD VII. IN A PUBLIC PARK.

(For assessor's award in this BUILDING NEWS Designing Club Competition see p. 517.)

CHIPS.

The Home Secretary announces that he is prepared to consider applications in connection with the new class of sub-inspectors of mines and quarries. Of these appointments, 30 are to be made—15 as soon as practicable, and 15 later in the year. The salary will be £150, rising by £5 per annum to £200. The appointments will be by limited competition.

St. Nicholas's Church, Belfast, which has just been enlarged and provided with a new organ, has been rededicated by the Primate of All Ireland. The contract for the additions was carried out by Messrs. Robert Corry and Sons under the supervision of Messrs. S. P. Close and Son, architects. Messrs. Campbell Bros., Franklin-street, Belfast, have filled the windows with leaded lights.

The death occurred recently at New York of Mr. John B. Macdonald, a well-known contractor, among whose most noteworthy undertakings were the construction of the first underground railway in New York, the tunnelling under the city of Baltimore for the Baltimore and Ohio Railway, and the Georgian Bay section of the Canadian Pacific Railway. He was born in Ireland in 1844.

The Westminster City Council will address a communication to the occupiers of the premises in the streets on and adjacent to the lines of route of the Royal Procession within the borough, calling attention to the necessity for strengthening and securing pavement lights, ventilators, coal-plates, and railings on the public way, so that they will withstand pressure which may be brought to bear on them by the crowds which will assemble in the streets.

The parish church of Burwell, near Louth, situated in a picturesque spot in the Lincolnshire Wolds, is now undergoing complete restoration through the generosity of Mr. R. Christison, the Lord of the Manor, who has spent upwards of fifty years in Queensland, and recently purchased the Burwell estate. The structure, which dates back to the twelfth century, is built of sandstone and brick, and was originally of much larger dimensions.

The London County Council, in July, 1903, approved an estimate, and sanctioned expenditure on capital account of £35,000 in respect of the acquisition of land, required for sewage treatment purposes, adjoining Barking outfall. The land referred to comprised about 209 acres, and the whole of this, with the exception of about 11 acres belonging to Mr. A. J. French, has been acquired at a cost of about £34,900. Mr. French has now intimated his willingness to sell his land for the sum of £1,500, exclusive of cost, and this offer has this week been accepted.

On behalf of the Local Government Board, Mr. A. G. Drury has held an inquiry into the application of the Scunthorpe and Crosby Joint Sewerage Board for sanction to borrow £17,350 in addition to £5,200 previously sanctioned for the purposes of main sewerage and sewage disposal. Mr. H. Walker, Nottingham, engineer to the scheme, gave details of it, stating that provision would eventually be made for a population of 20,000. Representatives of the Normanby Park Steel Works (Messrs. Lysaght, Ltd.) wanted to know if the scheme would take the drainage of their new village, which might include 1,000 houses. A favourable reply was given. It transpired that 25 acres had been reserved in Flexborough parish, and 79 acres in Crosby parish, for the village site. There was no direct opposition to the scheme.

Plans for the new graduate college of Princeton University have been prepared by Messrs. Cram, Goodhue, and Ferguson, architects, and approved by the Board of Trustees of the University. The contracts will provide for the completion of the buildings, which include the Thompson Graduate College, the Proctor Memorial Dining-hall, and the Cleveland Tower, by September, 1912. The estimated outlay on the erection and equipment of the institution will be over £160,000 sterling. The style will be Gothic. The main building, Thompson College, will be constructed around a quadrangle. Proctor Hall will be erected near the south-west corner of the quadrangle. The Grover Cleveland Memorial Tower will stand at the south-eastern corner of Thompson College, and will be 165ft. in height. The buildings will be constructed of Princeton greystone, which is quarried in the vicinity.

PARLIAMENTARY NOTES.

SMALL HOLDINGS.—Sir E. Strachey informed Mr. Morrell that the decrease in the aggregate number of small holdings in 1910, compared with 1907, was due mainly to the growth of urban districts, and to the fact that very many of the small-holders for whom land had been provided under the Act already held some land, in which case there was no increase in the aggregate number of small holdings. There had been an increase of 1,626 since 1908.

THE COPYRIGHT BILL.—In moving the second reading of this measure on Friday night, Mr. Buxton, the President of the Board of Trade made a long and interesting speech, in which he explained the general scope and character of the measure. Its main feature is that it gives copyright for the life of the author and fifty years afterwards, and that it applies copyright law to architectural works, cinematographs, lectures, and speeches. The rejection of the Bill was moved by Sir Gilbert Parker, and was seconded by Mr. Joynson Hicks. An amusing speech in support of the measure was made by Mr. Birrell, who observed, with regard to architecture, that when he first heard of architecture being included in the Bill, he was greatly startled, but then he said to himself, "You must remember you are not an architect." Then he was informed that in France and Germany architectural designs of originality were protected by the law. He did not see why architecture, if it could make out its case, should not be protected. Somebody had said, "What is an original architectural design?" Good gracious me! What was an original book? The theory of the law—and it was only a theory—was that in order to be entitled to the protection of a copyright you must prove your originality. Very few authors have been subjected to that test! Most of the copyright cases that had come into the Courts or gone to the House of Lords had been about such books as Kelly's Directory and works of that kind, which represented more shoe-leather than original thought. He did not know why they should apply to architecture a harsher rule and a more limited interpretation than had been applied to books. In a discursive speech Mr. Balfour supported the Bill, and it was read without opposition a second time, and sent to a Grand Committee.

THE WRAYSBURY RESERVOIRS.—The Joint Committee of Lords and Commons, inquiring into the proposed construction by the Metropolitan Water Board, at a cost of £6,900,000, of a series of reservoirs and other works on the Thames between Datchet and Sunbury, gave an adverse decision on Friday with respect to a part of the scheme, and the Committee adjourned for the promoters and others concerned to reconsider the position. After hearing evidence by Mr. A. Newton, accountant to the Metropolitan Water Board, who produced tables showing that as a commercial transaction the scheme was very favourable to the consumers of London, the committee consulted in private. The Earl of Kintore, the chairman, said that without expressing any opinion on the scheme as a whole, the Committee thought it proper to announce at that stage, after careful consideration of the promoters' case, that they were unable to agree to the construction of two of the proposed reservoirs at Wraysbury—Nos. 1 and 2, between Wraysbury and Hythe End. To give all the parties time to consider their position, the Committee would adjourn until Wednesday, the 26th inst., when it would hear the case for the Thames Conservancy Bill. The Committee then adjourned.

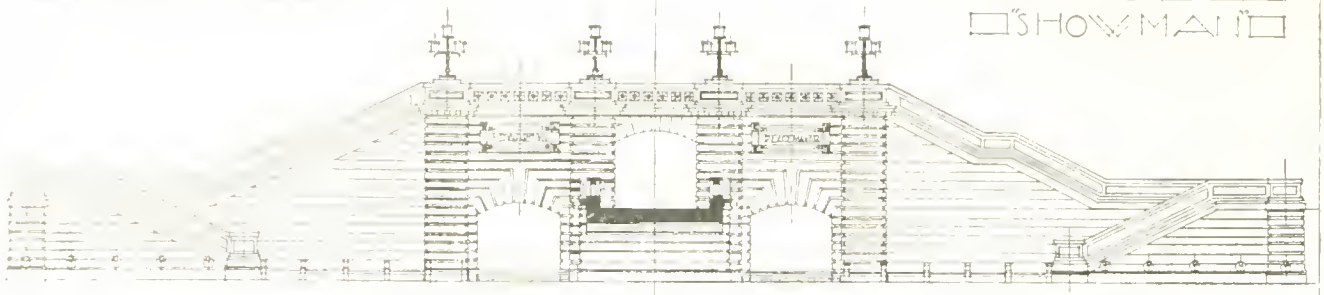
A receiving order was made on the 5th inst. in the case of Herbert Edward Ramsey, Snow-hill, Holborn, and East Cliff Estates, Herne Bay, architect and surveyor. A receiving order has also been made respecting Elijah Allsopp, of Worksop, architect and land and engineering surveyor.

Hexham has now entered into possession of the Abbey Grounds. Mr. Thos. W. Benson, of Allerwash House, Fourstones, and his brother and sisters contributed £1,700 towards the purchase, while another £300 was raised by a number of Hexham gentlemen. It is probable that three or four additional entrances will be made into the grounds.

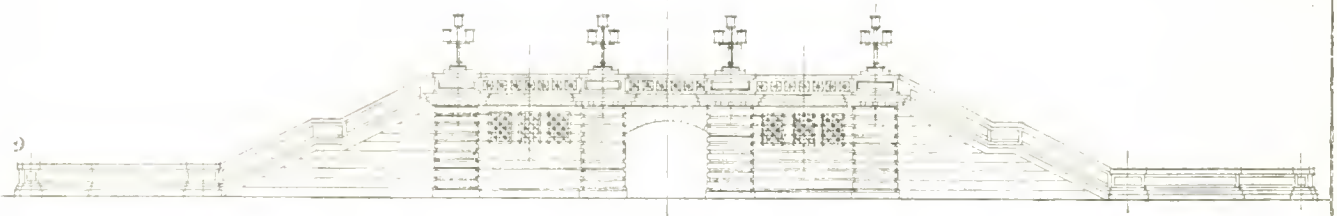
The bill creating an Art Commission for the city of Pittsburgh has been completed. It provides for a body of nine members to be appointed by the mayor and to serve without compensation. The Commission is given jurisdiction over the erection of all public buildings costing fifty thousand dollars or over, and bridges costing over twenty-five thousand dollars. Structures erected on public property, such as monuments and memorials, are also to receive the approval of the Commission.

BRIDGE DESIGN FOR A STONE BRIDGE

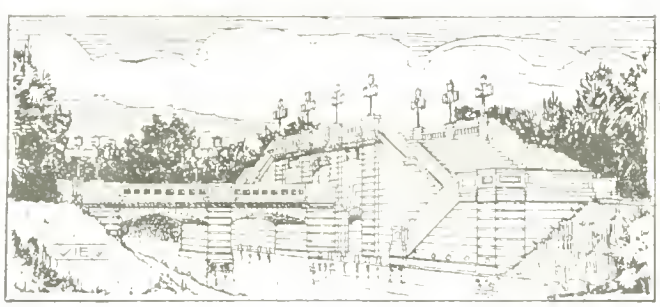
"SHOWMAN"

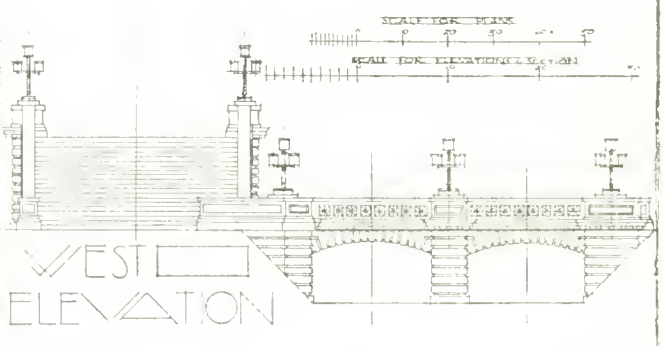


CROSS SECTION



NORTH ELEVATION



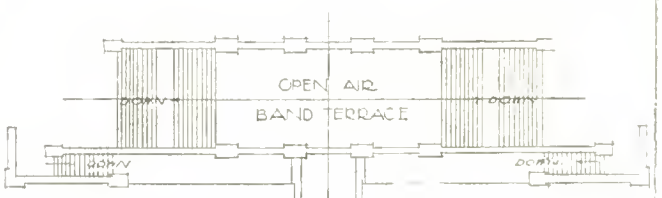


WEST ELEVATION

PLACED SECOND

CONNECTING STREAM

PLAN AT WATER LEVEL



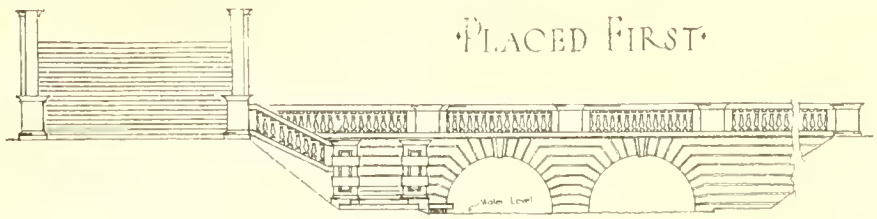
CONNECTING STREAM

PLAN AT TERRACE LEVEL

HONITON CHURCH, RECE

TLY DESTROYED BY FIRE.

PLACED FIRST



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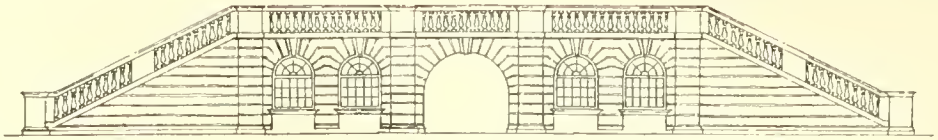
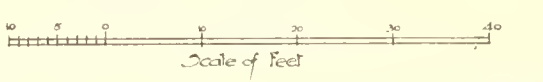


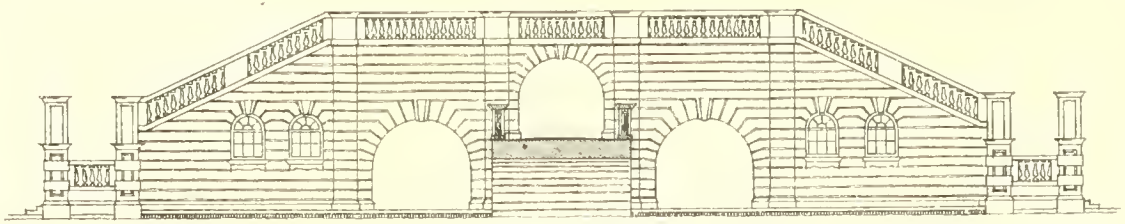
: NORTH ELEVATION :

: B.N.D.C :

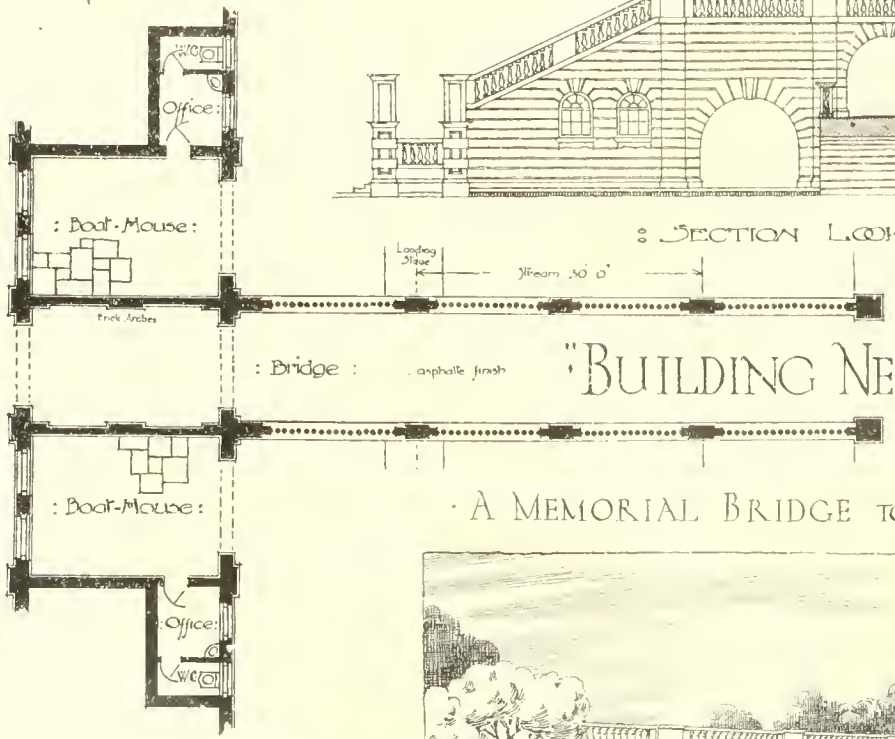
: A STONE BRIDGE AND BOAT-HOUSES : "BY LIVER."



Scale of Feet



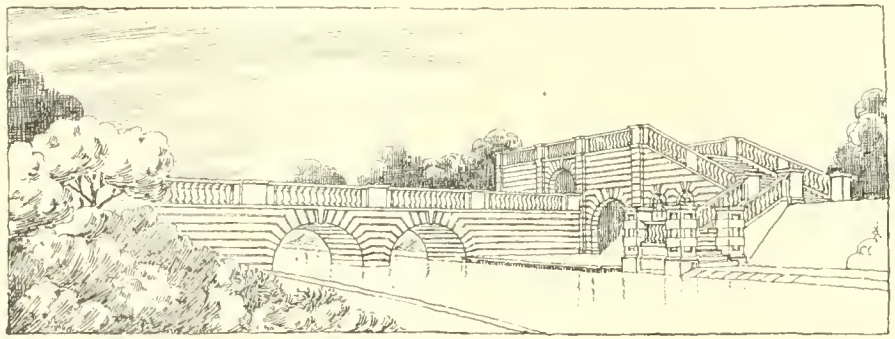
: SECTION LOOKING NORTH :



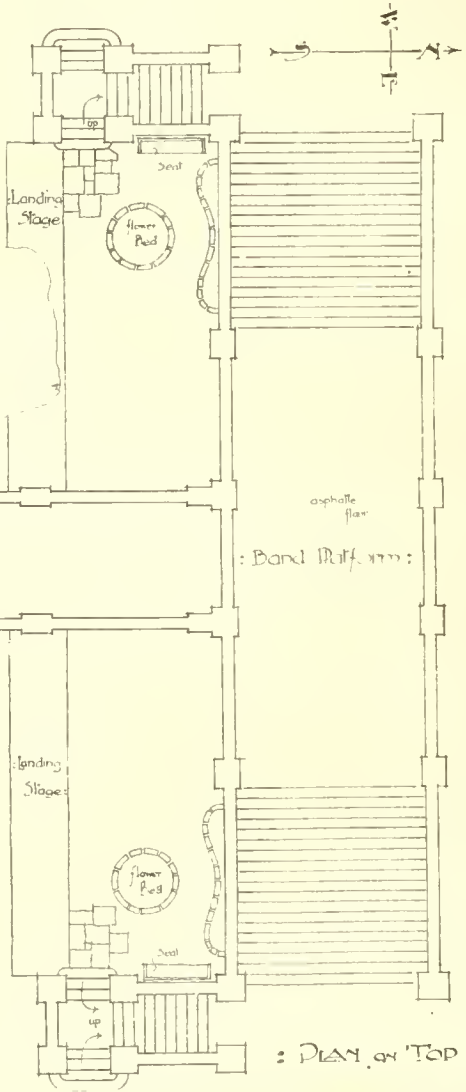
: PLAN AT LOWER LEVEL :

"BUILDING NEWS" DESIGNING CLUB

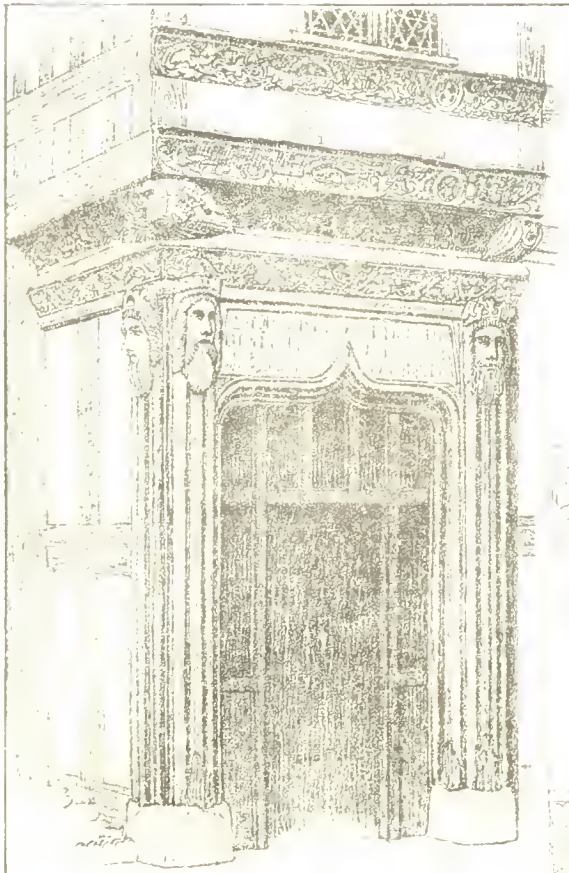
A MEMORIAL BRIDGE TO KING EDWARD VII



: VIEW LOOKING NORTH WEST :



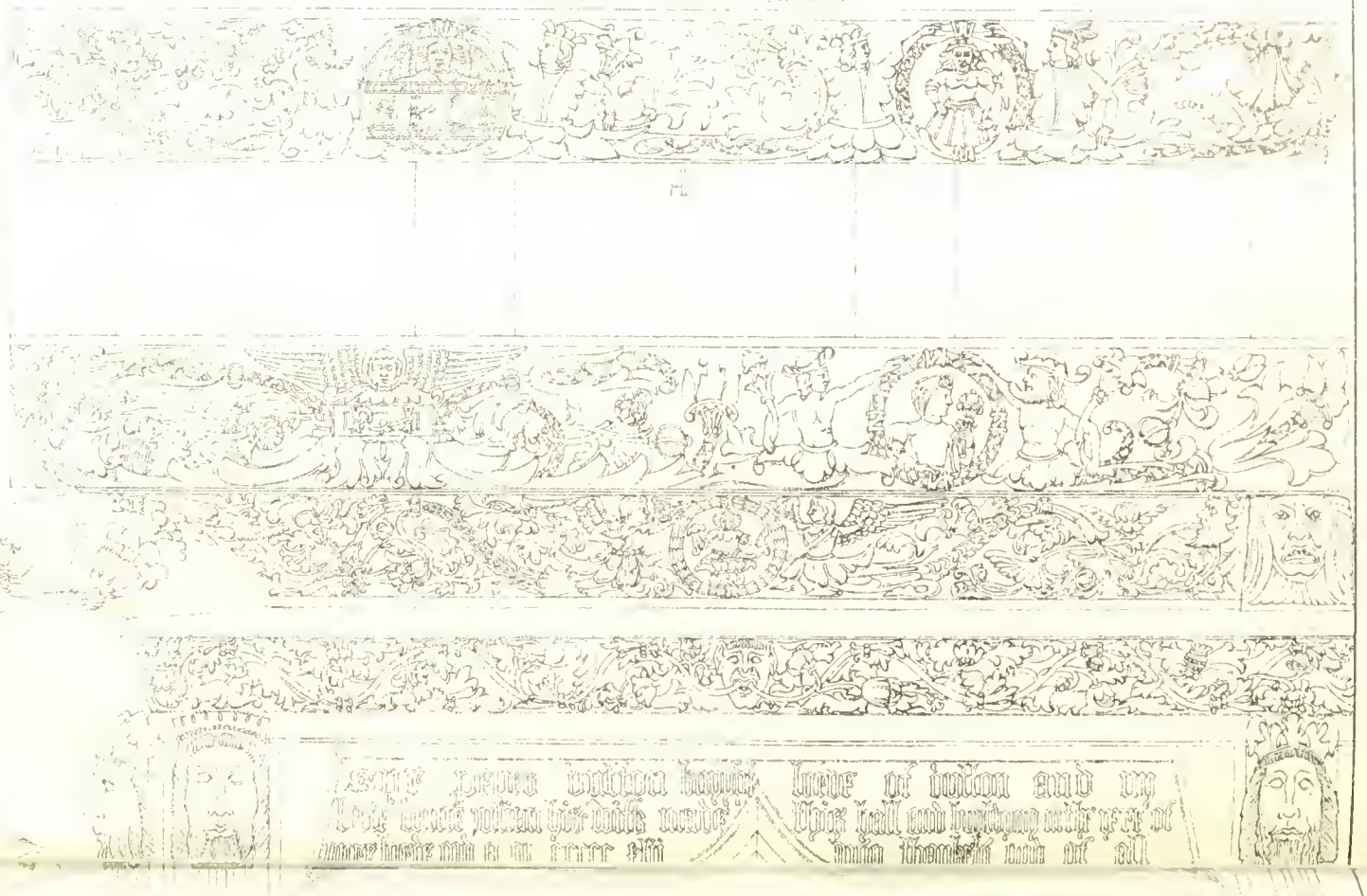
: PLAN on TOP :

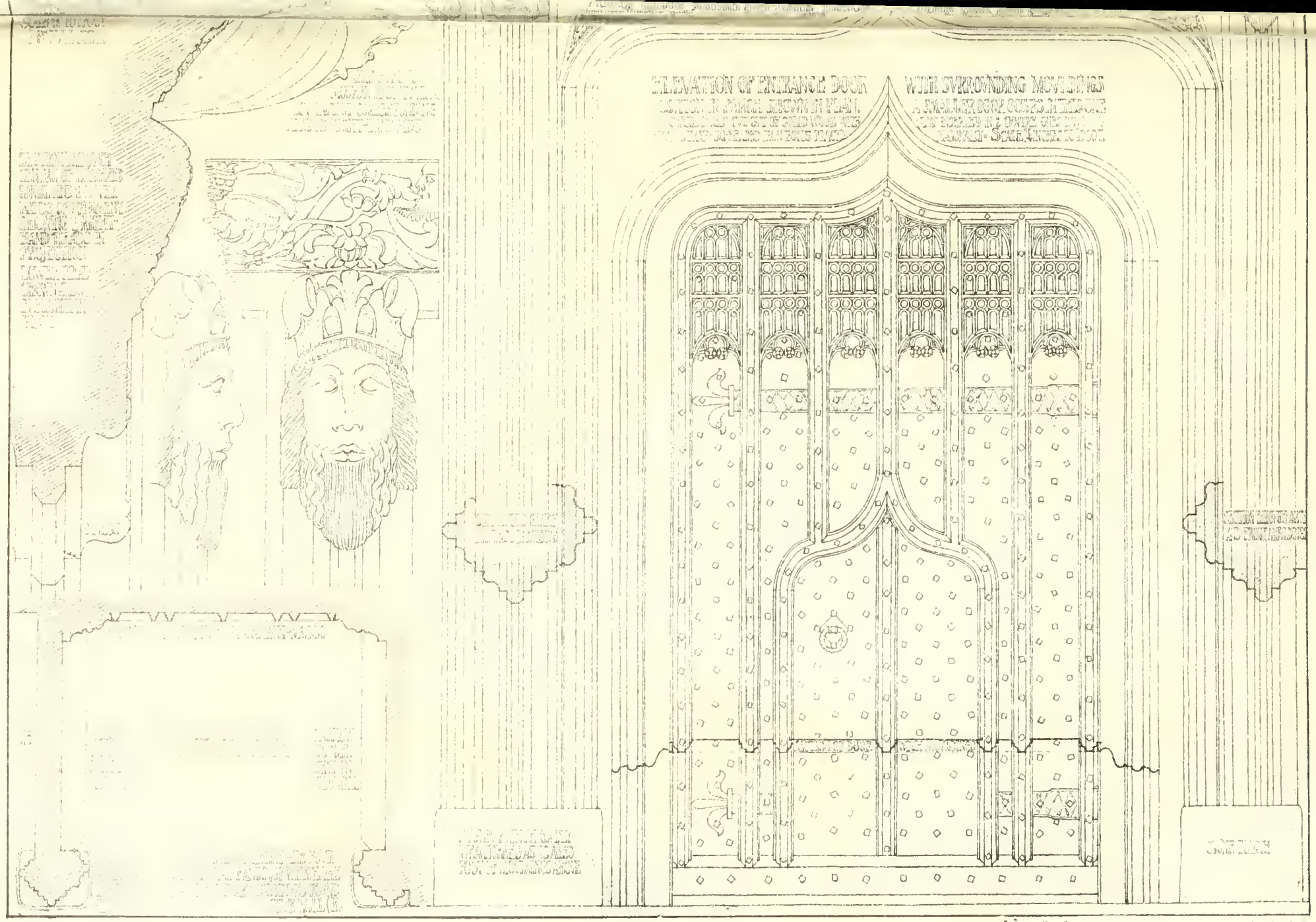


LUTTON HALL, CHESHIRE.

Measured Drawings of Entrance Porch.

NATIONAL PRIZE DRAWINGS BY SYDNEY WILSON CLAYTON.





"PHOTO-TINT" by James Akerman, 6 Queen Square, London, W.

· Placed · Third ·

· B.N.D.C. ·

" Design for "

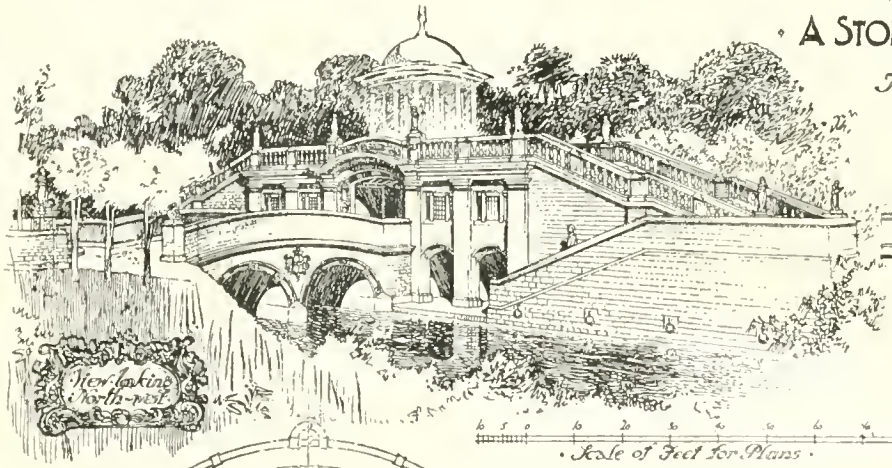
· A Stone Memorial Bridge ·

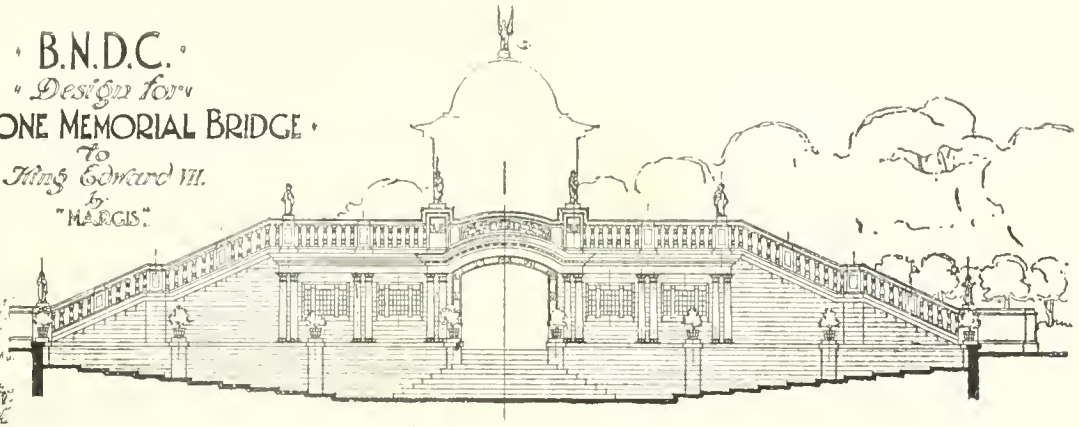
To

King Edward VII.

by

"Margis."



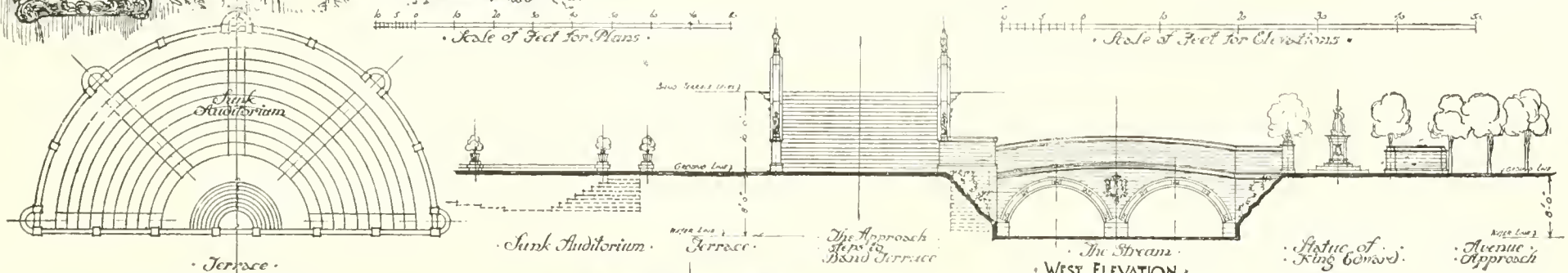


· North Elevation ·

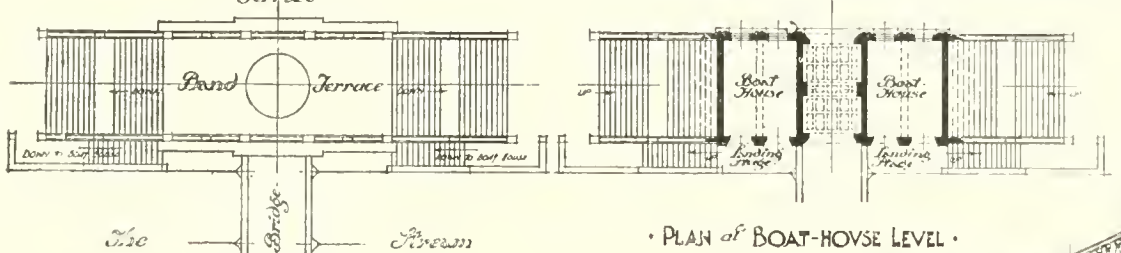
· and section thro Sunk Auditorium

· Scale of Feet for Plans ·

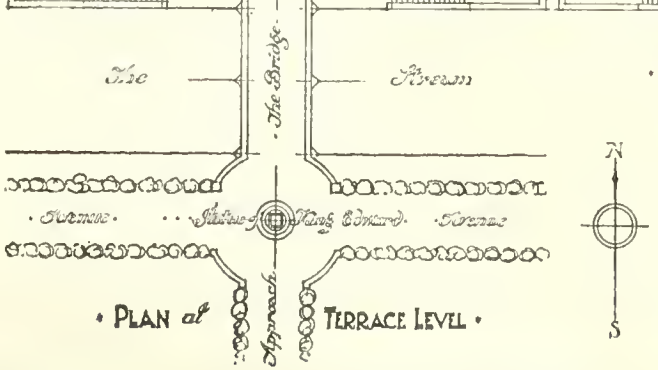
· Scale of Feet for Elevations ·



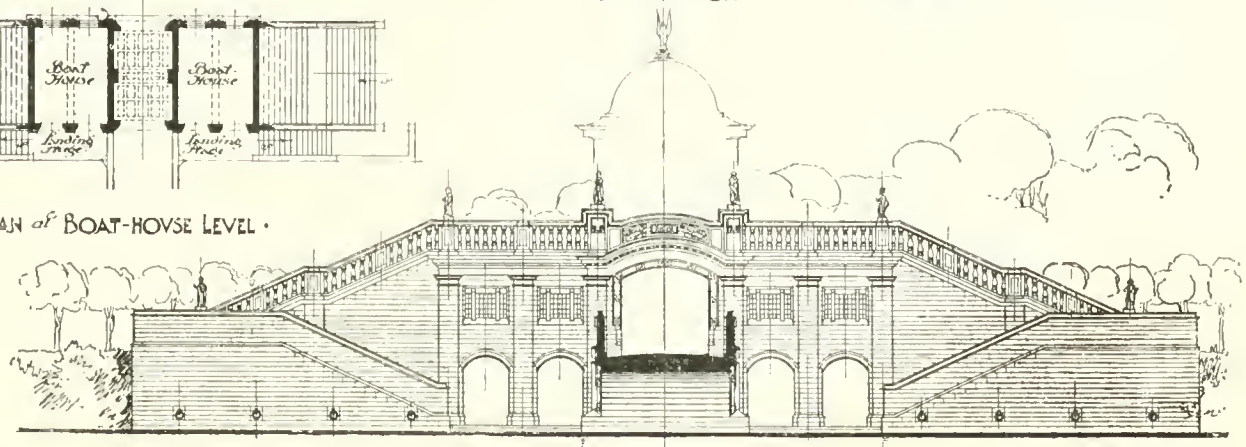
· West Elevation ·



· Plan of Boat-house Level ·



· Plan of Terrace Level ·



· Cross Section ·

· March - 1911.

Correspondence.

[illegible] ORGAN BUILDING.

[illegible] Building News.

Sir,—We [illegible]

[illegible]

I look [illegible] are suggested that we [illegible] to [illegible] flattering [illegible] that we can teach [illegible] of our own craft.

I must [illegible] that your letter made a mistake for the [illegible] of your paper, and on [illegible] to meet [illegible]

[illegible] LEWIS.

[illegible], Bishopsroad, Horfield, Bristol.
April 10.

[illegible] was made to [illegible] for the motor bellows [illegible] for the [illegible] on plate 3 [illegible] room in each stop compartment. [illegible] that the drawings of the [illegible] chest, given on plates 2 and [illegible] means of closing the discs valve [illegible] is closed, and [illegible] is established between the pipe [illegible] the stop chamber and the interior of the pneumatic bellows. The pneumatic [illegible] in the Roosevelt wind chest [illegible] had a steel spring attached to it, as [illegible], and without it the bellows could [illegible] instantly expanded and its disc valve [illegible]. In the drawings criticised, no provision of any kind is shown to accomplish [illegible] necessary action, and in so much are [illegible] incorrect and misleading. It is only [illegible] to direct attention to Fig. 1, [illegible] to prove the correctness of our [illegible] for in it the Roosevelt pneumatic [illegible] shown with the necessary spring. [illegible] effects of the work under consideration [illegible] easily have provided a diagram [illegible] the application of the spring either [illegible] ably employed by Roosevelt or [illegible] to others who may have adopted this [illegible] of wind chest. As the drawings [illegible] 2 and 3 stand, they are incorrect [illegible] to the end, and, we think, to one [illegible] versed in organ matters, and with the [illegible] of wind chest in particular, misleading.—[The Reviewer.]

[illegible] Parish Church, Edinburgh, which has been [illegible] by R. & A. Scott, Ltd., Architects, Edinburgh, is to be formally opened and will be opened there on [illegible].

The [illegible] of Sutton Oakfield has [illegible] to apply to the Local Government Board for a borrowing [illegible] for the [illegible] The [illegible] of [illegible] that [illegible]

At [illegible] Tram, Light and Power Committee, Mr. Duncan [illegible] Convener, it was reported that the Lord Provost, Magistrates and Councillors of the City of Edinburgh [illegible] that the Army Council [illegible] Gun Factory [illegible] Mr. Donald [illegible] the Committee [illegible] the Law and City Chamberlain, Royal Garrison Artillery, Plans [illegible] Mr. Donald [illegible] were [illegible] Mr. Donald [illegible] new [illegible] plan [illegible] the [illegible]

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent over real name and address. No others can receive a prize. The Editor's judgment is final.

The competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of the date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasize this, as some correspondents ignore the fact that queriers want terse facts, not long essays. Any necessary illustrations must be in line only; no tints or washes, and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. Philip G. Lees, 6, Rutter-street, Caldmore, Walsall. Several replies reach us too late, owing to our having to go to press a day earlier this week. We may, perhaps, find room for two or three next week.

QUESTIONS.

13683. BEVEL OF SLIP TILES. Will one of your readers kindly show how to arrive at the above?—Pitch.

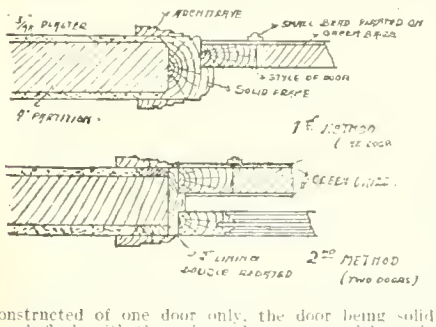
REPLIES.

13507.] CORONATION STONE. To the several interesting communications under the heading, and in continuation of my own remarks, the following may be appended. The paragraph below occurs in April issue of the Journal of the Society of Estate Clerk of Works: "The Coronation chair, it is hoped, is being carefully looked after to-day, when the Abbey is invaded by workmen. That venerated relic, supposed to contain the very stone that Jacob used as a pillow, was badly treated within recent year. Mr. Somers Clarke, who was attracted at the Abbey in 1887, decided how the officials did not like it look of age. They placed it in the hands of upholsterers. 'It was renovated,' he has put on record, 'with brown stain and varnished, and other ways tinkered.' Dragged along by sundry workmen over the unprotected mosaic pavement, I myself saw the chair brought from the recesses where it had been "doctored." The flat surfaces of the chair back and arms till recently in places the ancient ornamentation. Into these artifices Mr. Wright, the clerk of works to the Abbey, found the contractor men driving tacks. The attention of the House of Commons was called to the vandalism, and Mr. Clarke, continuing his story, says: 'the outcry was so great that it was thought well to remove, as far as possible, the "renovation." The upholsterers again came in, and, supplied with spirit, set to work to wash off the stain and the decorations which had made the chair look like a piece of furniture bought from the Tottenham Court road. Havine dabbed on the paint they were seen to wipe it off with their rough cotton overalls. The chair is one in which all the Sovereigns of England have been crowned from the time of Edward II., except Mary I., who was crowned in a chair like it and not by the Pope which it, or would be, till in Winchester Cathedral.' In the late Prebendary Mackenzie Walcott's 'Cathedrals of the United Kingdom' (Osgood, we learn under 'Winchester') it was at the Bishop's old palace in that city, now partly demolished. Queen Mary lodged and had her marriage feast, but in this learned writer's description of the Cathedral generally he fails to refer to the old chair. As a matter of fact, it is certainly preserved in the narrow chapel immediately behind the high altar, room always kept under lock and key, quite recently under the jealous eye of Mr. [illegible] Lee, the late resident clerk of works. The late Mr. William Savage, a pen-taking Hampshire antiquary, in his guide to 'The Ancient City of Winchester' (1820) gives an illustration of this portion of the [illegible] which was cut out of Ender-tone [illegible] and [illegible]." In the chapel was solemnized the marriage of Queen Mary with Philip II. of Spain, the door in which he at once that [illegible] Being still [illegible] Sir G. [illegible] R.A. in the drawings of Westminster Abbey, [illegible] to me my [illegible] illustration of further remarks [illegible] Coronation Chair, to produce [illegible] a full [illegible] acceptance of Dr. [illegible] Coronation [illegible] Chair, and [illegible] there were [illegible] difficulty [illegible] What the fate may now [illegible] the [illegible] and despite [illegible] treatment [illegible] hand of [illegible] upholsterer [illegible] [illegible] [illegible]

for nuisances. This has been the cause of many law cases. Further, "Once a sewer, always a sewer," even if one house only is left to drain into it. Private owners have the privilege of connecting up to any sewer vested in the local authority; but, on the other hand, if a sewer is within 100ft. of the site, the L.A. can compel an owner to construct a covered drain to the sewer in accordance with their specification. There is a method of draining houses into one drain whereby it does not become a sewer, and that is by the "combined system," which took its rise from Section 250 of the Metropolis Management Act (1855). This has now been made possible in other places by private Acts, Reading being one of the first. If your querist would like to refer to cases, I can quote "Lowther Arcade" case, and "Pilbrow v. Vestry of St. Leonard's, Shoreditch," both in 1895; but being a member of the Society of Architects, no doubt he can find accurate information in their library.—L. F. Smith, Westhall, Clarendon-road, Redhill.

[13030.]—DRAIN.—The Public Health Act (1875) states:—"'Drain' means any drain of, and used for the drainage of, one building only, or premises within the same curtilage, and made merely for the purpose of communicating therefrom with a cesspool, or other like receptacle for drainage, or with a sewer into which the drainage of two or more buildings or premises occupied by different persons is conveyed. 'Sewer' includes sewers and drains of every description, except drains to which the word 'drain' interpreted as aforesaid applies, and except drains vested in, or under the control of, any authority, having the management of roads, and not being a local authority under this Act." Questions have been raised as to whether a number of separate yards connected by doors, though separated by walls, and belonging to one owner, are within the same curtilage. This question is of great importance in connection with the distinction between a drain and a sewer, and is further affected by Section 19 of the Public Health Acts Amendment Act (1890), which is as follows:—(1) "Where two or more houses belonging to different owners are connected with a public sewer by a single private drain, an application may be made under Section 41 of the Public Health Act (1875) (relating to complaints as to nuisances from drains), and the local authority may recover any expenses incurred by them in executing any works under the powers conferred on them by that section from the owners of the houses in such shares and proportions as shall be settled by their surveyor, or (in case of dispute) by a court of summary jurisdiction." (2) "Such expenses may be recovered summarily, or may be declared by the urban authority to be private improvement expenses under the Public Health Acts, and may be recovered accordingly." (3) "For the purposes of this Section, the expression 'drain' includes a drain used for the drainage of more than one building."—R. W. Furniss, Architect's Department, Stafford Education Offices, Stafford.

[13032.] — SOUND-PROOF DOOR.—I notice our querist is using Jabez Thompson's patent terrawode brickwork partition. It is certainly of excellent fire-resisting quality, and it is claimed by the maker to be sound-proof, and only half the weight of ordinary brickwork. It also lends itself to nails driven in. It is built as ordinary brickwork, with blocks of the same size as common bricks. Terrawode slabs for these partitions are also constructed by the maker. (1) As you will see by the first-method sketch, it is



constructed of one door only, the door being solid panel, flush with the stile, and green or red baize is put all over the door, and then a small bead is planted on in rectangles to form a kind of panel. (2) In the second method, it consists of two doors, both hung to a 2in. lining, rebated on both sides. The exterior door could be panelled as you wish, either bolection, or a mould worked on the stile, as sketch, or otherwise. The door on the inside would be a 2in. solid-framed door, and, as in the first method, the whole face encased with green baize, and a bead formed or planted round to form a panel. As you will readily see, the second method is by far the most sound-proof; in fact, it has had tests, in which it was found the sound dies in the cavity between the two doors before entering the adjoining room.—Phillip G. Lees, 6, Rutter-street, Caldmore, Walsall.

Mr. C. E. Rivers, late assistant to the borough surveyor of Harrogate, was appointed on Monday by the corporation of that town as borough surveyor and meteorologist.

The Coventry Corporation Bill to authorise the promoters to construct new streets, to extend the limit of the library rate, and to make provision for the improvement and public health of the city, was allowed on Thursday to proceed for third reading in the Lords. The Bill, with some amendment, has already passed the Commons.

Our Office Table.

The Department of Architecture and Sculpture at the Victoria and Albert Museum has recently acquired two important examples of Early French Gothic art, which are now on view in Room 8, immediately to the right of the main entrance. One of these, a cluster of five detached grey marble shafts with united bases and capitals of stone, is said to have come from Villemer, a little village between Fontainebleau and Nemours, where it appears to have stood at the corner of a small cloister. The boldly-cut foliage and grotesque heads on the capitals are of a very early type, recalling the similar work on the North door of Chartres and the West door of Notre Dame at Paris in the first half of the thirteenth century. The other is a beautiful early fourteenth-century statue in sandstone of the Virgin and Child, said to have come from Econen. The type is a traditional Parisian one, and the treatment of figure and drapery is closely akin to that in the admirable reliefs on the northern apsidal chapels of Notre Dame, which were probably executed between 1296 and 1316, under the direction of Pierre de Chelles. The upper part of the body of the Child is, unfortunately, lost; but in spite of this the statue is a singularly charming example of the mediæval sculpture of the Ile-de-France at what is perhaps the most gracious point in its development.

Mr. Frederick Wedmore, art critic, has delivered a lecure on "The Old Masters of Etching," in the galleries of Messrs. James Connell and Sons at 31, Renfield-street, Glasgow. The cradle of great etchings was, he pointed out, the Low Countries, and it was in the 17th century, broadly speaking, that etching was born. Etchers who were great, and not of the Low Countries, were isolated men. After referring to the place of Rembrandt, of Ostade and Bega, and Van Dyck, the lecturer said the two great names on which he felt most inclined to insist that day were Rembrandt and Claude. They were men of noble souls, of boundless, tolerant vision. Yet the art with which they expressed themselves with unsurpassable charm was called even to-day by some—rather grotesquely, when they thought of it—"the minor art," like enamelling or lace-making. It was time that this darkness was cleared away.

Mr. W. H. Lever opened the Hulme Hall in the village of Port Sunlight as an art gallery on Thursday night, and presented to the inhabitants a valuable collection of pictures and furniture, illustrative of English art in the eighteenth and nineteenth centuries, which the munificent donor has been collecting during many past years. Included among the oil paintings are excellent specimens of the art of Turner, Millais, Leighton, Alma-Tadema, Holland, Gainsborough, Hoppner, Constable, Romney, Sir Thomas Lawrence, Old Crome, Reynolds, Bonington, and David Cox, and there are many water-colours, the exhibition being particularly rich in works by David Cox and De Wint. The furniture includes examples of the Queen Anne and Early Georgian periods, and specimens of the work of Chippendale, Adam, and Sheraton. One room is entirely devoted to Wedgwood ware, collected by the first Lord Tweedmouth. It contains a Wedgwood mantelpiece, made for the master of the Dublin Mint in 1785. Over this mantelpiece is an equestrian portrait by Stubbs, of Liverpool, of the first Josiah Wedgwood.

Count Isaac de Camondo, Director of the Bank of Paris and the Netherlands, who died suddenly at his residence in the Avenue des Champs-Elysées on Friday, has bequeathed all his collections to the Louvre, with a sum of £4,000 to cover the expenses of housing and arrangement, on condition that they are exhibited entire. The collection includes many valuable examples of Eighteenth Century French art, as, for example, the complete set of furniture of the room of Louis XV. at Versailles, tapestries, bronzes, the Falconnet marble clock called the "Three Graces," for which M. de Camondo is said to have refused £40,000, a specimen of Peronneau bought at the sale of the Princess Mathilde. There is also a remarkable series of Japanese engravings and many specimens of other forms of Japanese art. Among the examples of modern painters are "L'Atelier," by Corot; "Les Chevaux qui se battent dans l'Ecurie," by Delacroix; "Le Fifre" and "Lola de Valence," by Manet; while the twenty Degas include "Le Foyer de la Danse" and "Les Blanchisseuses." There are also excellent examples of Claude Monet, Sisley, Pissaro, and Cezanne, sketches by Watteau, Fragonard, and Boucher, and pastel drawings of Latour and Perronneau.

On the advice of Professor Lanciani and the Commendatori Apolloni, the well-known sculptor, the Italian Government have just completed the removal of the squalid surroundings of the remaining portion of the Baths of Diocletian. The central halls which remain were preserved from destruction by having been presented by Pius IV. to the monks of Santa Croce in Gerusalemme, for whom Michael Angelo converted the central halls into the convent and church which are standing to-day. Thus the tepidarium, now Sta. Maria degli Angeli, and some of the adjoining halls were preserved when Sixtus V., in search of building material some 20 years later, succeeded with the help of gunpowder in blowing up nearly 100,000 cubic mètres of the remaining masonry. At a cost of £24,000 the ground has been exhumed. During the last six months a force of 200 men have been employed in removing some 18,000 cartloads of earth from the site, so as to open out to present level the series of a dozen well-lighted vaulted halls. In these the Archæological Exhibition, opened on Saturday by the King and Queen of Italy, is being held.

Professor C. T. Adshead's plans and drawings for the reconstruction of the Duchy of Cornwall property in Kennington were exhibited at the office of the Duchy at Buckingham Gate on Friday for the inspection of the members and officers of the Lambeth Borough Council. A number of members of the council availed themselves of the invitation, which, for some reason, was not extended to the Press—at any rate, our own representative was refused admission. Lord Balfour of Burleigh and several members of the Prince of Wales's Council were present. Professor Adshead's scheme has not yet been finally adopted, but the improvement is being discussed from every point of view. The scheme deals with two separate areas, one in the neighbourhood of Kennington Oval, and the other immediately to the south of the Thames near Waterloo Bridge. The proposed lines of development, which will involve little or no departure from the existing street plan, were considered by the borough representatives and the members of the Prince of Wales's Council in great detail.

At the meeting on Tuesday of the London County Council, the Improvements Committee reported that terms had been agreed upon for obtaining possession of the property needed for the extension of the Mall into Charing Cross, and it was now necessary to arrange for the execution of the paving works. In view of the urgency of the matter, the committee had made arrangements in respect of these with the Westminster City Council, which had agreed to contribute one-third of the net cost of the improvement. The carriageway in the portion of the improvement over which the Coronation procession will pass would have a maximum gradient of about 1 in 42, and the surface would be made up in macadam over a bed of concrete 6in. thick. The proposed gradient and materials have met with the approval of H.M. Commissioners of Works. At the same meeting the erection of a new fire-station at Hammersmith, at an estimated cost of £13,000, was recommended by the Fire Brigade Committee. The General Purposes Committee submitted the half-yearly statement on the cost of all works executed at the order of the various com-

...ers by the direct employment of labour ...gregating a total of £259,393 8s., as ...st a total for the preceding half year ...£261,509 9s. It was agreed to lend £6,174 ...to Lambeth Borough Council for road ...ing works in Clapham road between ...road and Lansdowne road. The work ...consist of the substitution of ...of 9in. Portland concrete ... for ... thick, with ... ...ordering, and the ... ...al blocks for ... ... It was ... agreed to ... ... the Hammersmith Borough Council ... £1,709 towards the ... King ... ...ad and Scotland roads ... improvement ... ...ed ... £50,376, of which ... £38,781 ... ... The Estates Committee reported that Mr. Percival Currey, F.R.I.B.A., the arbitrator appointed by agreement in the matter of the Council's claim in respect of damage to the light of the County Hall, Spring Gardens, S.W., owing to the erection of the new Admiralty buildings, has now issued his award, providing for the payment of £1,738 to the Council as against its claim of £2,700. The arbitrator's fee and costs, amounting to £29 18s., are payable by the Commissioners of H.M. Works.

In June, 1910, the London County Council sanctioned expenditure not exceeding £1,765 for the purpose of completing, revising, and redrawing on 5ft. scale ordnance sheets, the ownership section of the ground plan of London. The work of revision has been proceeded with during the past year, but is not yet completed, for it has been found more convenient, while the work of revising and redrawing has been progressing, to combine therewith the work of keeping the plan up to date. The cost thus far has been £1,200. The information which has been obtained in connection with the ownership section of the plan (which consists of defining estate boundaries and registering the names and addresses of the owners or their agents) has been very valuable to the Council in various ways, and a committee recommend that the work should be kept up to date, as otherwise the large amount of information obtained will be considerably lessened in value and gradually become useless. The Valuer thinks that this will cost about £500 a year.

Under the provisions of Part VIII. of the London County Council (General Powers) Act of 1908 that authority is required to receive into the metropolitan main drainage system, and to deal with the sewage and drainage of the Brent area of the parish of Willesden; and section 41 of the Act requires the Council to construct a sewer from the county boundary at Kilburn ... to convey the sewage and drainage from the Brent area into the middle level sewer No. 2 at or near the junction of Formosa street and Bristol Gardens, Paddington. All costs and expenses connected with the construction of this sewer devolve upon the Willesden Urban District Council, provided that should the Council decide to construct the sewer of dimensions greater than those (5ft. by 3ft. 6in.) required for the conveyance of the sewage and drainage from the Brent area, the extra cost shall be borne by the Council. As it was considered advisable that the sewer should be utilised as a means of relief in times of storm for the portion of the county through which it passes, the sewer has been constructed of a diameter of 6ft. The sewer has now been completed at a total cost of construction, exclusive of the cost of the acquisition of land and payment of compensation, amounting to £28,726 14s. It has been agreed that the amount to be paid by the Willesden District Council shall be £18,911 2s. 2d.

The Rating Committee of the Greenwich Borough Council has at present under consideration a proposal to rate the huge main sewers of the London County Council which run through the borough. The proposal is based upon the recent decision of the House of Lords given in the case of the "West Kent Sewerage Board v. the Dartford Union." The Council's underground sewers in the borough have a length of some nine miles, and their assessment would increase the rateable value of Greenwich by many thousands of pounds. The overground outfall sewers in Woolwich and Barking have long been assessed, and Greenwich has, of course, to bear a quota of the cost in the county rates. Dealing with the question generally, the Main Drainage Committee of the County Council recommends that figures of rateable value in respect of both local and main sewers should be prepared. In the report of the Finance Committee of the London County Council, presented at Tuesday's meeting, it was stated that the total approximate cost of the main drainage extension and flood relief schemes is £4,507,550, and that £3,950,000 has been or is being expended on works completed or in progress.

To prevent the land falling into the hands of the builders, the National Trust have issued an appeal for £7,700 to enable them to buy 60 acres on Colley Hill for preservation as a public open space of great natural beauty. The property includes a part of the summit, the steep sides and the lower slopes of that part of the North Downs which overhangs the town of Reigate. The summit of the hill is more than 700ft. above sea level, and it commands the long line of the North Downs as they curve westward to Box Hill and on towards Guildford. From the foot of the hill the valley of the Mole stretches westward to Dorking. It is the magnificent panoramic views that can be obtained from it that have made Colley Hill famous. Across the land passes the track of the old road known generally as the Pilgrim's Way, the line of which can be traced from the old Wessex capital at Winchester to Canterbury. Donations or promises should be sent to the secretary of the National Trust, Mr. Nigel Bond, 25, Victoria-street, S.W.

Mr. William Alphonsus Scott, A.R.H.A., A.R.I.B.A., M.S.A., of Mountjoy square, Dublin, and William-street, Drogheda, has been elected to the Professorship of Architecture in the National University, rendered vacant some time ago by the death of Sir Thomas Drew, F.R.I.B.A. After serving his articles to the late firm of Sir T. Deane and Son, of Dublin, now Mr. Thomas Manly Deane, Mr. Scott took up in a practical manner the study of Early Christian Architecture in Ireland, a period of art in that country much neglected by architects generally. Mr. Scott's executed works include the Spiddal Church, Co. Galway, the O'Growney Memorial, Maynooth, churches at Enniskillen and Loughrea, and the new Diocesan College at Galway, not yet completed.

Mr. H. T. Wakelam, the county engineer and surveyor for Middlesex, has reported to his council showing the cost of maintenance during the past three years of each of the fifteen main roads of the county. The total length of the main roads repairable by the county council is 41½ miles. The total expenditure three years ago was £18,444, or an average of £445 9s. 10d. per mile; the next year it was £22,641, or an average of £546 6s. 8d., and last year the outlay was £21,505, or an average of £518 19s. 7d. The expenditure on main road footpaths last year was £1,596.

The Corrosion Research Committee of the Institute of Metals is now actively engaged in preparing for an elaborate series of investigations into the causes of the corrosion of brass condenser tubes. A special condenser is being constructed, which will contain 18 tubes, twenty four of these being made of commercially pure brass, and the remaining twenty four tubes of brass containing a single selection from lead, tin, aluminium, manganese, or other material, at the discretion of the committee. Experiments will be made with various water speeds in the ratio of 0, 1, 2, 3, 4, speed 2 being an average speed used in practice. The circulating water to be used will be obtained from deep water at Formby, off Liverpool, in the first instance, and the plant for the corrosion research will be installed in the University of Liverpool, where the experiments will be under the direct supervision of Mr. G. D. Bengough, M.A. It is expected that the research will prove to be one that will occupy many months before any definite conclusions can be reached.

CHIPS.

In view of the approaching retirement of Dr. Horne, the President of the Board of Education has appointed Dr. J. S. Flett to succeed him as Assistant in Scotland to the Director of the Geological Survey.

The governors of Blundell's School, Tiverton, have approved the plans of further new buildings to be erected at a cost of about £5,000. The buildings will include a large block as an addition to the present Coles Laboratory.

At Tonbridge on Thursday in last week the new Young Women's Christian Association Institute in Lyon's-crescent was opened. It has been built from plans by Mr. J. W. Lattle, the builders being Messrs. Martin and Co., of Tonbridge.

At the meeting on Monday of the Rhyl Urban District Council it was decided to seal an agreement with Mr. Baldwin Latham, M.Inst.C.E., to extend and improve the main sewer outfall and to train the Foryd river to deep water. Plans were passed for further development of the pleasure ground at the Marine Lake.

The Cannock Urban District Council have agreed to purchase for £72,000 the undertaking and works of the Cannock and Hednesford Gas Co. Another £10,000 will, it is estimated, be required to carry out the extension of the works and supply now in hand. The negotiations have been carried out by a small committee, who have been assisted by Mr. C. Hunt as expert engineer.

The Roman Catholic body of Stourbridge are engaged in rebuilding St. Joseph's Schools, which have been condemned, and Dr. Ilsey, the Roman Catholic Bishop of Birmingham, laid the foundation stone on Monday. The school will provide accommodation for 150 scholars in the mixed department, and for seventy infants. It is being erected by Messrs. J. Guest and Sons from plans of Messrs. Bailey and McConnal, of Walsall, and will cost £2,000.

The Wigton Rural District Council have accepted the scheme of main sewering and sewage disposal for Fletchertown prepared by Mr. Harry W. Taylor, A.M.I.C.E. (Messrs. Taylor, Wallin, and Taylor), of Newcastle upon Tyne, and have engaged him as engineer for the execution of the works. The sewage will flow by gravitation to the outfall, and be purified by the latest bacterial system. Application is to be made immediately to the Local Government Board to raise the necessary loan for the execution of the works.

The Croydon Borough Council considered on Monday night the position created by Mr. John Burns's recent declaration that he would not approve any scheme of traffic improvement involving destruction or mutilation of the Whitgift Hospital. The streets improvement committee recommended that they be authorised to consider means of further widening North End without interfering in any way with the old building, but an amendment referring the matter back for six months was carried by a narrow majority. The hospital is very generally regarded as safe from spoliation.

Mr. Holford, city estate and property surveyor to the Newcastle-on-Tyne Corporation, has prepared a report as to the total capital expenditure on the Newton Dwellings. The cost of erection of the dwellings was £19,549 9s. 10d., and sanction to borrow was obtained for £18,860. But there was underspent in respect of street works and purchase money of land £491 6s. 1d., reducing the excess to £198 3s. 9d. Mr. Holford stated that payments for land were £2,685 13s. 3d., the erection of houses cost £19,549 9s. 10d., street formation and sewers £1,643 0s. 8d. total, £23,878 3s. 9d. The amount sanctioned was £23,680.

Contracts representing £400,000 in value have just been signed by the Argentine Minister in London with British firms for the extension of the waterworks at Buenos Aires. Messrs. J. Simpson and Co., Ltd., of Queen Victoria street, E.C., have secured the order for supplying and installing pumping engines of large capacity. The contract price is £218,000. The carrying out of a great tunnelling scheme has been entrusted to a Staffordshire firm, and large quantities of constructional ironwork have been ordered from Scottish firms. The necessary excavation and tunnelling, together with the equipment of the waterworks, will take over two years to complete.

WATER SUPPLY AND SANITARY MATTERS.

WESTERN MONMOUTHSHIRE WATER SUPPLY.—The work of sinking the trial holes on the Grwynne Fawr site of the waterworks to be constructed for the Monmouthshire Western Valleys Water Board in the Breconshire mountains has been commenced. Messrs. Underwood Bros., of Dukinfield, are the contractors, and they expect to complete boring the eight holes in about six weeks' time. Tenders will then be obtained for the construction of the main works, which will be divided into two parts, the first for the construction of a road from Pont Esgob to the dam, and the second for mains from Pont Esgob to the Western Valleys, with storage tanks at Cwmtillery for 4,000,000 gallons, at Penyfan for 3,000,000 gallons, and at Mynyddislwyn for 3,000,000 gallons. From the proposed dam to Mynyddislwyn is about 24 miles.

RESERVOIR AND ANCIENT ENTRENCHMENTS.—At the last meeting of the Scarborough Rural District Council the surveyor (Mr. J. A. Iveson) submitted a revised plan for the construction of a reservoir for the supply of water to the village of Snainton in a position different from the site originally selected in some very ancient entrenchments, the departure having been made in deference to the representations of Yorkshire archæologists. The entrenchments are near the well-known Cockmoor Hall, where there are also some ancient quarries. It was stated that under the revised plans the pipes would be laid outside the entrenchments altogether. The new plans were ordered to be forwarded to the Local Government Board for their approval.

Earl Grey, the Governor-General, laid on Tuesday the corner-stone of the new General and University Hospital in Toronto, which is to cost £600,000.

The surveyor to the Knaresborough Urban District Council has resigned, and the council decided on Monday to advertise for a successor at £120 per annum.

The Belfast Corporation having secured the loan of £20,000 for the erection of model dwellings, have instructed their city surveyor to prepare and submit estimates.

The London County Council propose to affix commemorative tablets to the residence of Charles Dickens at 13, Johnson-street, Somers-Town, and of William Morris, Sir E. Burne-Jones, and Dante Gabriel Rossetti, at 17, Red Lion-square.

The South Westmorland Rural District Council have instructed Mr. Harry W. Taylor, A.M.I.C.E. (Messrs. Taylor, Wallin, and Taylor), of Newcastle-on-Tyne, to advise them as to the best means of dealing with the sewage of Arnside.

The Bishop of St. Alban's on Saturday dedicated the new church of St. Saviour, Westcliff-on-Sea. The church is built in the Decorated Gothic style of Bath stone and Kentish rag, and it will accommodate six hundred people, but the plans provide for extension to seat altogether a thousand. The completed building will cost £20,000.

At the new Public Hall, Hatfield, on Tuesday week, Mr. F. O. Stanford, A.M.I.C.E., conducted a Local Government Board inquiry into the application of the Hatfield Rural District Council for sanction to borrow £7,250 for the purposes of sewerage and sewage disposal works for the Hatfield Special Drainage District. Mr. G. B. Kershaw, engineer to the rural district council, explained the proposals.

The death took place, from pneumonia, on Monday night at his residence, Glendwr, Brixton-hill, of Mr. Edward Stimson, F.S.I., founder and head of the firm of Stimson and Sons, auctioneers and surveyors, of New Kent-road and Moorgate-street. Mr. Stimson was 61 years of age, and had been in practice since 1878. He leaves a widow and four sons, two of whom, Mr. Herbert Percy Stimson and Mr. Douglas Cecil Stimson, are members of the firm.

The death occurred at Ealing last week of Mr. John Samuel Slater, for many years Principal of the Civil Engineering College, Sibpur, near Calcutta. Mr. Slater entered the Indian Public Works Department in 1870, and was engaged on construction work on the Bari Doab and Indus irrigation canals. In 1875 he was transferred to the Bengal Educational Service as a professor of civil engineering, first at the Presidency College and from 1880 at the Engineering College for the province of Howrah, now called the Sibpur College. He was appointed Principal of the institution at the close of 1891, and retired in 1904.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, Effingham House, 1, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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Handsome Cloth Cases for binding the BUILDING NEWS' price 2s., post free 2s. 4d., can be obtained from any Newsagent, or from the Publisher, Effingham House, 1, Arundel-street, Strand, W.C.

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Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

RECEIVED.—R. W. C.—F. S. B.—B. and Co.—J. L. S.—C. and Co., Ltd.—E. B. D. and Son.—I. C. S.—A. J. W. Ltd.—M. and Co.—C. S. Inst.—C. C. E. Co.—J. E. L. and Son.—M. A. G. (per W. H. S. and Son).—E. J. and A. T. B.—J. C. S. and Co.—W. W. and Co.—R. W. and Co., Ltd.—B. N. D. C.—S. and M.—W. and Son.—H. I. S.—T. and B.—H. U. C.—L. and Co.—W. and S.—C. P.—H. S. K. and Co.—S. W. F. and Co.—K. E. C.—C. A. Ltd.—O. and Son, Ltd.—D. J. S. and Co. Ltd.

MODELUS.—Yes.

S. S.—Thanks, no.

CENTRAL.—We do not see the advantage.

MEGAM.—Stuart's Granolithic is much the better, in our opinion.

T. L. WILLIS.—We have not published any such catalogue.

R. F.—Pritchett and Gould, Ltd., 58, Victoria-street, will supply the electrical accumulators.

ROOF.—We should not use it. See our "Directory" pages under "Glazing" for better systems.

EXHIBITOR.—L. A. Solomon, 65, Queen Victoria-street, E.C., will loan you all the furniture you want for a few shillings.

GARDEN.—You want something a little better than the ordinary lumps of crude brickwork. See our "Directory" pages under "Rockworkers" for two good firms who make this a speciality.

A. L. L.—Some of these patents are of doubtful validity; all of them will expire sooner or later. Then architects, as they should, will design their own methods, and builders will carry them out just as they would use any other type of construction.

The new Wenlock Barracks, which have been erected on Anlaby-road, Hull, at a cost of £16,000, were opened on Saturday by Lord Wenlock, the president of the East Riding Territorial Association.

The new premises of the Cross Church-street Working Men's Club and Institute, Morley, were opened on Saturday afternoon by Mr. Gerald France, M.P. for the division. The building has been erected at a cost of £2,939.

Lyndhurst Hall, the Congregational mission in Kentish Town, is being extended at a cost of £14,800, all of which has been promised. The memorial stone of the new building was laid on Saturday by the Rev. Dr. Horton.

Mrs. Russell Sage has offered to expend 25,000dol. in the restoration of the rotunda of the New York City Hall to its original condition. Messrs. McKim, Mead, and White, architects, of New York, will superintend the work for Mrs. Sage. It is proposed to follow the lines adopted in the restoration of the Governor's Room, which was accomplished through the generosity of Mrs. Sage over a year ago.

Lord Farrer, at the annual meeting of the Surrey Archæological Society at Guildford, on Saturday, said it was proposed to engage in research work in regard to two important objects in the country. One was the excavation of Newark Abbey, and, in the second case, they had no doubt the Duke of Northumberland, who took a keen interest in all matters relating to archæological research, would allow the society to investigate the interesting monument on Farley Heath, where a Roman Temple was found.

Mr. Henry F. Hornbostle, of 63, William-street, New York, has been selected as the architect for the municipal building to be built for the city of Hartford, Conn., at an estimated cost of £100,000 sterling. The building, Colonial in style, has been planned to harmonise with the general outline of the Morgan Memorial Building, which was erected in Hartford by Mr. J. Pierpont Morgan as a memorial to his father. The firm of Davis and Brooks, of Hartford, is associated with Mr. Hornbostle in this work.

A valuable English prayer book of the 13th century, which later belonged to Sir Thomas More, Chancellor of Henry VIII., has been brought to light at Imola, the picturesque Italian cathedral town twenty-two miles south-east of Bologna. It contains beautifully-illuminated initials and miniature work, and efforts are being made to secure it for the British Museum. The Italian Minister of Art has directed the municipal authorities of Imola to send the treasure to the Exhibition of Retrospective Art in the Castle of St. Angelo, at Rome.

On Saturday Mr. Runciman, M.P., President of the Board of Education, laid the foundation stone of a new elementary school at Lancaster, to be erected on the High street estate, near to a proposed secondary school for girls to be erected by the County Council. The school will cost, with site, £18,000, and there is accommodation for 930 scholars, with cookery-rooms and a room for the feeding of necessitous school-children. It marks a transition in school planning, and is one of the first designed with a detached or insulated central hall, the Board of Education having found that the ordinary central-hall type of school is difficult to ventilate, and that such hall, when used for singing or drill, disturbs the work in the classrooms.

The Bishop of London on Saturday consecrated the new Church of Holy Trinity, Kingsway. It takes the place of one which occupied the site since 1831, and which, being shattered by the excavations in Kingsway, was closed as a dangerous structure by the London County Council. The total sum received as compensation was £1,450. Various grants were made towards the rebuilding, but there is still a deficit of £1,300 on the fund, exclusive of the cost of a new tower, for which an additional sum of £5,000 will be required. The style of the new church, of which Mr. John Belcher, R.A., is the architect, is of the Wrenaian type. The nave, with its barrel-vaulted roof, ends in an octagonal apse, the organ being in the north transept. The façade to Kingsway is of Portland stone. Underneath the church there are arranged a young men's club, a gymnasium, a boy's brigade headquarters, and a rifle-range.

MEETINGS FOR THE ENSUING WEEK.

Trade News.

WAGES MOVEMENTS.

CHIPS.

TRADE NOTES.

Messrs Carter and Howard of Eye House, King Edward's Thames, have issued a handy little booklet which will be useful to horticultural readers, describing conservatories or rustic work.

The Mount Mixed School, Bromley, Kent, are being equipped with Sturtevants patent exhaust roof ventilators by Messrs. E. H. Shirley and Sons, Limited, Fairfield, Manchester.

The Board of Education (Natural Lighting) Act patent "Daylight" pumping plants, have been applied to Forster Cathedral, Tasmania.

Of interest which Chappuis reflectors are being used to illuminate by night, the Crystal Palace at Dulwich which has just been opened, being lighted by high pressure gas supplied with the reflectors.

The Aubrey Fletcher memorial clock and chimes, have just been erected at the parish church, Ardingly, Sussex, by the makers, Messrs. Wm. Potts and Sons, Ltd., clock manufacturers, Leeds and Newcastle, from the designs and plans of the late Lord Grimthorpe. Messrs. Potts and Sons, Ltd., are also making a new clock for Mr. Parr, Speak The Laurels, Horsforth, for Tingworth Parish Church, Halifax, Yorks.

The Bartlett Sign Co. 1907, Ltd., of 38, Gray's Inn Road, London, W.C., have recently installed a press in Antwerp for making Bartlett letters and large fascia signs and have also opened a showroom in Brussels for extending their Continental business. This has increased to such an extent in the United Kingdom and elsewhere that it has been found necessary to extend the present London factory a further 225ft., making room for another hundred men.

An art school will shortly be established in Lucknow as a part of Lord Curzon's scheme.

A crucifix in oak with side wings is about to be placed in St. Oswald's Church, Filey, Yorks, as a memorial of the late vicar.

A pulpit of carved oak given by Lady Barry to St. Aimes the dockyard church at Portsmouth, in memory of her husband, the late Vice-Admiral Sir Henry Deacon Barry was dedicated on Sunday.

Mr. Walter Morrison has offered to the City Corporation for their Guildhall Art Gallery, two works by Frank Dillon, R.I., one an oil-painting, "The Castle of Belem, Lisbon," and the other a water-colour, "Sunset at the Pyramids."

The Chief Rabbi consecrated on Sunday the new West Ham Synagogue in Eastham Grove, Forest gate. The building, which is in the Romanesque style will accommodate 500 worshippers, and has cost £3,500. Classrooms are provided in which 200 children will receive religious instruction.

A stained glass window, representing St. Paul and St. Barnabas, which has been given to Barrow-on-Soar Parish Church by the Rev. Thomas Gwatkin in memory of his father, the Rev. Richard Gwatkin, B.D., who was vicar of Barrow from 1832 to 1853, has been dedicated by the Bishop of Leicester.

Colonel Richard Henry Beddome, of Sispara, West-hill, Putney, S.W., and formerly of the Madras Staff Corps, for 22 years head of the India Forest Department, who died on February 23 last, aged 80 years, left estate of the gross value of £170,326, of which the net personalty has been sworn at £154,045.

The Marine Department of the Dominion Government has arranged for the erection of a number of new lighthouses along the Canadian west coast of Vancouver Island. They will be of concrete absolutely fireproof, and will be surmounted by the most powerful lanterns on the Pacific coast. The first of the number will be erected at Cape Beale.

The railway to Kano, Northern Nigeria, is nearing completion. The important centre of Zaria was reached at the end of January, while the intervening distance of ninety miles between Zaria and Kano is being covered at a much greater speed than was anticipated. The survey and earthworks of the new branch to the Bauchi tinfields are in progress, and the line is expected to be completed this year. The gauge of this section, one hundred miles, is to be 2ft. 6in., but the bridges and culverts will be so constructed that, if required, the line may be converted into the standard gauge as the rest of the Nigerian system. The line from Lagos, via the Niger, has almost reached Zungeru, the capital of Northern Nigeria.

LATEST PRICES.

IRON.

Steel Joists, Belgian and German (ex steamer, London)	Per ton	£5 12 6	to	£5 17 6	
Steel Joists, English		6 10 0	,,	6 15 0	
Wrought-Iron Girder Plates		7 0 0	,,	7 5 0	
Steel Girder Plates		7 2 6	,,	8 2 6	
Bar Iron, good Staffs		6 5 0	,,	6 10 0	
Do., Lowmoor, Flat, Round, or Square		20 0 0	,,	20 0 0	
Do., Welsh		5 15 0	,,	5 17 0	
Boiler Plates, Iron—South Staffs		8 0 0	,,	8 15 0	
Best Snedshill		9 0 0	,,	9 10 0	

Angles 10s., Tees 20s. per ton extra.

Builders' Hoop Iron, for bonding, &c., £8 15s. to £9.

Builders' Hoop Iron, galvanised, £14 to £15 10s. per ton

Galvanised Corrugated Sheet Iron—

	No. 16 to 20.	No. 22 to 24.
6ft. to 6ft. long, inclusive	Per ton.	Per ton.
gauge	£13 0 0	£13 10 0
Best ditto	13 0 0	14 0 0

Wire Nails (Points de Paris)—

3 to 7	8	9	10	11	12	13	14	15	B.W.G.
8/3	8/9	9/3	9/9	10/3	11/-	11/9	12/6	13/6	per cwt.

	Per ton.			Per ton.
Cast-Iron Columns	£6 10 0	to		£8 10 0
Cast-Iron Stanchions	6 10 0	,,		8 10 0
Rolled-Iron Fencing Wire	8 5 0	,,		8 10 0
Rolled-Steel Fencing Wire	6 5 0	,,		6 10 0
,, ,, ,, Galvanised	7 15 0	,,		8 5 0
Cast-Iron Sash Weights	5 0 0	,,		5 5 0
Cut Floor Brads	9 15 0	,,		—
Corrugated Iron, 24 gauge	16 0 0	,,		—
Galvanised Wire Strand, 7 ply, 14 B.W.G.	14 5 0	,,		—

B.B. Drawn Telegraph Wire, Galvanised—

0 to 8	9	10	11	12	B.W.G.
£10 5 0	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.

Cast-Iron Socket Pipes—

3in. diameter	£6 2 6	to	£6 7 0	
4in. to 6in.	6 0 0	,,	6 5 0	
7in. to 24in. (all sizes)	5 7 6	,,	6 0 0	

[Coated with composition, 5s. 0d. per ton extra; turned and bored joints, 5s. 0d. per ton extra.]

Pig Iron—	Per ton.
Cold Blast, Lilleshall	110s. 0d. to 117s. 6d.
Hot Blast, ditto	70s. 0d. ,, 75s. 0d.

Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.) :—

Gas-Tubes	75 p.c.
Water-Tubes	72½ ,,
Steam-Tubes	67½ ,,
Galvanised Gas-Tubes	65 ,,
Galvanised Water-Tubes	62½ ,,
Galvanised Steam-Tubes	57½ ,,

OTHER METALS.

Spelter, Silesian	Per ton	£23 5 0	to	£23 15 0	
Lead Water Pipe, Town		16 15 0	,,	—	
,, ,, ,, Country		17 10 0	,,	—	
Lead Barrel Pipe, Town		17 15 0	,,	—	
,, ,, ,, Country		18 10 0	,,	—	
Lead Pipe, Tinned inside, Town		18 15 0	,,	—	
,, ,, ,, ,, Country		19 10 0	,,	—	
Lead Pipe, Tinned inside and outside Town		21 5 0	,,	—	
,, ,, ,, ,, Country		22 0 0	,,	—	
Composition Gas-Pipe, Town		19 15 0	,,	—	
,, ,, Country.		20 10 0	,,	—	
Lead Soil-pipe (up to 4½in.) Town		19 15 0	,,	—	
,, ,, ,, Country		20 10 0	,,	—	

[Over 4½in. £1 per ton extra.]

Lead Shot, in 28lb. bags		24 15 0	,,	—	
Copper Sheets, sheathing & rods		70 0 0	,,	70 10 0	
Copper, British Cake and Ingot		57 10 0	,,	58 0 0	
Tin, Straits		194 0 0	,,	194 10 0	
Do., English Ingots		187 0 0	,,	187 10 0	
Do., Australian		187 0 0	,,	187 5 0	
Do., Bars		188 0 0	,,	188 10 0	
Pig Lead, in 1cwt. pigs		14 2 6	,,	—	
Sheet Lead, Town		16 5 0	,,	—	
,, ,, Country		17 0 0	,,	—	
Genuine White Lead		21 0 0	,,	—	
Refined Red Lead		19 0 0	,,	—	
Sheet Zinc		32 5 0	,,	—	
Old Lead, against account		11 18 9	,,	—	
Tin	per cwt.	11 0 0	,,	—	
Cut Nails (per cwt. basis, ordinary brand)		0 10 6	,,	—	

TIMBER.

CONSTRUCTIONAL.

Per St. Petersburg Standard (100—12ft. by 1½in. by 11in.)					
Yellow Pine Deals, Quebec, 1st quality		£3 4 0 0	to	£42 0 0	
,, ,, ,, 2nd ,,		24 0 0	,,	26 0 0	
,, ,, ,, 3rd ,,		15 10 0	,,	18 0 0	
Spruce Deals: St. Johns		8 0 0	,,	11 0 0	
,, ,, Miramichi		7 5 0	,,	8 10 0	
,, Boards: Swag		7 0 0	,,	8 0 0	
Red Deals: Archangel 1st quality		20 10 0	,,	21 10 0	
,, ,, ,, 2nd ,,		15 0 0	,,	17 0 0	
,, ,, ,, 3rd ,,		11 0 0	,,	12 0 0	
,, ,, St. Petersburg— 1st quality		16 0 0	,,	17 0 0	
,, ,, ,, 2nd ,,		13 0 0	,,	14 10 0	
,, ,, Wyburg & Uleaborg		10 0 0	,,	12 0 0	
,, ,, Gefle, Gothenburg, and Stockholm		10 0 0	,,	17 0 0	
White Deals: Crown		10 0 0	,,	12 0 0	
,, ,, Seconds		9 10 0	,,	10 0 0	
Flooring: White and Planed—1st and 2nd quality mixed		9 0 0	,,	9 5 0	
1st, 2nd, and 3rd quality mixed		8 5 0	,,	8 10 0	
Red Planed, 1st quality		11 5 0	,,	11 10 0	
Pitch Pine: Prime Deals and Boards		17 0 0	,,	20 0 0	
Lignum Vitæ		5 10 0	,,	12 0 0	
	Per foot super, as 1in.				
Yellow Pine Logs (waney board)		0 2 9	,,	0 4 3	
Pitch Pine Logs		0 1 6	,,	0 1 10	
Birch: Quebec Logs		0 2 0	,,	0 2 6	
Oak: Austrian Wainscot		0 7 0	,,	0 8 0	
Mahogany: Gahoon		0 6 1¼	,,	0 6 2½	

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (50c.ft.)		£20 0 0	to	£21 10 0	
,, Java ,, ,,		15 0 0	,,	18 0 0	
	Per cubic foot.				
Oak Planks: U.S.A., imported		0 1 9	to	0 2 6	
,, Boards ,, ,,	Prm.	0 2 4	,,	0 2 9	
,, ,, ,, ,,	Mdm.	0 1 10	,,	0 2 2	
Sequoia (Californian Redwood)		0 3 0	,,	0 3 6	
Birch: Quebec logs		0 1 8	,,	0 2 2	
,, ,, sawn planks		0 1 0	,,	0 1 2	
Oak: Austrian Wainscot		0 6 0	,,	0 7 0	
Walnut: Prime boards & planks		0 5 0	,,	0 6 0	
,, Mdm. ,, ,,		0 3 4	,,	0 3 6	
Greenheart: Hewn logs		0 3 6	,,	0 4 6	
Cedar: Cigar box		0 3 6	,,	0 4 8	
Satin Walnut: Imp. sawn boards, prime		0 2 3	,,	0 2 6	
Orham: Imp. sawn boards, prime		0 1 10	,,	0 2 2	
	Per foot of 1in.				
Mahogany: St. Domingo, Cuba, and Honduras		0 0 5½	to	0 0 6	
,, African, Assinee, &c.		0 0 4½	,,	0 0 9	
,, Lagos and Benin		0 0 3½	,,	0 0 4½	
,, Sekondi and Cape Lopez		0 0 2½	,,	0 0 3½	
,, Gaboon		0 0 1½	,,	0 0 0	
Satinwood: West Indian		0 0 10	,,	0 2 2	
Rosewood	Per ton	7 0 0	,,	12 0 0	
Lignum Vitæ	,,	4 0 0	,,	11 10 6	

STONE.*

Red Mansfield, in blocks	per foot cube	£0	,,	0 2 4	
Darley Dale, ditto		,,	,,	0 2 3	
Red Corsehill, ditto		,,	,,	0 2 2	
Closeburn Red Freestone, ditto		,,	,,	0 2 0	
Ancaster, ditto		,,	,,	0 1 10	
Greenshill, ditto		,,	,,	0 1 10	
Chilmark, ditto (in truck at Nine Elms)		,,	,,	0 1 9	
Beer, ditto		,,	,,	0 1 6	
Hard York, ditto		,,	,,	0 2 10	
Ditto ditto 6in. sawn both sides, landings, random sizes	per foot sup.	0	2	8	
Ditto ditto 3in. slab sawn two sides, random sizes		,,	,,	0 1	

* All F.O.R. London.

Bath Stone, delivered on rail at quarry stations	per foot cube	0	1	0	
Delivered on road waggons, Paddington Depot		,,	,,	0 1 6½	
Ditto ditto, Nine Elms Depot		,,	,,	0 1 8½	
Beer Stone, delivered on rail at Seaton Station		,,	,,	0 1 0	
Ditto, delivered at Nine Elms Station		,,	,,	0 1 6	

Portland Stone, in random blocks of 20ft. average:—

	Brown Whit Bed.			White Base Bed.	
Delivered to railway depot at the quarry per foot cube	£0 1 5½	...	£0 1 7½		
Delivered on road waggons at Paddington Depot	,, ... 0 2 1	...	0 2 2½		
Ditto, Nine Elms Depot					
Ditto, Pimlico Wharf					

BRICKS.

(All prices net.)

Hard Stocks	£1 6 6	per 1,000 alongside, in river		
Rough Stocks and Grizzles	1 6 0	,,	,,	,,
Picked Stocks for Facings	2 10 0	,,	delivered at railway station.	
Flettons	1 6 0	,,	,,	,,
Pressed Wire Cuts	1 18 0	,,	,,	,,
Red Wire Cuts	1 14 0	,,	,,	,,
Best Fareham Red	3 12 0	,,	,,	,,
Best Red Pressed Ruabon Facing	5 0 0	,,	,,	,,
Best Blue Pressed Staffordshire	3 15 0	,,	,,	,,
Ditto Bullnose	4 0 0	,,	,,	,,
Best Stourbridge Fire Bricks	3 14 0	,,	,,	,,
2½in. Best Red Accrington Plastic Facing Bricks	4 13 0	,,	Net, delivered in full truck loads in London.	

GLAZED BRICKS.*

HARD GLAZES. (PER 1,000.)

	White, Ivory, and Salt Glazed. Best.	Seconds.	Best. Buff and Cream.	Other Colours.	Second Colours.
Stretchers—	£10 17 6	£9 7 6	£12 7 6	£16 7 6	£10 17 6
Headers—	10 7 6	8 17 6	11 17 6	15 17 6	10 7 6
Quoins, Bullnose, and 4½in. Flats—	13 17 6	12 17 6	16 7 6	19 17 6	14 7 6
Double Stretchers—	16 7 6	14 17 6	19 7 6	22 17 6	16 7 6
Double Headers—	13 7 6	11 17 6	16 7 6	19 17 6	13 7 6
One side and two ends, square—	17 7 6	15 17 6	20 7 6	24 17 6	17 7 6
Two sides and one end, square—	18 7 6	16 17 6	21 7 6	25 7 6	18 7 6
Splays and Squints—	15 17 6	14 7 6	20 7 6	23 7 6	15 17 6
Plinth and Hollow Bricks. Stretchers and Headers—	5d. each	4d. each	6d. each	6d. each	5d. each
Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres—	5d. each	4d. each	6d. each	6d. each	5d. each
Rounded Internal Angles—	4d. each	3d. each	5d. each	5d. each	4d. each

MOULDED BRICKS.

Stretchers and Headers—	8d. each	8d. each	8d. each	8d. each	6d. each
Internal and External Angles—	1/2 each	1/2 each	1/2 each	1/2 each	1/2 each
Cill Bullnose, Stretchers and Headers—	5d. each	4d. each	6d. each	6d. each	5d. each

	Per 1,000		
Majolica or Soft Glazed Stretchers and Headers	£21 17 6		
,, ,, ,, Quoins and Bullnose	26 17 6		
Compass bricks, circular and arch bricks of single radius £6 per 1,000 over above list for their respective kinds and colours	Not exceeding 9in. × 4½in. × 2½in.		
Camber arch brick, any kind or colour, 1s. 2d. each			

Stretchers cut for Closers and Nicked Double Headers, £1 per 1,000 extra.

* These prices are carriage paid in full truck loads to London stations.

	s. d.		
Thames and Pit Sand	7 0	per yard, delivered.	
Thames Ballast	5 6	,,	,,
Best Portland Cement	28 0	per ton,	,,
Best Ground Blue Lias Lime	19 0	,,	,,

Exclusive of charge for sacks.

Grey Stone Lime	11s. 6d.	per yard, delivered
Stourbridge Fireclay in sacks	27s. 0d.	per ton at rly. stn.

SLATES.

	In. In.	£ s. d.		
Blue Portmadoc	20×10...12	12 6	per 1000 of 1200 at r.stn.	
,, ,,	...16× 8 .. 6	12 6	,,	,,
Blue Bangor	20×10..13	2 6	,,	,,
,, ,,	...20×12..13	17 6	,,	,,
First quality	20×10...13	0 0	,,	,,
,, ,,	...20×12...13	15 0	,,	,,
,, ,,	...16× 8...7	5 0	,,	,,
Eureka unfading green		£ s. d.		
,, ,,	20×10 ..15	17 6	,,	
,, ,,	...20×12 ..18	7 6	,,	,,
,, ,,	...18×10..13	5 0	,,	,,
,, ,,	...16× 8..10	5 0	,,	,,
Permanent green	20×10...11	12 6	,,	,,
,, ,,	...18×10... 9	12 6	,,	,,
,, ,,	...16× 8... 6	12 6	,,	,,

TILES.

	s. d.		
Plain red roofing tiles	42 0	per 1000	Delivered at rly. stn.
Hip and Valley tiles	3 7	per doz.	,, ,,
Broseley tiles	50 0	per 1000	,, ,,
Ornamental tiles	52 6	,,	,, ,,
Hip and Valley tiles	4 0	per doz.	,, ,,
Ruabon red, brown, or brindled do. (Edwards)	57 6	per 1000	,, ,,
Ornamental do.	60 0	,,	,, ,,
Hip tiles	4 0	per doz.	,, ,,
Valley tiles	3 0	,,	,, ,,
Selected "Perfecta" roofing tiles:—Plain tiles (Peake's)	46 0	per 1000	,, ,,
Ornamental do.	48 6	,,	,, ,,
Hip tiles	3 10½	per doz.	,, ,,
Valley tiles	3 4½	,,	,, ,,
"Rosemary" brand plain tiles	48 0	per 1000	,, ,,
Ornamental tiles	50 0	,,	,, ,,
Hip tiles	4 0	per doz.	,, ,,
Valley tiles	3 6	,,	,, ,,
Staffordshire (Hanley) Reds or Brindled tiles	42 6	per 1000	,, ,,
Hand-made sand-faced	45 0	,,	,, ,,
Hip tiles	4 0	per doz.	,, ,,
Valley tiles	3 6	,,	,, ,,
"Hartshill" braud plain tiles, sand-faced	50 0	per 1000	,, ,,
Pressed	47 6	,,	,, ,,
Ornamental do.	50 0	,,	,, ,,
Hip tiles	4 0	per doz.	,, ,,
Valley tiles	3 6	,,	,, ,,

OILS.

Rapeseed, English pale,	per tun	£28 15 0	to	£29 5 0	
Do., brown		26 15 0	,,	27 5 0	
Cottonseed, refined		29 0 0	,,	30 0 0	
Olive, Spanish		39 10 0	,,	40 0 0	
Seal, pale		21 0 0	,,	21 10 0	
Cocoanut, Cochin		46 0 0	,,	46 10 0	
Do., Ceylon		42 10 0	,,	43 0 0	
Do., Mauritius		42 10 0	,,	43 0 0	
Palm, Lagos		32 5 0	,,	33 5 0	
Do., Nut Kernel		35 0 0	,,	35 10 0	
Oleine		17 5 0	,,	19 5 0	
Sperm		30 0 0	,,	31 0 0	
Lubricating U.S.	per gal.	0 7 0	,,	0 8 0	
Petroleum, refined	,,	0 0 6½	,,	0 0 6⅞	
Tar, Stockholm	per barrel	1 6 0	,,	1 10 6	
Do., Archangel	,,	0 19 6	,,	1 0 0	
Linseed Oil	per gal.	0 4 2½	,,	—	
Baltic Od	,,	0 4 5	,,	—	
Turpentine	,,	0 5 5½	,,	—	
Putty (Genuine Linseed Oil)	per cwt.	0 11 0	,,	—	
,, Pure Linseed Oil, "Stority" Brand	,,	0 10 0	,,	—	

VARNISHES, &c.

	Per gallon.
Fine Pale Oak Varnish	£0 8 0
Pale Copal Oak	0 10 0
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 6
Extra Pale Paper	0 12 6
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

GLASS IN CRATES.

English Sheet Glass:	15oz.	21oz.	26oz.	32oz.
Fourths	1¼d. ...	2¾d. ...	3¾d. ...	4¾d.
Thirds	2¼d. ...	3¾d. ...	4d. ...	5d.
Fluted Sheet	2¾d. ...	3¾d. ...	6d. ...	6¼d.
Hartley's English Rolled Plate:	⅛in.	3/16in.	¼in.	
	2¼d. ...	2¾d. ...	3d.	

Figured, Rolled, and Repoussine: White. Tinted. 3½d. ... 5d.

LIST OF COMPETITIONS OPEN.

[illegible], West Cara[illegible]	[illegible]	[illegible]
Newton Abbot—Seale-Hayne [illegible]	S. Smith, J.P.	[illegible]
F.R.I.B.A., 164, Fe[illegible]	[illegible]	£11[illegible], £[illegible], £40
Stockport—Pol[illegible] Stat[illegible]	[illegible]	[illegible]
Sofia, Bulgaria—Stat[illegible]	[illegible]	£280, £120, £80, £1[illegible]
Swansea—Cast[illegible] street	[illegible]	[illegible] S. S. Rees,
F.R.I.B.A.	[illegible]	£50
Devizes—A[illegible]	[illegible]	£10 10s.
Aspatria—S[illegible]	[illegible]	[illegible]
Alle[illegible]	[illegible]	£80, £320
Glasgow—A[illegible]	[illegible]	£60, £20
I[illegible]	[illegible]	[illegible]

T. Kelly, Clerk, The Workhouse, Kilrush	April 15
R. N. Wale, Principal, Seale-Hayne College, Newton Abbot	,, 18
R. Hyde, Town Clerk, Town Hall, Stockport	,, 22
Kreis-Permanenz-Ausschuss, Sofia, Bulgaria	,, 30
The Town Clerk, Guildhall, Swansea	May 5
E. Thorp, Hon. Secretary, Devizes	,, 10
F. Richardson, Clerk, Aspatria, Cumberland	June 10
Comm. Intel. Branch, Board of Trade, 73, Basinghall-street, E.C.	Aug. 8
C. J. Maclean, Secretary, 115, St. Vincent-street, Glasgow	Dec. 29
Thomas G. Henderson, Secretary, Eastgate House, Inverness	No date

LIST OF TENDERS OPEN.

BUILDINGS.

St. Albans—St. Paul's Vicarage	[illegible]	E. and J. P. Catts, Archts., 14, Southampton-street, Strand, W.C.	April 14
Windsor—Alterations to Workhouse	Guardians	Edgington and Spink, Architects, 52, High-street, Windsor	,, 14
Caerphilly—Additions to Station Inn	Griffiths Bros., Ltd.	H. Griggs, A.R.I.B.A., Metropolitan Bank Chmbrs., Newport, Mon	,, 14
East Howe—School	Dorset County Council	Fletcher, Son, and Brett, Wimborne	,, 14
Chelsea, S.W.—Repairing Floors at Infirmary, Cale-street	Guardians	E. J. Harrison, Architect, 9, Gray's Inn-square, Holborn, W.C.	,, 14
Stansted—Elementary School (216 places)	Essex Education Committee	F. Whitmore, Architect, 73, Duke-street, Chelmsford	,, 15
East Grinstead—Open Air Swimming-Bath	Urban District Council	W. E. Woollam, Engineer, East Grinstead	,, 15
Stansted—Alterations to School	Essex Education Committee	F. Whitmore, Architect, 73, Duke-street, Chelmsford	,, 15
Coleham—Riding School and Offices	Shropshire Territorial Force Assoc	F. H. Shayler, F.R.I.B.A., 16, Pride-hill, Shrewsbury	,, 15
Edeyrn—Semi-Detached Villas	[illegible]	Captain Williams, Angorfa, Edeyrn, Nevin	,, 15
Chator—Eighteen Houses	Ainsworth and Sons, Ltd.	J. S. Stont, Architect, 36, Lowther-street, Whitehaven	,, 15
Pwllheli, Wales—Alterations, &c., to Penmount C.M. Chapel	[illegible]	E. Jones-Griffith, Council School, Pwllheli, Wales	,, 15
Ipswich—Additions to Freemason's Hall, Soane-street	[illegible]	G. H. B. Gould, A.R.I.B.A., Architect, 9, Tower-street, Ipswich	,, 15
Edinburgh—Reconstructing National Gallery of Scotland	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 17
Newark—Buildings, Barnby-road	Isolation Hospital	The Surveyor's Office, Town Hall, Newark	,, 18
Liskeard, Cornwall—Choir Vestry, Liskeard Church	[illegible]	J. Sansom, F.R.I.B.A., Liskeard, Cornwall	,, 18
Cantley—Alterations at School	Norfolk Education Committee	T. A. Cox, Secretary, Education Offices, Shire Hall, Norwich	,, 19
Heaton, Newcastle-on-Tyne—New Branch Post Office	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 19
Eldon—Church Hall and Sunday School	[illegible]	W. A. Kellett, Architect, Bishop Auckland	,, 19
Carnforth—Enlarging Post Office	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 19
North Lopham—Enlargement of School	Norfolk Education Committee	T. A. Cox, Secretary, Education Offices, Shire Hall, Norwich	,, 19
Millom—Extension of Secondary School	Cumberland Education Committee	H. Grayson, Architect, 31, James-street, Liverpool	,, 19
Huddersfield—Additions to Branch Store at Marsh	Industrial Society, Ltd.	J. Berry, Architect, 3, Market-place, Huddersfield	,, 19
Whissonsett—Improvements at School	Norfolk Education Committee	T. A. Cox, Secretary, Education Offices, Shire Hall, Norwich	,, 19
Church, Accrington—Extension of Sewage Works	Sewerage Board	W. J. Newton, A.M.I.C.E., Town Hall, Accrington	,, 19
Great Walsingham—Enlargement of School	Norfolk Education Committee	T. A. Cox, Secretary, Education Offices, Shire Hall, Norwich	,, 19

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THE BUILDING NEWS

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OUR ILLUSTRATIONS.

The North British and Mercantile Insurance Company's New Premises, Waterloo-place, S.W. Messrs. Thompson and Walford, Architects. Views, Detail Photograph, and Plans.

St. Mary's Church, Ingestre, Staffs. Sir Christopher Wren, Architect. Measured and Drawn by Mr. T. Harold Hughes.

House and Studio at Hythe, Kent. Messrs. H. R. and B. A. Poulter, Architects.

New Outpatients' Department the Royal Infirmary, Liverpool. Mr. J. Francis Doyle, Architect.

Canon Walker Memorial, Whalton Church, Northumberland. Messrs. Hicks and Charlewood, Architects.

COLD WINDS AND THIN WALLS.

Most of the gentlemen who gave evidence before the recent Departmental Committee on the cost of elementary school buildings seem to have tried, or thought of trying, to reduce this cost by reducing, in one way or another, the thickness of the walls. More experiments involving such a reduction might, and probably would, have been tried were it not that the local by-laws do not very often encourage them. Their blessing rests on brick and stone, but on brick and stone used in well-known ways, and of customary thicknesses. Mr. Cecil Sharp laid before the Committee some plans of a Poor-Law school erected by him at Anerley, and Mr. Shelmerdine explained that it was proposed to try a similar type of building for some new schools at Liverpool. The Anerley schools, it seems, cost nearly sixpence per cube foot, or £8 4s. 6½d. per scholar. Mr. Hawkins, who was responsible for the erection of a great deal of similar work at the Franco-British Exhibition, thought it would serve excellently for schools, and that a concrete slab wall, with steel framing, and concrete slabs covered outside with cement roughcast, so as to have a total thickness of 4in., would make a comfortable and useful building. He thought with a moderate-size central hall, such schools could be erected for less than £7 per head. As to the cost of maintenance, there have been some difficulties with this system, because of the cracking and the thin curtain walls. These, with longer experience, may be overcome; but the Committee are of opinion that the amount of heating-surface needed to keep such a building comfortable, if it were only 4in. thick, would have to be exceptionally large. So much for (1) *Steel-frame Buildings with Thin Walls of Concrete.*

2. *Steel-frame Buildings with Hollow Concrete Slabs.*—This idea does not seem to have been actually tried by any witness before the Committee; but it was suggested to them by Mr. Cecil Sharp, who had designed a special type of concrete block for the purpose. Mr. Searles-Wood and Mr. Jacques seem also to have accepted the principle; but no positive evidence, either as to cost or as to durability, was offered either for or against it.

3. *Steel-frame Buildings with Curtain Walls of Brick.*—Some buildings of this type were lately put up at Bordon Camp, under the direction of Brigadier-General Scott-Moncrieff. The structural part was of steel filled in with 4½in. brickwork, and roughcast on the outside. The same principle has been adopted in some riding-schools, and the men who use them said they were comfortable, even in the coldest weather. Men in riding-schools, and children sitting at lessons, perhaps close to a thin brick wall, are, however, likely to have very different ideas as to what is comfortable. The saving in cost as compared with barracks of the usual kind is said to be very considerable; but we find in the Report no materials for an exact comparison.

4. *Steel-frame Buildings with Walls of Various Patent Materials.*—There is a much-used material, called "Frazzi," and this the Committee specially investigated. It is made up into hollow blocks about 2ft. by 1ft., and 3in. thick. The perforations are longitudinal, and run down the whole length of the block. In appearance and construction the blocks are not unlike terracotta. They are not waterproof, and therefore have to be cemented on the outside. They are about 3in. in thickness, and have a comparatively soft and porous surface. In Italy they have long been used for internal walls, but not for outside ones. Mr. West, the architect of two hospitals in this material, gave evidence that kicks and blows do not easily break it, but that it is easily pierced with a hammer or pick-axe; therefore it is not suitable for use as a party-wall. It does, however, split up by the action of fire. The structures Mr. West designed in it were composed of steel uprights 12 or 14ft. apart, imbedded in concrete footings. Cross joists carried the floors and walls above; and the wall-spaces were filled with "Frazzi." It was not necessary to allow for extra heating, as compared with an ordinary 14in. wall, because the air in the perforations kept the temperature equal. At Windsor the local by-laws were altered, with the consent of the Local Government Board, to allow "Frazzi" to be thus used. At Benenden, where Mr. West superintended the National Sanatorium of the same materials, there were no local by-laws.

Mr. West further remarks that, as the material is light, the cost of carriage is low. At Benenden, though it is seven miles from a railway station, the cost of the raw material on the site was not ten per cent. higher than at Windsor, though the railway journey is really somewhat longer. Also, the work went on so rapidly that there was a reduction on this account in its cost to the contractor. Local by-laws, Mr. West said, were the great obstacle to the use of "Frazzi" construction on an increased scale. If by-laws could be relaxed, a great impetus would be given to experiments with it.

5. *Buildings of Reinforced Brickwork.*—Reinforced brickwork, as defined in the Committee's report, is a method of forming double walls in which each of these walls may be of 4½in. brickwork (or even of 3in. by the use of brick on edge). Major H. S. Rogers, surveyor to the Prisons Commission, has used it extensively in prison-work, as, for instance, at Borstal Prison. There, in a two-storied building, the weight of the roof comes on ferro-concrete piers, built where they stand. The reinforcement to the walls is effected by means of strips of galvanised wire netting (strengthened by longitudinal wires), and of a width fitting it to be entirely buried in the thickness of the wall, and placed in every third or fourth course of the brickwork. This is not only to increase the strength of the wall greatly, but to make continuous foundations needless (as a wall will carry itself if supported every 10ft. or 15ft.), and also to do away with the necessity for lintels over ordinary openings, and to be a help in the fixing of door-frames, window-frames, and other details. Where hollow walls are used, ties of the netting are built across, instead of the ordinary iron ties, from wall to wall. It is stated that a hollow wall of brick on edge, so built in 2 to 1 cement mortar and reinforced with wire net in every other course, will, in average cases, cost about 2s. 7½d. per yard super., and that if the reinforcement is in every third course only, the price will be 2s. 3½d. only. This is hardly evident on the face of it, seeing that a common 4½in. wall will cost from 3s. 11½d. to 3s. 5d. per superficial yard; and the report infers that the cost would "only exceed very slightly that of an ordinary 11in. brick hollow wall." Where the bricks are laid flat on this system, of course, more bricks are used; but the saving in labour by laying them in the usual way compensates to some extent for the saving in material secured by laying them on edge. The matter which affects other buildings as well as schools, apparently requires a little further explanation; but there seems to be some promise in what Mr. E. Fisher has to say about "reinforced brickwork." He tells us that "for reinforced brickwork specially skilled labour is necessary, and that the least vibration prevents the wall from setting properly."

6. *Ferro-concrete Construction.* — The Board of Education has offered to consider favourably any plan for this mode of construction which may be laid before them; but it appears that none have yet been submitted, and no case has come to the Committee's knowledge in which a ferro-concrete school has actually been built. The general belief seems to be that for a school there would be no saving in it; and

OLD STIPULATIONS AGAIN.

In our issue of March 24 we quoted the judgment of Mr. Justice Joyce as decided by Mr. Justice Joyce. This judgment has since been practically reversed by the Court of Appeal (*Times*, April 5), and the case remitted to the plaintiff. That circumstance in the legal result of the action does not, in the least, affect the interest of the several points we noted in regard to the long stipulations restricting the use of freehold houses, but it does make them more important and instructive to owners or lessees of such residential property. The decision of the Court of Appeal to which the Master of the Rolls himself both belong, agreeing with the judgment delivered by Mr. Justice Joyce, turned on the construction of a clause in the plaintiff's agreement. She had taken a house at Hampstead to use as a private boarding establishment. The defendant, who owned the property in this way, knew the plaintiff's intentions, and he had to give his consent to the assignment of his lease to her. In so doing he waived the covenant as to its being used as a private dwelling-house only. With this consent he went on and granted the lease to the plaintiff under an agreement clause 7 of which provided that the plaintiff as tenant should use the premises for private residential purposes, but should be entitled to carry on therein a high-class boarding establishment. After the plaintiff had bought furniture and opened her house, relying upon this clause as being a landlord's covenant, the original owner of the whole estate came forward and pointed out that the freehold of the portion which the house was built held it subject to a stipulation that it could be used only as a private dwelling. No one throughout the various negotiations had thought of there being this well-known restriction. The plaintiff had to go out and then sued her landlord for damages. Mr. Justice Joyce held that the clause above quoted did not amount to a warranty of title by the defendant as landlord, and so he could take no order. So the case ended there, each party paying his own costs, and no costs being done.

The Court of Appeal, by the judgment of Lords Justices Fletcher Moulton and Buckley and against the opinion of the Master of the Rolls, has now decided that the concluding words of clause 7, expressly saying that the plaintiff as tenant, could use the house for the purpose of carrying on a high-class boarding establishment, did amount to an absolute warranty of title by the defendant as landlord. This was a direct reversal of the very strongly expressed view of Mr. Justice Joyce that the effect of clause 7 was merely a qualification of the earlier portion, and did not, and could not, amount to a warranty of title against the world. The Court of Appeal, by a majority, have now decided that this rather vague clause constituted an absolute covenant by the landlord that the plaintiff as tenant should be able to use the premises as a private boarding house. The Court then, as following upon their decision, ordered that as the covenant had been broken by the defendant the plaintiff was entitled to [illegible] as to the amount of the damage she had sustained thereby. As the matter now stands therefore, the Lord Chancellor's lessee of this house will have to pay whatever sum in the way of damages and costs, although he had obtained the assent of his lessor to waive the covenant on the strength of which alone he was bound so far as he knew. It really seems a hard thing to do against the plaintiff, who suffered loss through no possible fault of her own. The Court were acting rather harshly to the defendant who, being a mere lessee, would never see the deeds of his estate, the freeholder and could not therefore, have actual notice of the existence of this old building stipulation contained in the old original conveyance from the first owner.

The point of the whole position is, however, that the owner of a freehold house cannot do as he likes with it, unless he takes the risk of finding out afterwards that he is restricted in its user by certain old stipulations imposed upon the land when it became the property of one of his predecessors in title. In this last case the defendant was a lessee from such a freeholder; but it would have been the same thing had the lesser himself granted the agreement. These stipulations are for all legal purposes identical with restrictive covenants; but while these would be seen in a lease, and the necessary consent would be obtained, they may be overlooked in regard to a freehold house, especially when it has passed by transfer to another owner from the original purchaser. Where, as in this case at Hampstead, and in so many others all over the country, an old estate is laid out for building purposes, building stipulations of the kind are as common as they are necessary. If the neighbourhood is to be maintained as a high-class residential locality, it is quite obvious that they are required; but their probable existence should be borne in mind, not only by solicitors, but also by estate and house agents concerned in letting and dealing with this class of house.

If the Court of Appeal's judgment remains as it is, there might easily be a question as to the liability of those advising an owner who became liable for damages for overlooking the existence of such a stipulation. Indeed, it is possible that we have not yet heard the last of the litigation in this case itself. The House of Lords may be asked to reconsider the judgment which here held this loose clause in an agreement to be an absolute covenant against the world including the holders of a paramount title such as that of the original vendor of the estate. For, of course, this ruling of a majority of the Court of Appeal has established a precedent which can be quoted generally in regard to the effect of other similar clauses, and so may become a serious and somewhat novel point in property law, having results that go further than was anticipated. But however this may be the judgment as it stands is notable as an instance of loss that may occur, and the litigation can arise even when all parties have acted in complete good faith. This is one of the law's hard surprises, and it is a very pretty problem as it stands, for academic argument as to which side ought in equity, to pay for its full solution. The only moral that remains is that the law of real property requires very skilful handling in its practical working if loss and confusion are to be avoided.

Mr Robert Halford, estate agent of Nottingham, left personalty amounting to £191,493.

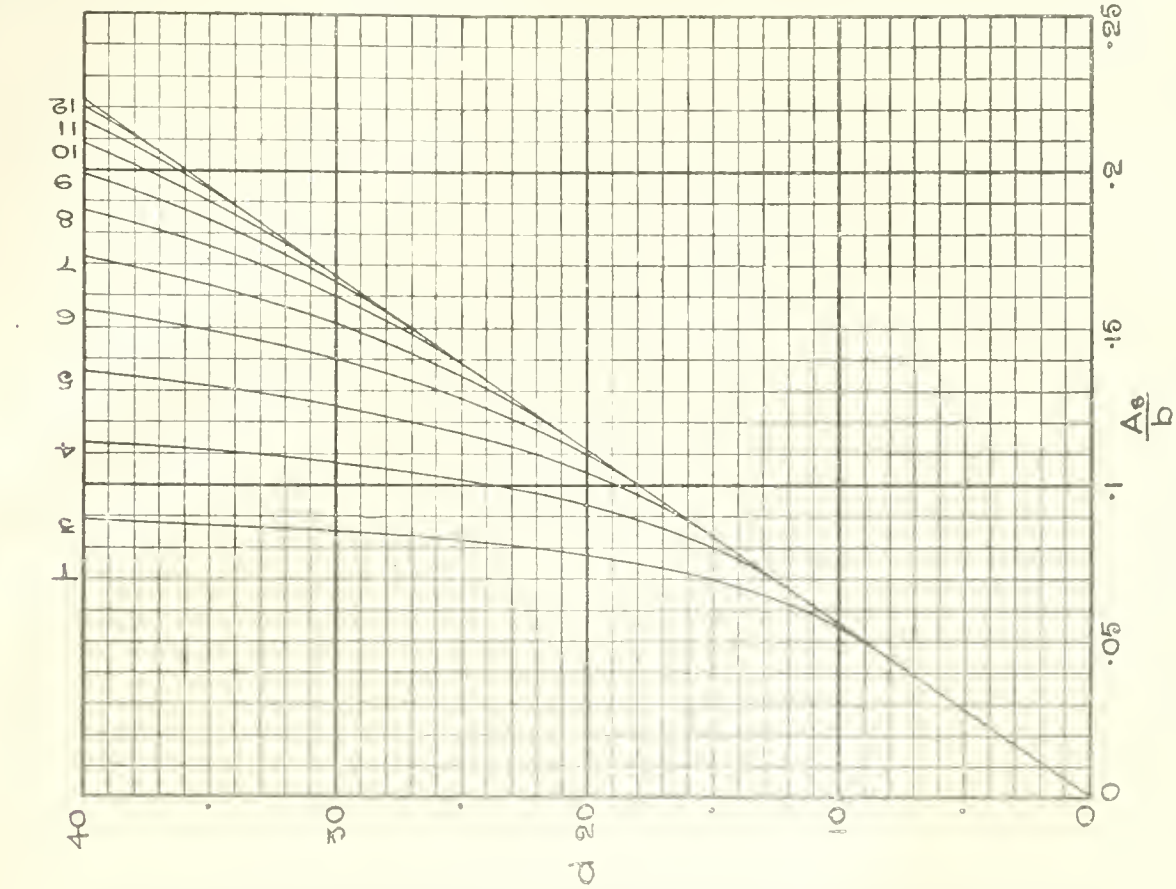

Diagram 15.—T-beams with Single Reinforcement. $f_c = \frac{1}{4}$ ton per square inch, $f_s = 7\frac{1}{2}$ tons per square inch, $r = 15$.—To obtain area of reinforcement, A_s, using depth d obtained from Diagram 14, and curve for thickness of slab T, read $A_s \div b$ on base line, and multiply by effective breadth of flange b.

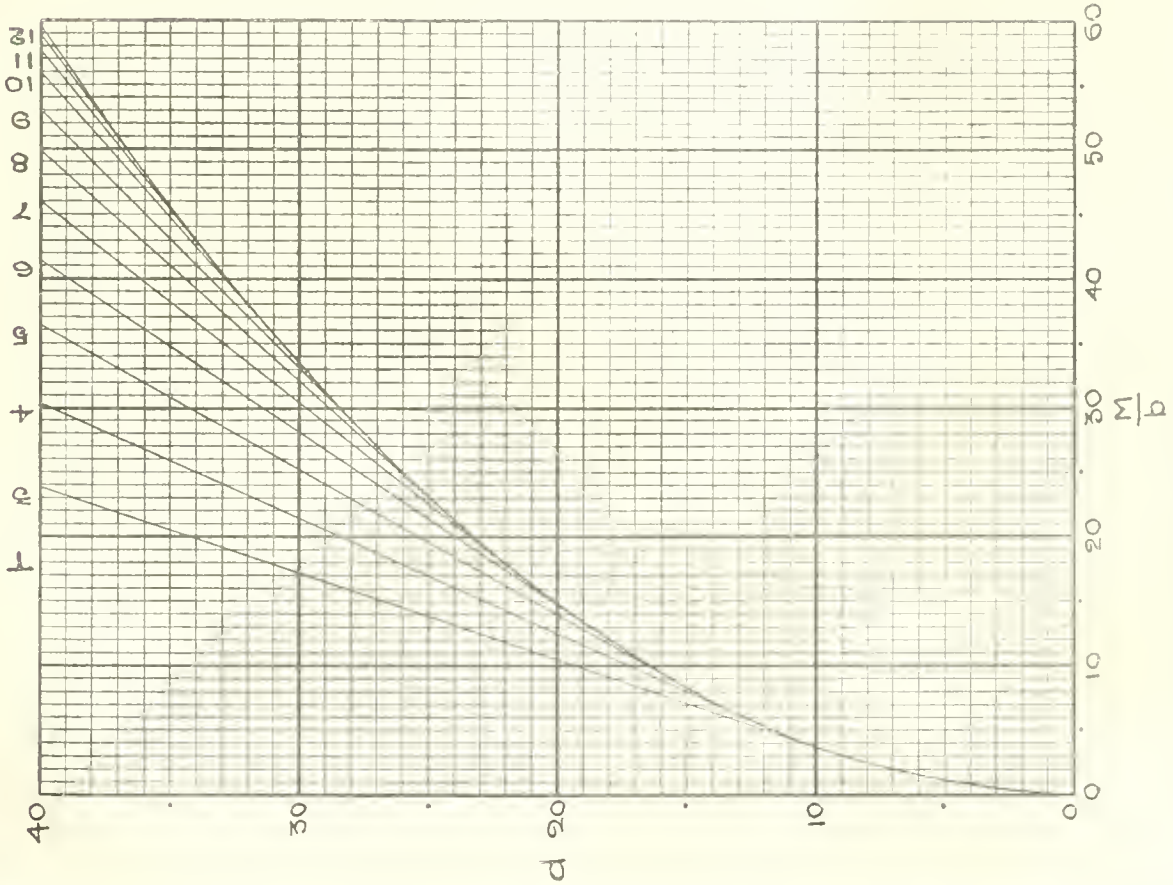

Diagram 14.—T-beams with Single Reinforcement. $f_c = \frac{1}{4}$ ton per square inch, $f_s = 7\frac{1}{2}$ tons per square inch, $r = 15$, $h' = \frac{1}{2}d$, $c = \frac{1}{8}$ depth of tensile reinforcement + 2in.—To obtain depth of T-beam, divide maximum bending moment in M by effective breadth of flange b, and using curve for thickness of slab T, read depth d on left hand.

REINFORCED CONCRETE DESIGN. VII.

By Richd. Coulson, Licentiate R.I.B.A., and Richd. Coulson, jun., Assoc.R.C.Sc.I.

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REDUCED WORKING FORMULÆ AND DIAGRAMS 14, 15, 16, AND 17, FOR T-BEAMS WITH SINGLE REINFORCEMENT.

$f_c = \frac{1}{4}$ ton per square inch, $f_s = 7\frac{1}{2}$ tons per square inch, $r = 15$, $h' = \frac{1}{2}d$, $c = \frac{1}{8}$ depth of tensile reinforcement + 2.

WEIGHT OF WEB.

It is impracticable to make an exact allowance in T-beam formulæ for the weight of the web; but a close approximation may be made (when calculating the value of M) by adding 5 per cent. to the total load to be carried by the beam.

COST OF BEAM.

It is, of course, equally impracticable to give any fixed formulæ for the cost of T-beams; but it is easily obtained by cubing up the web, also the reinforcement, and pricing out at the rates previously given.

VALUE OF b.

The value of b—i.e., the proportion of slab acting as flange of T-beam, should not in any case exceed one-third the span of the T-beam itself; *or*, where there is slab reinforcement parallel to the beam, half the distance between the beams; *or*,

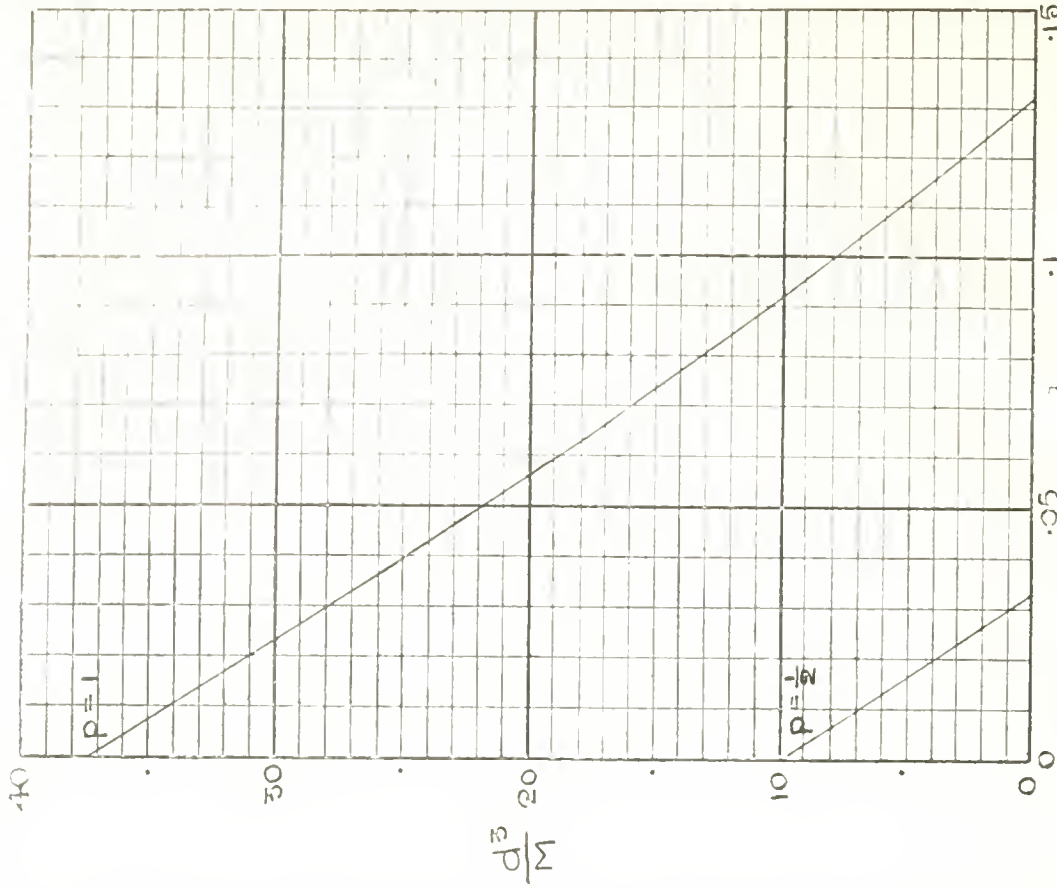


Diagram 17. I-beams with Single Reinforcement and Uniformly Distributed Loading. $f_c = 4$ tons per square inch, $f_s = 7\frac{1}{2}$ tons per square inch, $r = 15$, $b' = \frac{1}{2}d$.—To obtain distance l from centre of support to point at which increase in depth of web commences, divide cube of depth d by maximum bending moment M, and using curve for selected value of p, read l/L on base line, and multiply by span L. (See Fig. 12, p. 481, Article VI.)

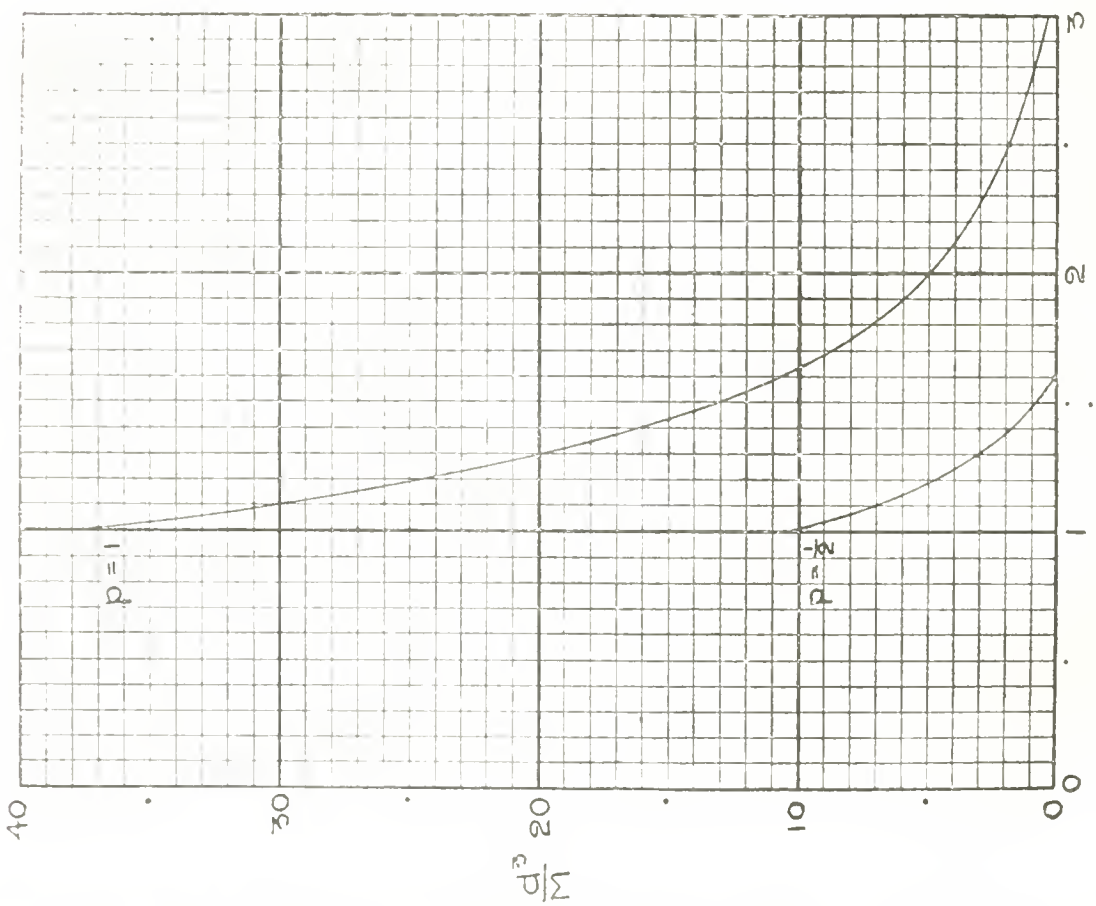


Diagram 16. I-beams with Single Reinforcement $f_c = \frac{1}{4}$ ton per square inch, $f_s = 7\frac{1}{2}$ tons per square inch, $r = 15$, $b' = \frac{1}{2}d$. To obtain increased depth of web d' at fixed ends or intermediate supports, divide cube of depth d by maximum bending moment M, and using curve for selected value of p, read j on base line, and multiply by depth d. (See Fig. 12, p. 481, Article VI.)

If neutral axis is at lower side of the slab either formulæ may be used; or m and A for all cases may be found from accompanying Diagrams 14 and 15.

Stirrups should always be used in T-beams, and can be designed by formulæ and diagrams given on p. 304, Article II.

NEGATIVE MOMENT AND RESISTANCE.

If the beam is either fixed at ends or con-

tinuous over supports, and p is the ratio of the negative moment at centre of support to the maximum positive moment, then—

$$\text{negative R} = p \times \text{positive R}.$$

If this negative R is to be provided for by increased depth of beam, the value of j can be got from diagram 16, when depth from centre of upper reinforcement—

$$d' = jd, \text{ and } jd\,(1 - x/3) = .89jd.$$

For beams with uniformly-distributed loading; the value of l_1L can be obtained from diagram 17, and this multiplied by L will give the distance from centre of support at which the increase in depth must commence. For any other system of loading the bending-moment diagram should be drawn, when the increase must commence at the points in the span where the negative

$$M = d\ 54\,(d^2 + 112\,A_s).$$

Should these points fall within the supporting beams or pillars, there is then, of course, no need for any increased depth. If for any reason it is not desired to increase the depth, then the total area of compressive reinforcement at supports will be—

$$C_s = \frac{360\,A_s p - d^2}{112}$$

so that if the tensile reinforcement be continued straight through, the additional area required will be—

$$C_s - A_s = (3.2\,p - 1)\,A_s - .009\,d^2,$$

and this must extend to the points at which increase in depth would otherwise commence.

The area of the negative tensile reinforcement near upper surface, and extending to the quarter-points of the beam, will be—

$$A_s' = p\,A_s,$$

or if depth of beam remain constant—

$$A' = p\,A_s.$$

If there be no slab reinforcement transversely to beam, then the number of rods required of diameter u' and length $2b'$ to take up the vertical shear at junction of slab with beam will be—

$$1.9\,A_s\ (d')^2.$$

In the next article an illustrated example for designing a floor with main and secondary T-beams will be given.

(*To be continued.*)

Errata in Article VI.—Formulæ for area and number of rods just above Fig. 9, p. 480, should be $\frac{1}{2}\,\frac{2A_s f_s}{s_s}$ and $\frac{1.27\,A_s f_s}{(u')\,s_s}$ respectively; and that for compressive resistance of concrete web under Fig. 12, p. 481, $\frac{1}{2}b'd'xf_c = \frac{1}{4}dd\ xf_c$; also first term in Equation (35), p. 481, should be $j^2\,\frac{d^3}{M}$.

ROCK ASPHALT FOR STREET PURPOSES.*

By Edward Walker, A.R.San.I., Etc.

I take it for granted that all are familiar with the history of road-making, from the time of the Carthaginians up to that of Macadam and Telford, when practically a new era began so far as our own roads are concerned. With the advent of macadam roads began a period of commercial demand for better roads which could not be put aside, and rollers were soon used to consolidate the metal put on the surface. Horse-rollers were used at first, and it is only within the lifetime of some of us that the steam-roller was first used in this country, although earlier trials had taken place in France, and it is worth noting that for some time the authorities of many of our most important towns refused to permit one to be used in their districts. The steam-roller had, however, come to stay, and its use made such a marked improvement that larger loads on larger vehicles, with an extra horse or two, became the order of the day, and since then a continual demand has been going on for better roads, and now we see our great arteries for traffic demacadamised, and in its place a 6in. or 8in. concrete foundation has been put, paved up with granite or other good wearing setts. As the great traffic roads improved, a demand for better private streets arose, and by the Public Health Act, 1875, sec. 150, a new chapter in street works commenced, and although we are all, I take it, familiar with the clinker and cinder formation for temporary purposes, I venture to say there is not one present this evening (unless he happens to be a speculative builder) that would recommend it for permanent use. Private streets must now be made up to the specification of the surveyor of the local authority before they will be taken over; and, of course, local conditions must always be important factors in arriving at a final decision as to the materials to be used. Formerly, the cost was the first consideration; but the advance of sanitary science during the last thirty years has made its mark on the old order of things, and we now begin to recognise that the health and welfare of the community is of more importance than the pocket of the speculative builder. Whatever the materials used, care should be taken that only the best of its class is allowed to be used, and the work carried out thoroughly and efficiently. Speaking from my own experience, I am of opinion that, in most cases, far too much work is expected from the superintendent or inspector of works to permit of sufficient time being given to each job; so as to enable him to satisfy himself that the work has really been carried out to his own satisfaction, so that he may report to his chief conscientiously that the specification has been carried out in a proper manner. Of the several methods of making up private streets, I have come across nothing to equal rock asphalt, and although it has always been considered the most expensive, I hope, before I finish, to satisfy you that this is not so, but rather that it is, on the contrary, one of the best and cheapest methods yet adopted.

ASPHALT.

Asphalt is a term used vaguely to denote (a) bitumen or natural pitch, (b) substances impregnated with bitumen, (c) pitches produced artificially from the residuum oils of naphtha and petroleum, shale oil, animal fat, coal-tar and Stockholm tar, (d) tar-macadam or tar-concrete, a paving material composed of gravel or broken stone and coal-tar. Much confusion has arisen from this indefinite naming, for artificial pitches, though chemically allied, are inferior to the natural product, and must not be confounded with it, and it should be clearly understood that bitumen or natural pitch is not asphalt, but one of its principal ingredients. Asphalt is a distinct natural product, like coal, and may be described as "calcareous rock impregnated naturally by bitumen," and, like coal, it is mined. The principal places from which it is obtained are Val de Travers, in Switzerland; Seyssel and Lovagny, in France; Limmer, in Hanover; and also from mines in Sicily. For using, the lumps of rock are reduced to powder by machinery, then screened, the coarse pieces taken out and reground, and the powder stored under cover. It is afterwards placed in slowly-revolving cylinders and subjected to a heat of from 250° to 280° F., or in winter, and during cold weather, this may be raised to 300° F. The fire must be of wood or coal, as coke injures the material. When heating, which takes from three to five hours, the utmost care must be taken, as, if overheated, the bitumen is fused, and if underheated, it will not bind properly, the exact heat varying, however, with the brand of asphalt. The object of heating is to eliminate all moisture, and so leave the bitumen in the best possible condition for binding. Formerly, the powder was put on the foundation, in its heated state, at from 2in. to 3in. deep, according to the thickness at which it was required to be finished; it was then raked to make it even, and rammed with hot rammers or tampers, usually weighing about 12lb., and finally rolled with a 10-ton roller until the asphalt got cold. Roads made in this way were most satisfactory where the traffic was heavy, and so helped to consolidate the material; but for light traffic it was a failure, and gradually the mastic asphalt has been introduced into this country, and has superseded the powder. The majority of rock asphalts contain from 5 to 10 per cent. of bitumen, and in order to obtain the mastic condition a sufficient quantity of bitumen is added to bring the proportion up to 15 per cent. The bitumen and the powder are then put into a cauldron or boiler and heated up to 400° F., after which the product is run off into moulds to cool, forming flat cakes about 3in. or 4in. thick, and weighing about 56lb. each, and it is in this state that it is imported into this country. When required for use, the blocks are broken up again, heated with an addition of from 5 to 8 per cent. more bitumen, and from 20 to 40 per cent. of clean grit. Limestone is recommended by some authorities, and sand by others; but in our district ⅜in. screened Dalbeattie granite chippings are used with satisfactory results. Half of the mastic and half of the bitumen are then placed in a combined cauldron and mixing-machine, and when melted the other half of bitumen and mastic is added. When the mass is quite soft the grit is added, and the composition is spread evenly over the surface. The "cooking," as it is generally termed, takes from four to six hours, during which it should be carefully tended and stirred.

MAKING UP A STREET.

The method of carrying out the making up of a street may be shortly stated as follows. Taking an ordinary cinder-made road, the first thing is to have it excavated so as to admit of a 6in. foundation of concrete and 1½in. of asphalt, to finish level with the surface-water gullies, with a camber of about 1 in 36 from the crown to the channels. The kerbs should then be redressed if necessary and relaid, and where the footpaths are to be finished in the same manner it improves the look of the street to have the backs of the kerbs dressed to a straight line, so that the asphalt may have a clean line of finish, rather than a wavy one. If the street is on a slight gradient, so much the better, as the surface-water can then get away without having to make summits in the water-tables. If, however, gradients have to be formed in the channels, it will be found that a fall of 1/250 will be quite ample from summit to gully. I think it always makes a street look better to see a good depth of kerb above the channels, and I always have the gullies set at about 5½in. below the kerb, and the summit 3in. below the kerb, thus giving 2½in. end fall either way. If there is a similar fall in the street, I have a uniform depth of channel of 3in. from top of kerb. Before the concrete is put down, it is as well to have all manhole tops, water hydrants, gas-valve covers, and gullies adjusted to the camber of the roadway when finished. For the concrete care should be taken that only the first-quality Portland cement of British manufacture by approved makers, and complying with the Engineering Standard Committee's specification, is allowed to be used. The sand should be clean and sharp, and, if necessary, should be washed before mixing; the stone should also be clean broken stone, not brickbats, to pass through a 1½in. or 1¼in. ring. The proportions used, to get the best results, are, I find, 4½ of broken stone, 1½ sand, and 1 Portland cement. These should be accurately measured on to a banker and thoroughly mixed by turning over twice dry and twice wet; the water used must be clean, and applied only out of a can with a proper rose, or from an elevated tank through a hose-pipe fitted with a rose or spray. The heights having been put in, a screed is run along the kerbs, and when these have set the concrete is filled in to the required thickness and brought to an even surface with a spade, and worked to a template made to the proper camber. To keep the crown of the road at one regular height, pieces of wood, graded from 0 to 2½in., or the depth of the fall allowed in the channels, are placed along the screeds on each side of the road for the plate to run on, and this work should be

* A paper read at a North-Western District Meeting of the Institution of Municipal Engineers, held at Manchester on April 12.

[illegible] Co., Ltd., engineers; C. Jennings and Co., doors; J. A. Kynoch and Co., partitions; Boots Asbestos Co., Ltd., "Poilite"; John [illegible], sashes; Rochdale Sanitary Pipe and Brick Co., Ltd., Stand 49, Row D; Stanley Jones and Co., Ltd., Brilliant Sign Co., Ltd., Stand 47, Row D; F. H. Brook, Garratts Valve; Cuttens Asbestos and Rubber Works, Ltd.; Japanol Enamel Co., paint; Thos. Lawrence and Sons, bricks, Stand 162, Row G; Norcell Fibre Works, Stand 202, Row I; Davis, Bennett and Co., sanitary appliances, Stand 39, Row G; Burn Bros., drain fittings, Stand 138 and 139, Row B, gallery.

The Japanol Enamel Co., of Clifford Works, London, E., are at Stand 177, relying upon the permanence of the good qualities of "Japanol," the stand being exactly as was exhibited two years ago, without any re-decoration. Visitors will, therefore, be enabled to judge for themselves how this particular enamel returns as to [illegible], and it will be interesting to see how far the claims are justified.

MESSRS. PARSONS AND SONS' ORIGINAL STAND.

Considerable [illegible] of exhibition stands [illegible] surprise when they come to see the exhibit by which the old established firm of Messrs. Parsons and Sons will be represented. The forepart of a modern battleship [illegible] over the whole stand, a copy has been made as accurately as the necessarily reduced scale would permit. The upper deck [illegible] corresponds with the floor of the stand, and the three turrets, the fourth [illegible] by the conning tower at the [illegible] and bridge and [illegible] are [illegible] Messrs. Parsons' decorative [illegible] from their [illegible] Pegamoid upper deck [illegible] is [illegible] a good-sized receipt counter. [illegible] on all sample panels and [illegible] the firm's materials. Notices [illegible] which could not [illegible] the [illegible] In the particular case [illegible] Messrs. Parsons' decorative [illegible] carried from street accuracy, this being the [illegible] enamel for finishing the steel, [illegible] dark grey actually employed [illegible] warships.

THE "BUILDING NEWS" OFFICE.

[illegible] and in much the same position as it occupied at the last exhibition, being No. 185, Row J. Here we shall exhibit the designs sent in in our recent advertisement design competition, as well as reproductions of Academy and other drawings which have appeared in the BUILDING NEWS. Copies of the paper will be on sale, orders will be received for advertisements, and every endeavour will be made to be [illegible] to the visitor as possible.

The BUILDING NEWS Office will be in communication at the time by telephone, Kensington 1727, and our subscribers are invited to make use [illegible] when visiting.

At the same stand will be found a [illegible] to [illegible] and useful [illegible] which is [illegible] regularly to every part of the globe, and which embraces every department [illegible] knowledge.

We append [illegible] list of events which will be [illegible] in connection with the exhibition and [illegible]:—

Saturday, April 22. Royal Institute of British Architects' Annual Dinner.
Monday, April 24. Surveyors' Institution.
Tuesday, April 25. Institution of Structural Engineers.
Wednesday, April 26. Institution of Heating and Ventilating Engineers.
Thursday, April 27. London Master Builders' Association and Institute of Builders.
Friday, April 28. Royal Sanitary Institute.
Saturday, April 29. Incorporation of Municipal Engineers and Incorporation of Municipal and County Engineers.
Monday, May 1. Concrete Institute.
Tuesday, May 2. Institute of Clayworkers.
Wednesday, May 3. Society of Architects.

At their last meeting the Norwich Education Committee received a report from a sub-committee as to the cost of the new city school. The cost on the site was £5,000, and that on the buildings and furniture £31,887 13s. 4d., or about £800 less than the estimated expenditure.

THE BUILDING EXHIBITION.
OLYMPIA

[illegible] great [illegible] Building Exhibition at the Building Trades Exhibition [illegible] Olympia during the [illegible] [illegible] Probably no exhibition [illegible] the large [illegible] solely [illegible] Mr. H. G. Montgomery and his brother, Mr. H. C. Montgomery, and the [illegible]

[illegible] Decorator; the Associated Portland Cement Manufacturers (1900), Ltd., the Rhone Patent Fire-resisting [illegible]; Carter and Co., Ltd., Poole, tiles and mantel marble; Ripolin, Ltd., paints; Hartley and Sugden, Ltd., boilers; British Steel and Marble Co., Ltd., glazing, Stand 158, Row G; J. P. Wood, Stand 150, Row G; Kirkstall Co., Ltd.; Ronuk, Ltd., polishes; Burt, [illegible] Co. (1908), Ltd.; United Steel Tiles, Ltd.; Jas. Latham, Ltd., woods, Stand 161, Row H; Oakley Slate Quarries, Ltd., Stand 165, Row H; Thos. Parsons and Sons, paints, Stand 135, Row G; Doulton and Co., Ltd., sanitary fittings; R. Waygood and Co., Ltd., lifts, Stand 123, Row F; W. Oliver and Sons, Ltd., woods; C. A. Peters, Ltd., wood preservatives; G. M. Callender's [illegible] and Asphalt Co., Ltd., damp-courses; C. Jennings and Co., doors; J. A. Kynoch and Co., partitions; Boots Asbestos Co., Ltd., "Poilite"; John [illegible], sashes; Rochdale Sanitary Pipe and Brick Co., Ltd., Stand 49, Row D; Stanley Jones and Co., Ltd., Brilliant Sign Co., Ltd., Stand 47, Row D; F. H. Brook, Garratts Valve; Cuttens Asbestos and Rubber Works, Ltd.; Japanol Enamel Co., paint; Thos. Lawrence and Sons, bricks, Stand 162, Row G; Norcell Fibre Works, Stand 202, Row I; Davis, Bennett and Co., sanitary appliances, Stand 39, Row G; Burn Bros., drain fittings, Stand 138 and 139, Row B, gallery.

The Japanol Enamel Co., of Clifford Works, London, E., are at Stand 177, relying upon the permanence of the good qualities of "Japanol," the stand being exactly as was exhibited two years ago, without any re-decoration. Visitors will, therefore, be enabled to judge for themselves how this particular enamel returns as to [illegible], and it will be interesting to see how far the claims are justified.

MESSRS. PARSONS AND SONS' ORIGINAL STAND.

Considerable [illegible] of exhibition stands [illegible] surprise when they come to see the exhibit by which the old established firm of Messrs. Parsons and Sons will be represented. The forepart of a modern battleship [illegible] over the whole stand, a copy has been made as accurately as the necessarily reduced scale would permit. The upper deck [illegible] corresponds with the floor of the stand, and the three turrets, the fourth [illegible] by the conning tower at the [illegible] and bridge and [illegible] are [illegible] Messrs. Parsons' decorative [illegible] from their [illegible] Pegamoid upper deck [illegible] is [illegible] a good-sized receipt counter. [illegible] on all sample panels and [illegible] the firm's materials. Notices [illegible] which could not [illegible] the [illegible] In the particular case [illegible] Messrs. Parsons' decorative [illegible] carried from street accuracy, this being the [illegible] enamel for finishing the steel, [illegible] dark grey actually employed [illegible] warships.

THE "BUILDING NEWS" OFFICE.

[illegible] and in much the same position as it occupied at the last exhibition, being No. 185, Row J. Here we shall exhibit the designs sent in in our recent advertisement design competition, as well as reproductions of Academy and other drawings which have appeared in the BUILDING NEWS. Copies of the paper will be on sale, orders will be received for advertisements, and every endeavour will be made to be [illegible] to the visitor as possible.

The BUILDING NEWS Office will be in communication at the time by telephone, Kensington 1727, and our subscribers are invited to make use [illegible] when visiting.

At the same stand will be found a [illegible] to [illegible] and useful [illegible] which is [illegible] regularly to every part of the globe, and which embraces every department [illegible] knowledge.

We append [illegible] list of events which will be [illegible] in connection with the exhibition and [illegible]:—

Saturday, April 22. Royal Institute of British Architects' Annual Dinner.
Monday, April 24. Surveyors' Institution.
Tuesday, April 25. Institution of Structural Engineers.
Wednesday, April 26. Institution of Heating and Ventilating Engineers.
Thursday, April 27. London Master Builders' Association and Institute of Builders.
Friday, April 28. Royal Sanitary Institute.
Saturday, April 29. Incorporation of Municipal Engineers and Incorporation of Municipal and County Engineers.
Monday, May 1. Concrete Institute.
Tuesday, May 2. Institute of Clayworkers.
Wednesday, May 3. Society of Architects.

At their last meeting the Norwich Education Committee received a report from a sub-committee as to the cost of the new city school. The cost on the site was £5,000, and that on the buildings and furniture £31,887 13s. 4d., or about £800 less than the estimated expenditure.

MACHINES AND MOULDS FOR THE CONCRETE INDUSTRY.

The manufacture of concrete goods has become a widespread branch of industry, and the machines and moulds employed for this purpose show high technical perfection. First among German works for such machines is the firm of Dr. Gaspary and Co., of Markranstaedt, near Leipzig. We do not purpose speaking about concrete-mixers, of which the said firm is building ten different systems, nor about sand- and pebble-washing machines, which are also supplied by them for any output and of different type. What we want to describe are the latest machines for the manufacture of concrete goods, which are brought on the market wholesale: for instance, hollow blocks, roofing tiles, slabs, bricks, etc.

The trade in hollow blocks is flourishing in America, and many machines for their manufacture have appeared on the American market, and have found their way, in some measure, to other countries as well. But none of all the machines we know can claim such advantages as are peculiar to the

Fig. 1.

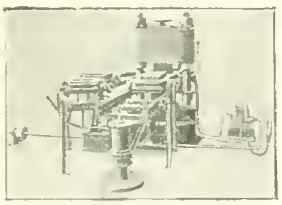


Fig. 2.

Fig. 3.

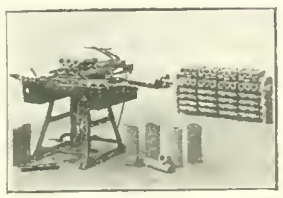


Fig. 4.

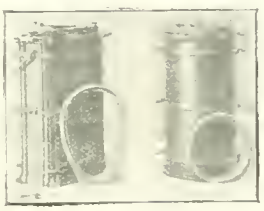


Fig. 5.

patented hollow-block machine "Phœnix," built by Dr. Gaspary and Co. In all hollow-block machines we know the freshly-beaten block has to be taken out of the mould, and has to be carried to the drying place. Where smaller blocks are concerned, one man is able to perform the work; for larger blocks, however, two men are absolutely necessary. The construction of the "Phœnix" machine allows easy transportation of the block in the mould to the drying-place, and its deposit there on its support direct on the floor. Even with the largest size of blocks only one workman is required. The machine is built for any desired size. The illustration shows the working of the "Phœnix" machine, which is now largely used in England for the manufacture of flooring blocks.

The cement slab, or so-called Granitoid plate, is largely used in Germany for paving footpaths, and is advantageously made on hydraulic presses. In this line, also, Dr. Gaspary and Co. have been successful in considerably improving their machines. Their hydraulic press, with semicircular guide-rails (Fig. 2), has been very favourably judged by experts. With this press portable moulding-boxes are used which are running on rails where they pass in turns the place for inserting the matrices, the shaking-in, filling-in, pressing- and lifting out device. The connection of the straight-rail part underneath the press with the curved one leading around it, is effected by means of two rotary rails. The plates are subjected to a surface pressure of 500,000 kilos. The ejection of the first and the pressing of the following plate is effected simultaneously. In corresponding moulding-boxes, smaller and larger plates of any shape can be made. An important feature in this press is the pressing socket that can be lifted out, and

[illegible] allows a quick change of the packings, without necessitating the taking off of the upper part of the press as had to be done hitherto with the older presses with a rotating pressing table.

In sandy localities, where there is a shortness of burnt bricks, the concrete brick industry has been successfully developed. By means of the brick machine, "Wotan," also made by the firm already mentioned, the manufacture was turned into a rationally worked wholesale industry. The cost of production of the bricks thus manufactured is moderate, the bricks themselves are of good appearance, and, in consequence of their equally high resistance against compression, they enjoy a good reputation with the authorities. A machine as shown in Fig. 3 produces in ten working hours 10,000 bricks. The mixing and measuring of the mortar is effected automatically. It then gets in moist condition into the filling funnel, from there into the moulding-box (also by automatic means), where it is beaten and extruded automatically as finished bricks. The workman tending the machine has nothing else to do but to hold an iron sheet ready on which the [illegible] are pushed and then put aside. The transportation of the bricks to the drying place is effected by means of a long conveyor belt, or by cars with platforms that can be lifted and lowered. The machine is also constructed in a different manner for a daily production of 20,000 bricks with exchangeable moulding-bed for plain blocks, tunnel stones, cement boards, etc.

Here and there the cement roofing tile, which has its origin in Germany, Austria, and Russia, has also been introduced into Great Britain. Dr. Gaspary's improved, patented combination machine (Fig. 4) is suitable for the manufacture of roofing tiles, drain-pipes, bricks, and slabs. It can be adapted to any shape of roofing tile, and the tiles made with this machine are of neat finish and great density. The tiles are made by means of a handy beating-plate, enabling even the most untrained workman to turn out good articles. The absolute watertight glazing is obtained by means of the patented spring spatula. For the sprinkling over of the colour an automatical colour sprinkling-box is provided, which drops the colour straight on the tile. All those parts liable to heavy wear on this machine are of hardened steel, and can quickly be exchanged. As supports punched iron sheets are recommended, which are light in weight, and, therefore, suitable for export and extremely resistive. Any roofing tile made on such a support can be provided with a cheap storm-guard. The easily exchangeable drain-pipe device is constructed in a very practical manner; and with the same, 2,000 drain-pipes of 40mm. diameter can be produced a day. All cores for the hollows move simultaneously, and all the finished pipes are ejected at the same moment and carried away for drying.

Good moulds for sewer-pipes are specialities of the firm. Their distinguishing features are resistive walls and well fitting but easily loosened, closing devices, which avoid the wearisome screwing. The cores are constructed in a practical manner, and are easily loosened without shaking the freshly made pipes. Dr. Gaspary and Co. supply moulds for all purposes, either for beating or casting, for pipes with flange and collar. Fig. 5 illustrates such moulds. The lower collars for circular pipe moulds are neatly turned off.

Those interested should obtain the firm's catalogue or visit the works. They will realise the fact that the firm has achieved a position—that some of our less enterprising home makers may well envy—first, by the scientific accuracy with which all its operations are conducted, and next, by enterprising determination to secure due publicity for their specialities.

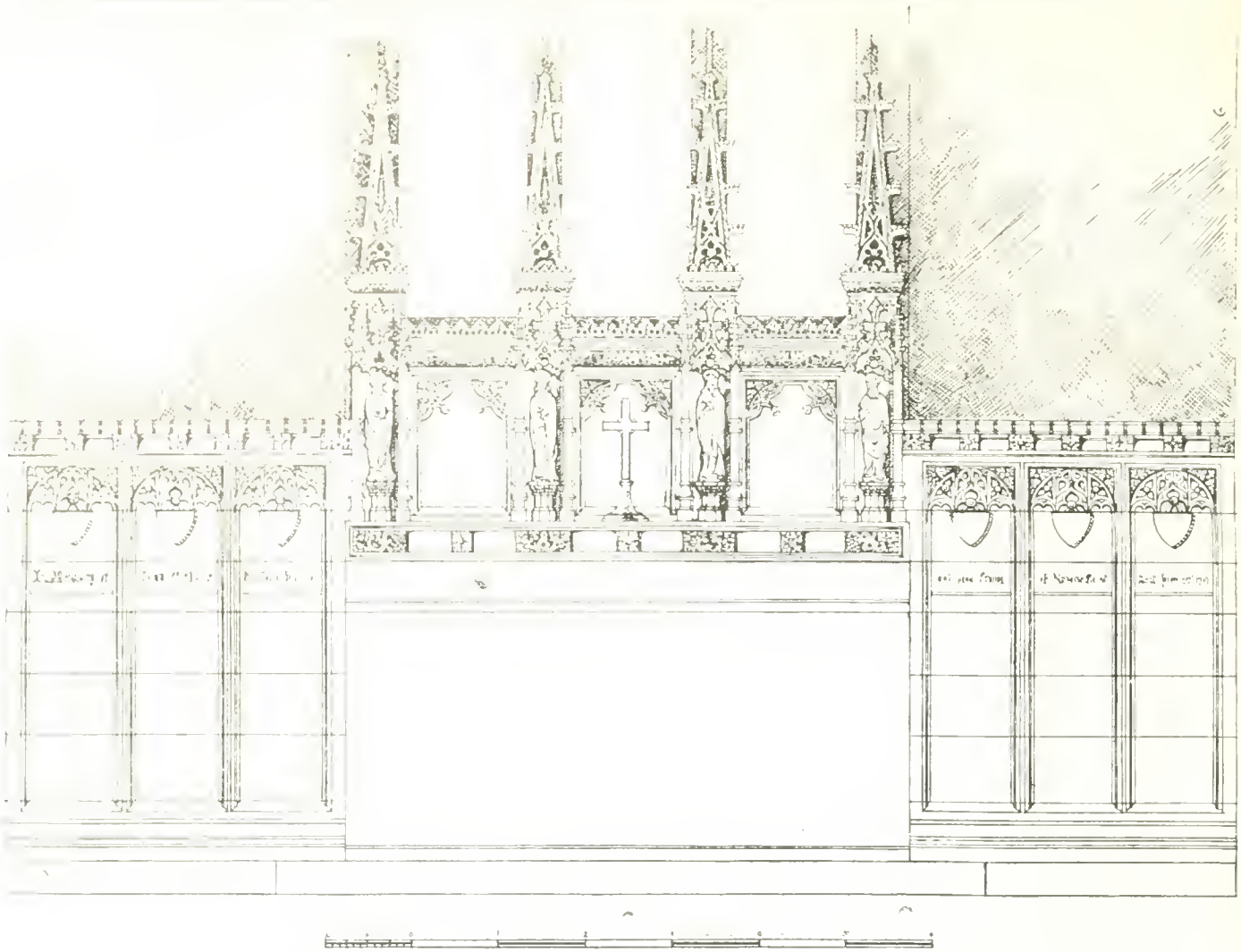
LIVES OF THE BRITISH SCULPTORS *

Mr. Beresford Chancellor is to be congratulated on his fairly successful attempt to supply what he quite truly says has never been attempted before—namely, a concise account of the lives and works of the British sculptors, and of their foreign co-workers whose labours are chiefly identified with this country. We do not know that it is "remarkable" that this is so. The ordinary book-maker gauges the taste of the average Philistine pretty accurately; and about the last person the latter thinks of is the author of the statue or monument he gazes at when out for a bank holiday beano, or a summer meeting of some archæological society! We could wish, indeed, that he had brought his record down to a later period, and included in it the Westmacotts, Foley, Gibson, Wyatt, and Alfred Stevens, and a few others of modern date, but are grateful for what is given, which is rendered with intelligent discrimination, and in a pleasant style. The illustrations are above the level which usually contents publishers of books of the kind, and the volume will doubtless find appreciative purchasers.

It is true, of course, that the early history of sculpture and sculptors in this country equally with that of architecture and architects, is very obscure. None who know our cathedrals and old churches need to be reminded that masters of the art have left evidence enough of genius in their embellishments of the fabric or their adornment of the tombs therein. The identity of some of these is more or less guessed at, notably that of "Peter the Roman," who did the Confessor's shrine, probably the joint gift of Henry III. and Abbot Richard de Ware. Really and truly we have no reliable details of any of the Mediæval sculptors, except Torrigiano, who worked in the reign of Henry VIII., whose productions call for special notice, nor till we get down to Nicholas Stone, in the reign of James I., who was born in 1586 at Woodbury, near Exeter, have we any authentic record of life or work. About him Mr. Beresford Chancellor has much to tell us, and more about his successors—Hubert le Sœur, Fanelli, Edward Pierce, Cibber, Grinling Gibbons, Bushnell, Bird, Rysbrack, Scheemakers, Roubillac, Wilton, Banks, Nollekens, Bacon, Proctor, Deare, Agostino, Carlini, Rossi, Theed, Ceracchi, Mrs. Damer, Flaxman, Chantrey, and others.

Dropping almost at random into the wealth of anecdote and incident Mr. Chancellor has gathered together, it is worth noting that Gibbon seems to have received something like a copyright from Charles II. for his statue of that monarch at Windsor—or, at any rate a license for the exclusive printing of engravings of it; and, notwithstanding, a little-known engraver named Quellin forthwith produced a representation of it, "whether with Gibbons's concurrence or not," says Mr. Chancellor, "I am unable to say." Possibly then, as hereafter under the new Copyright Act, there was some functionary ready to satisfy the loyal admirer of Old Rowley with prints of his statue at a lower figure than

* Lives of the British Sculptors, and those who have Worked in England from the earliest days to Sir Francis Chantrey. By E. Beresford Chancellor, M.A., F.R.Hist.Soc. London: Chapman and Hall. 12s. 6d.



Scale of feet

CANON WALKER MEMORIAL REREDOS, WHALTON CHURCH, NORTHUMBERLAND.
Messrs. Hicks and Charlewood, Newcastle-on-Tyne, Architects.

[illegible] to turn them out. No [illegible] are assured, was not the [illegible] old curmudgeon his pupil, Smith, re[illegible]ted him. Smith, it seems, only got a Hundred pound legacy, and revenged himself [illegible]ering biographer. That advertising was not disdained, even by artists in the early years of the 19th century, is evident from Chantrey's modest appeal in the *Sheffield Iris* "for the patronage of ladies and gentlemen" of that town, who are assured that "P. C begs to meet the liberal sentiments of an impartial public." Nothing like advertising evidently, for Chantrey made no less than £140,000!

May Mr. Chancellor's book be proportionately remunerative, and help to convince all of its patrons that Art, generously supported, [illegible] potentialities of wealth not altogether to be despised even by the lucky speculator in rubber shares who wants to shine at the next year's Royal Academy Exhibition!

Mr. C. F. Rivers of the Hartlepool borough engineer's department, has been appointed borough surveyor at a salary of £350, rising by annual instalments of £20 to a maximum of £450.

The death of Mr. Robert Howarth of the firm of Messrs. R. and T. Howarth, builders and contractors, occurred at his residence, Mo[illegible] House, Kingsway, Rochdale, early last Tuesday morning. Mr. Howarth was in his forty-eighth year. The cause of death was heart failure.

Mr. Fred J. Norman has presented a new [illegible] to the Ryton Cottage Hospital, together with a block of six cottage homes for aged poor [illegible] in connection therewith. The expenditure [illegible] amounts to over £2,000 [illegible] £1,000 has been offered gratis.

REREDOS FOR WHALTON CHURCH, NORTHUMBERLAND

The above Reredos is to be executed in Caen stone. The four figures represent the Four Evangelists. The shields in the side panels are to be carved with Masonic emblems. The work is to be erected as a memorial to the late rector, the Rev. John Walker, Hon. Canon of Newcastle Cathedral, who was for many years hon. secretary of the Newcastle Diocesan Society. The architects are Messrs. Hicks and Charlewood, and the sculptor will be Mr. Robt. Beall, of Newcastle.

OUR ADVERTISEMENT DESIGN COMPETITION

For the above competition, which closed on March 31, we received no less than 177 designs. It will be remembered that, according to the terms of the competition, the names of 24 firms were given for whom advertisements were to be designed, and the result is as follows: B. T. Batsford, 20 designs; T. and R. Boote, 20; British Luxfer Prism Syndicate, 4; Callender's Cable and Construction Co., Ltd., 1; G. M. Callender and Co., Ltd., 2; Campbell and Christmas, 1; C. Chancellor and Co., 3; *English Mechanic*, 6; Gas Light and Coke Co., Ltd., 3; L. and C. Hardtmuth, Ltd., 11; International Correspondence Schools, 12; Leeds Fireclay Co., Ltd., 8; National Radiator Co., Ltd., 11; Patent Indented Steel Bar Co., Ltd., 3; Ripolin, Ltd., 8; Ruberoid, Ltd., 9; Saxon Cement Co., Ltd., 8; W. and E. Stanley, Ltd., 6; Stuart's Granolithic Co., Ltd., 4; Thos. Twyford, Ltd., 4; R. Waygood and Co., Ltd., 3; W. White, Ltd., 3; A. Wilkinson, Ltd., Wyvern Lock and Safe Co., 11; and one for an advertiser not included in our list. It is somewhat remarkable that some firms should have been such favourites with competitors — that, for instance, Waygood's "lifts" should have produced only three attempts, compared with twenty for "books," or the same number for "tiles." Messrs. T. and R. Boote and B. T. Batsford each receiving an equal number of designs, whilst Messrs. Hardtmuth are not far behind with fourteen designs for their pencils.

The task of selecting the design which best fulfils the condition of the competition is a difficult one; but we hope to announce the names of the prize winners, as well as those whose designs will be made use of, according to the terms of the competition, in an early issue. Meanwhile, the designs will be on view at our office at the Building Trades Exhibition, Olympia, and some of them will be found reproduced in the present issue.

At the last meeting of the Malton Burial Board the surveyor produced plans and estimates of the proposed addition to the Malton cemetery. The addition includes part of a field adjoining Pasture-lane, about three acres in extent. The board resolved to ask permission to borrow £1,400.

Two volumes of the concluding portion of "The Domestic Architecture in England during the Tudor Period" will shortly be issued by Mr. Batsford. Mr. Arthur Stratton, who after Mr. Thomas Garner's death, undertook to complete the work, has been engaged for nearly five years on it. Instead of the 180 plates promised to subscribers, there will be 192, and the text is much longer than was contemplated. No expense has been spared, and the book will, it is believed, be fully worthy of the subject.

CURRENTE CALAMO.

The Building Exhibition which opens to morrow at Olympia is, as usual, a welcome tribute to the organisation of Mr. H. Greville Montgomery. At a time when exhibitions in connection with the building trades had ceased to excite interest or greatly benefit the diminishing few who patronised them, he had the wisdom to see that their need was as great as ever, if only those really interested could be attracted. The first real steps in that direction had been taken by the Society of Architects, whose timely fusion with the Institute was wisely decided on last night. The Architectural and Building Trades Exhibition held in March, 1885, at the Floral Hall, Covent garden, was not run on commercial lines; but it so amply demonstrated the readiness of makers and merchants of things used by architects and builders to show their best if assured the right people would be there to look at them, that it only needed the enterprise and businesslike aptitude Mr. Greville Montgomery brought to bear to make the biennial exhibition at Islington and Olympia increasingly successful and appreciated.

Publicity that pays is the life-blood of all business. That the exhibitor at Olympia gets. There are imitations of it, of various sorts, which—profitable, perhaps, to their projectors—do not pay the exhibitor or the advertiser. Among these are the more or less weak imitations of the Building Exhibition which have been attempted elsewhere, and certain enterprises which seem to have recourse to influences which, while at times, perhaps, potent, are to our thinking best left unenlisted—or, at any rate, unexercised by architects. The perfect freedom from all desire but that to bring the best exhibitors and their best and most likely customers together, and there to leave them unhampered and unbiassed, which has always inspired Mr. Greville Montgomery's management, has been the well-deserved guarantee of the success of *the* Building Exhibition.

This year, when, at last, the welcome revival in trade is beginning to beam on the building trades, we hope the exhibition at Olympia may well repay the enterprise of all concerned. To wise exhibitors we have no need to point out that they will, as usual, find their efforts there best seconded by making them known through the really representative organs of the trades represented. To the others we may hint a doubt whether the publicity *they* want is best sought among the readers of the halfpenny papers; or in the columns of parasitical publications with no real sale, which, under the guise of papers or journals, live on the class of advertisers that, for a time, follow each other like sheep over a hedge into the fold of the wily canvasser.

Mr. E. L. Lutyens has told a representative of the *Morning Post* that the Copyright Bill would for the first time do something to check the blatant plagiarist, and convince the British public that there was some real original thought and attainment in architecture in this country. "No one in the past has bothered much about copyright," said Mr. Lutyens, "except the plagiarist, and I imagine he will be the person who will pay most attention to it in the future. I hope we shall go on doing our work as best we may, and if we can protect what we produce both we and the encouragement of original artistic work will be the gainers." Mr. Lutyens added that the provisions in the Bill with regard to joint ownership of copyright would need some attention, and might result in much litigation on the part of clients. Moreover, if an architect built a house with forty rooms, and built some of the mantelpieces alike, and copied some of the designs in another house, what would be the rights of the respective clients? A great architect used to say that he preferred to design a house on the lines of one he had already built, so that he could profit by his own mistakes. Would the new Bill discourage this obvious method of architectural development? These are very pertinent questions, and arise, obviously, with others in connection with the doubts we have already expressed as to the working of the Bill as it stands.

Mr. A. G. Temple, F.S.A., the erudite and enterprising director of the Guildhall Art Gallery, has just compiled for the City Lands Committee a well-written descriptive and biographical catalogue of the works of art belonging to the Corporation of the City of London. It has been excellently printed by Messrs. Blades, East, and Blades, of Abchurch-lane, E.C., and is issued as a cloth-bound volume of three hundred pages. It will not only be of the greatest practical value to those visiting the Guildhall and adjacent gallery, but also as a work of reference. Probably to facilitate additions to the work as fresh gifts or purchases come into the possession of the Corporation, the particulars as the pictures and sculptures, and their artists, are arranged chronologically as acquired by the Corporation; but the inevitable awkwardness due to this method of classification is partially rectified by the carefully edited threefold indices at the end of the volume, giving page references to the donors, subjects of portraits, and names of painters or sculptors. The catalogue would be greatly increased in interest and value if it were illustrated by half-tones, as are those published by the Liverpool, Manchester, Leeds, and other corporations.

Mr. Temple informs us in an interesting preface that until about the middle of the 17th century the City Corporation does not seem to have associated itself in any degree with art. Indeed, it was more by accident than by deliberate intention that pictures first made their appearance at the Guildhall. The services of the judges of the land who met at Clifford's Inn to adjust the claims and contentions between landlord and tenant after the Great Fire were ordered by the Corporation to be recognised by the taking of their portraits "by a skilful hand, and to be kept in some public place of the City for a grateful memorial of their good offices." According to Walpole, Sir Peter Lely was the painter originally intended; but he was either too independent or too deeply occupied to accept the command. Several of the better-known portrait painters of the day were then invited to tender for the work, and in the end one Joseph Michael Wright was selected, and he executed most, if not all, of the twenty-two portraits at a cost of £60 each. Framed in dark wooden frames, these historic portraits—deficient in quality, but fair work according to the standard of the day in this country—are now in the Art Gallery, having been re-collected from several parts of the Guildhall. Various gifts and commissions of paintings and sculptures followed, many of them of considerable value as works of art were acquired from time to time; but until 1886 they were scattered about in the various courts and apartments of the Guildhall. In that year an art gallery was provided adjoining the Guildhall; it has since twice been enlarged—in 1890 and again in 1901. Among the presentations to the gallery, which has been visited by over four millions of people, may be named the William Dunnett collection, the gift by the late Sir John Gilbert of forty-eight of his productions in oil, water-colour, and black and white, supplemented six years later by the bequest of his brother George and fifty-three other works by Sir John, and the Charles Gassiot bequest of one hundred and twenty-seven paintings, chiefly of the British school. Particulars are given in the catalogue of the series of fifteen loan exhibitions of representative pictures which have been held between 1890 and 1907. It is to be regretted that these exhibitions, which proved a source of interest and instruction to numerous visitors, have not been continued.

A memorial signed by many distinguished scientists has been presented to the President of the Board of Education, drawing attention to the delay in making a start with the building of the new Science Museum at South Kensington, which, the memorialists state, has been caused in consequence of a disagreement that has arisen between the Office of Works and the authorities of the Natural History Museum regarding the rights of certain portions of the land surrounding the latter museum. It is alleged that the projected Science Museum would seriously encroach on the ground which has been set aside for the future extension of the Natural History Museum, and would thus hinder the adequate development of the zoological and mineralogical collections. It is a pity if squabbles between Government Departments are thus allowed to delay work, which is none too plentiful.

The most gratifying announcement made in connection with the arrangements for the investiture of the Prince of Wales is the wise and generous gift by Mr. Assheton Smith, of Vaynol Park, who has offered to the Crown the freehold of certain houses which in Castle-square abut on the Castle, in order that they might be demolished, so as to afford an uninterrupted view of the presentation of the Prince of Wales to the King at Queen Eleanor's Gate to several thousands of people who would otherwise be unable to witness that interesting part of the ceremony. Since then there has been considerable misgiving lest this patriotic intention might be disappointed owing to the difficulty of securing the leasehold interests of the premises. We are, however, glad to know that the difficulty has been overcome by a further act of munificence on the part of Mr. Assheton Smith, who has purchased the interests in question, and has offered the houses to the Crown on the condition that they shall be demolished and the site shall remain unoccupied as a memorial of the Investiture. Here is an example other property owners may well follow when occasion offers to clear away obstructing surroundings from the vicinity of some of our historic monuments. A sacrifice like this is worth a good deal of the liberality that expends itself on the erection of contemporary memorials.

[illegible] draw[illegible] the examinat[illegible] London County Council [illegible] ests is [illegible] under the girls [illegible] [illegible] by Evelyn [illegible] [illegible] [illegible]

belonging to Lord Mount Edgcumbe, dated 1667, which are the earliest set of English forks known; they are three-pronged and flat-handled, like spoons of the same period. Although three-pronged silver forks were at first most general, isolated examples of four prongs are also found of that same date, and occasionally instances of two prongs. These two-pronged silver forks may seem extremely inconvenient to our modern ideas; but it must be remembered that our ancestors ate their vegetables and small food from the back of their knives. The fork followed precisely the same evolution as the spoon, the flat handle giving way to the round, with a smaller rib down the front; this rib in course of time disappeared, and the fourth prong, which had been omitted for over one hundred years, was reintroduced as a permanency, for the modern three-prong forks we so often see now are merely copies of those of the 18th century. Of forks and their variety there is little to say. Fingers were made before forks, and played so important a part at a meal that we can quite understand the practical necessity of the rosewater dish. At the time when art interested herself most in plate forks were virtually non-existent, and so but little care and thought have been expended on them. I have this evening been able to touch most lightly on my subject, and for want of time have mentioned but a very few of the leading forms of plate out of many hundreds of existing examples. I have endeavoured to select only the clearest types of their period, without regard to any individual merit, so as to put before you some idea of the gradual growth of form and decoration. Isolated specimens, and even a reverting back to a previous fashion, in no way affect the onward movement. This onward movement was also a downward one, for we have with us now more or less successful flying machines, such scientific concentration of food that you can almost feed an army on one pill; but the art of making beautiful silver plate, with many of its sister arts, has departed from among us, and we may well cherish, as we do in museums, colleges, city companies, and private collections, the few genuine specimens of English Gothic and Renaissance plate that have survived, for it is the plate of this period that has never been surpassed in either dignity, design, or decoration. Jacobean, Stuart, and Georgian plate, graceful and beautiful as it is, such as the work of the Vyners and Paul Lamerie, was only evolved out of what had gone before.

The annual dinner of the Quantity Surveyors' Association will be held on Wednesday, May 17, at the Connaught Rooms, Great Queen-street, W.C.

Additional accommodation for nurses is about to be provided at the district lunatic asylum at Clonmel from plans by Mr. J. F. Fuller, of Great Brunswick-street, Dublin.

An eye hospital is in course of erection at Nottingham, at a cost of about £9,000. The architect is Mr. Arthur Marshall, A.R.I.B.A., of King-street, Nottingham and the builders are Messrs. Barlow and Sons. Beds for 28 in-patients will be provided, as well as a department for out-patients.

The Local Government Board have sanctioned the application of the corporation of Bury, Lancs., for permission to borrow £72,170 chiefly for a new generating station and additional mains. This work, which is being carried out under the direction of Mr. S. J. Watson, the borough electrical engineer, will probably be completed in the course of June.

Dr. Johnstone has held an inquiry at the town-hall, Stourbridge, into an application of the Worcestershire County Council to borrow £2,125 for the provision of a pavilion at the isolation hospital belonging to the Stourbridge and Hales Owen Isolation Hospital Committee at Hayley Green. Mr. H. E. Folkes, the architect for the extension, said the new accommodation would give eighteen additional beds.

The enlargement and renovation of the Hotel Dieudonné, in Ryder-street, St. James's-square, has now been completed. A new west wing has been built on a site formerly occupied by two houses, and the accommodation at the hotel has been increased to sixty bedrooms, with thirty bathrooms. The new restaurant on the ground floor is decorated in white and gold, with tables for 150 diners. A lounge overlooking a terrace opens out of the restaurant.

OBITUARY.

Mr. William Black, consulting superintendent of works to the Edinburgh and District Water Trust, died at his house, Claremont-gardens, Leith, on the 12th. Deceased, who was over sixty-eight years of age, acted as clerk of works for the Water Trust when the sand filters at Alnwick-hill were constructed. When the work was completed the trustees appointed him to take charge of that distributing centre, and in 1897 he was appointed superintendent of works. During his period of actual service the Talla water scheme was carried out.

Mr. J. T. James, second assistant in the office of the county surveyor at Hereford, has been appointed assistant to the county surveyor of East Suffolk.

Mr. Daniel Daniel, who had been in business in Liverpool since 1859 as a builder and estate agent till last year, when he retired, died on Monday, aged seventy-six years.

The salary of Mr. J. G. Smith, the borough surveyor to the Beverley Town Council has been increased from £200 to £225, and that of Mr. T. Mooney, the inspector of nuisances from £120 to £135 per annum.

The Countess of Lovelace has given £100 towards the repair of Ockham Parish Church—one of the oldest in the county of Surrey—and has granted the free use of the necessary building plant, and materials at cost price. Mr. J. H. Perkins, clerk of the works on her estate, will carry out the work.

Estate valued at £65,955 gross and £36,038 net has been left by the late Mr. George Jewett, of Lincoln Lodge, Christ Church-road, Boscombe, a timber merchant, of New Baltic Wharf, Lower-road, Deptford, and formerly of Rotherhithe and Penge. Mr. Jewett died on December 27, aged 72 years.

A Local Government Board inquiry will be held at Cardiff on Thursday in next week as to an application from the county council of Glamorgan for sanction to a loan of £25,585 for the improvement of certain portions of the Swansea and Pontardulais and Bridgend and Coytrahen main roads, and of the Ffrwdwyllt, Hendre Bailey, Pontwalby, Pontlliw, Angleton, and Penylan bridges.

As an anonymous Coronation gift, an offer has been made through Mr. Thomas Field, a member of the Bucks County Council, to present a life-size statue in bronze of John Hampden, provided it is erected in the market-square of Aylesbury. The proposal has the full approval of the Buckinghamshire Archæological Society. The design for the statue will be entrusted to an eminent sculptor.

At the Institute at Lenham, Mr. R. G. Hetherington, Local Government Board inspector, has held an inquiry respecting the application of the Hollingbourne Rural District Council for power to borrow £3,687 to carry out a drainage scheme for Lenham prepared by Mr. Howard Humphreys, C.E. The local ratepayers' association, who are opposed to the project in its present form, submitted an alternative scheme devised by Mr. Commins, C.E., and considerable time was occupied in considering their relative merits and cost.

Messrs. W. Conolly and Son, of Upper Dominick-street, Dublin, have been awarded the contract for the erection of a hostel in Hatch-street, in that city, for the Society of Jesuits. The building, which will be of brick with stone dressings, will occupy the entire frontage of the premises of the late firm of Messrs. Donovan and Sons, building contractors, and there will also be two side wings. Accommodation will be provided for seventy University students, also apartments for the Dean and other officials, and a chapel. The value of the contract is about £20,000. Mr. C. B. Powell, of Dublin, is the architect.

The Harrison Buildings, at the east end of the borough of Sunderland, which were erected by the corporation, for the poorer classes, at a cost of £31,771, are proving anything but successful, judging from a report issued by the committee. There are eighty-four tenements in all, and of these only sixteen are at present occupied, and this, the superintendent reports, is due to the fact that the rents are in excess of the charges in the same neighbourhood. The present rentals in the Harrison Buildings are 3s. 9d. per week for two rooms, and 4s. 9d. and 5s. per week for three rooms, each inclusive of water. An investigation is to be made to see if the capital expenditure will permit of any reductions in the rents.

Building Intelligence.

BIRMINGHAM.—In anticipation of the passing into law of the Greater Birmingham Bill, the estates committee of the city council have had under consideration the subject of the reseating of the council chamber. The number of members of the present council is 72, but the Greater Birmingham Council will consist of 120. The committee will recommend the adoption of a scheme which provides for five rows of continuous benches, with gangways and a passage round the back, as at present. The floor space of the chamber will not be enlarged, and the increased provision is obtained by lessening the width of the desks and fitting up benches instead of chairs. The total depth of room allowed for each seat and desk is 4ft., as compared with 4ft. 1in. at Cardiff (which town possesses the latest of new council-chambers) and 3ft. 9in. in the Potteries council-chamber at Stoke-on-Trent. The cost of the reconstruction is estimated at from £2,000 to £3,000.

BLANDFORD. — The Blue Boar Inn, which has a narrow frontage in East-street, is being rebuilt. The house is faced with Bridgwater red bricks with grey brick bands and plain stone dressings towards the yard and adjoining premises, and with buff terra cotta dressings (supplied by Messrs. Carter and Co., of Poole) on the front elevation. The roofs generally are covered with Welsh blue slates, and those to the yard building with Ruberoid. The old painted sign is to be rehung. The ground floor of the house is solid and wood-blocked or tiled, as the case may be. The works are being carried out in two portions by Messrs. A. and F. Wilson, builders and contractors, of Parkstone, Dorset, from the design and under superintendence of Mr. James Allner, A.R.I.B.A., of Blandford.

EDINBURGH.—The new Training College and Practising School which the Edinburgh Provincial Committee for the Training of Teachers is to erect shortly, are to be situated upon the site of the present Training College Buildings in the Canongate. The Central Training College building, the plans of which have recently obtained the approval of the Scotch Education Department, consists of a three-story building arranged in the form of a square with a central quadrangle. The building, which measures roughly 200ft. square, contains, in addition to lecture-rooms, accommodation for instruction in science, while three gymnasia, with dressing rooms and spray baths, and a department for school hygiene containing a lecture-theatre for 150 students, doctors' rooms, etc., are also provided. An assembly hall to hold 800 students, a library, and a museum are also included, while upon the top floor a dining hall seating 200 students, and common room accommodation for either sex are also included. The building is a simple phase of English Renaissance, the estimated cost of the entire scheme being from £60,000 to £70,000. The architect is Mr. A. K. Robertson, 29, Hanover-street, Edinburgh.

HOLBORN. — The Bonnington Hotel, erected on the site, 88 to 98, Southampton-row, W.C., will be opened to-morrow. The hotel is of fire-resisting construction throughout, and spacious outside staircases are provided in case of emergency. There are over 200 bedrooms in the hotel, of various sizes. The ground floor is occupied by a fine suite of public rooms, consisting of a large dining-room, winter garden, lounge, ladies' drawing- and writing-rooms. Seven shops are to be found on the front portion of the site, four of which communicate direct with the entrance-hall. In the lower ground floor are situated billiard- and smoking-rooms. The elevation has been treated by the architect, Mr. W. Ernest Hazell, F.R.I.B.A., in a Free Renaissance style, and is carried out in Portland stone and red brick. The general contractors are Messrs. Holloway Bros. (London), Ltd. The lifts are by Messrs. Smith, Major, and Stevens; the cooking apparatus by the Carron Co.

HOLYROOD PALACE.—To make Holyrood Palace fit for the occupation of King

[illegible]

COMPETITIONS.

COVENTRY MUNICIPAL BUILDINGS AND HALL COMPETITION.—Mr. E. Guy Dawber, F.R.I.B.A., [illegible] assessor in the [illegible] has considered his award [illegible] and has placed the following [illegible] premiated designs:—1, Messrs. [illegible] Scholfield, Buckland, and Farmer, [illegible] Temple Chambers, Congreve-street, Birmingham; 2, Messrs. William E. Corfe and [illegible] Bertram S. Barnard, 82, Victoria-street, Westminster, London, S.W.; 3, Mr. [illegible] J. Rowse, Great Crosby, Liverpool. [illegible] the designs received in the competition are at present displayed in St. Mary's Hall, Coventry, and may be inspected there on Friday (to-day) or Saturday, the 21st and 22nd inst., between the hours of 11 a.m. and 9 p.m., or on Monday, the 24th inst., between the hours of 11 a.m. and 8 p.m.

A vote of thanks has been made to the assessor, R. B. A. Chambers, described as of Oxford-street, W., architect.

The Canadian Pacific Railway have completed plans for a concrete roundhouse to be erected at the Union Depot yards at Ottawa, at a cost of 70,000 dollars.

The town council of Ayr have agreed to extend the buildings for the housing of cattle at the two marts at a cost of about £2,444, the auctioneers agreeing to pay 7 per cent. on the outlay.

The Corporation of Harvard University has appointed Mr. Cass Gilbert, of New York, to take the place as Lecturer in the Department of Architecture left vacant by the death of Mr. John Merven Carrère.

American cement manufacturers are, says a United States exchange, pushing their foreign trade having shipped abroad last year 2,475,967 barrels, against 1,417,554 barrels in 1909, and 846,785 barrels in 1908.

At Christ Church, Lewestoft, two memorials to the late Superintendent Shipp were formally unveiled last week. They consisted of a stained glass window in the chancel end of the church and a new pulpit. There were also dedicated at the same time a new oak choir [illegible] and a new oak prayer desk.

The death at Mt. Andrew Grierson Thompson, a well-known architect, of Scottish birth, has occurred at Brooklyn, New York, at the age of 69. Mr. Thompson served for some years in the office of the United States Treasury, and later had charge of the construction of the New York Post Office buildings. He was a Fellow of the American Institute of Architects.

The directors of the Tonbridge Waterworks Company, Ltd., met last week for the appointment of an engineer and secretary in place of Mr. James Lee, resigned. Fifty-six applications for the post had been received, and Mr. Thomas Munn Thomas, engineer to the Chelmsford Corporation waterworks, was appointed, and will take up his duties early in June.

The general purposes committee of the Rochdale Corporation have decided to recommend the raising and widening of Milnrow road near Firgrove Bridge. The borough surveyor, Mr. S. S. Platt, reported on the cost of widening and of raising the road. The committee decided that the road should be raised on the southerly side by 1ft. 3in. at the lowest point. The cost of raising is estimated to be £2,000, and of widening a further £4,000.

The Architects' Association of Minneapolis, Minn., at a recent meeting passed resolutions condemning proposed legislation relative to restricting the use of building materials to the product of the State of Minnesota in State building. The members of the profession point out with much reason, that the enactment of such a law would place limitations on design that would retard the advancement of good architecture and prevent the freedom of selection of materials that is necessary, especially in [illegible] competitive work.

The Herefordshire Education Committee have accepted the tender of Messrs. E. W. Wilks and Son, of Hereford, amounting to £7,395, for the erection of a secondary school for 150 boys at Hereford. The total cost of site, plans, building, furniture, clerk of works, and the tar paving of the playground is estimated at £10,500. The same committee have accepted the tender of Messrs. W. Powell and Son, of Hereford, amounting to £4,835 7s. for the erection of a school at Ross to accommodate 180 boys and girls. The total cost is estimated at £6,000.

Correspondence.

LICENTIATES.

To the Editor of the Building News.

Sir,—I shall be very much obliged if you will kindly call the attention of your readers to the fact that by a resolution of a Special General Meeting on March 20, confirmed at a subsequent General Meeting on April 10, the Council was authorised to continue to elect Licentiates until the end of June, 1912.

I may mention, however, that although the last date on which Licentiates can be elected is June 30, 1912, all application forms, drawings, etc., must be received here before May 31, 1912, at the very latest.—I am, etc.,

Ian Mac Alister, Secretary.

Royal Institute of British Architects, 9, Conduit-street, Hanover-square.

Mr. F. H. Longhurst, Executive Engineer, Public Works Department, Northern Nigeria, has been transferred to the Gold Coast Colony as Deputy Director of Public Works.

A new highway bridge has been constructed across the River Wye at Elysdinam and Newbridge, Radnorshire. It is of three spans of ironwork, resting on two masonry piers in the river, the abutments being also of stone-work.

The London Parliamentary agents to the Shaftesbury and other urban councils and local authorities have intimated that, in consequence of objections raised by the Local Government Board and the others of the House of Lords, the Local Authorities' Combined Drainage Bill has been dropped.

Mr. John Tweed has completed his statue of Lord Clive, which when cast in bronze, will be erected in Charles-street, facing St. James's Park. The model stands 9ft. 6in. high, and will be erected on a pedestal 14ft. in height, designed by Mr. Somers Clarke, F.S.A. Mr. Tweed has been commissioned to execute a replica of the statue for Calcutta.

Messrs. Merryweather and Sons have given a demonstration at Bromley Fire Station of a new petrol motor turntable fire ladder which they have built for the Bombay Fire Brigade. The machine is an 80ft. to 93ft. telescopic ladder carried on a 50H.P. petrol motor chassis. On the level the motor can attain a speed of twenty to thirty miles per hour.

Mr. F. Leonard, an inspector under the Local Government Board, held an inquiry yesterday (Thursday) with reference to the application of the county council of Middlesex for consent to borrow £85,128 for the erection of a new Guild-hall at Westminster on the site of the present one. The accepted design for the new Guild-hall, by Messrs. J. S. Gibson, Skipworth, and Gordon, was illustrated in our issue for February 3 last.

The railway from Baro on the Niger to Kano, 400 miles to the north-east, has been completed. It is of the standard gauge for Northern Nigeria, 3ft. 6in., and has cost about £3,000 per mile, the total outlay on the line and its equipment having been £1,239,000. The railway from Lagos to Jebba, which will join the Baro-Kano line at Shc, has now been constructed as far as Zungeran, some 130 miles from the junction of Shc.

The rector of Aldington, near Hythe, Kent, announces the completion of his church tower, for which he has been collecting funds for the last four years, as a memorial to his greatest predecessor, Erasmus, who was for a short time rector of the parish. The tower was erected, though not finished, by Archbishop Warham, the friend and patron of Erasmus about four hundred years ago. The work has been carried out by Mr. Arthur Blomfield. The reopening of the tower will take place on Wednesday next at 2.30 p.m.

The trustees of the Hospital of St. Cross, Winchester, have accepted the tender of Messrs. Thompson and Sons, of Peterborough, for the reconversion of the master's old house in the quadrangle into ten more dwellings for brethren, under the scheme approved by the Charity Commissioners, and dated January 21, 1901. This house was occupied by brethren in pre-Reformation days. The number of brethren is to be increased to twenty-seven, a figure never contemplated by the founder, Bishop Henry de Blois. But of late the revenues of the hospital have greatly increased, in ten years they have nearly doubled, and next year will be close upon £8,000.

[illegible] Mr. H. M. O[illegible] [illegible] [illegible] [

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from p. xxii. must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. Conrad Eckstein, 32, Newport-road, Stafford.

QUESTIONS.

13034.]—CONCRETE COTTAGES.—Could any of your readers inform me where cottages have been built of concrete made from blast-furnace slag, Besaemer slag, refuse-destructor clinker, or boiler-ashes? I do not mean concrete foundations, nor concrete filling between brick shells, but concrete walls made in situ or in blocks. I cannot find any firm making or letting out on hire suitable plant for such work.—Nemo.

REPLIES.

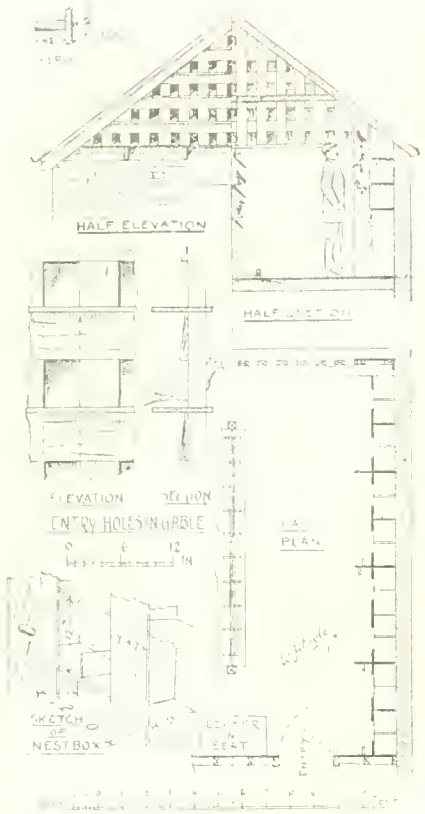
[13030.]—DRAIN.—Sanitary legislation practically began with the Public Health Act, 1848. There were various Acts which extended and amended this Act, but they were all repealed by the Public Health Act, 1875, except in so far as they applied to the Metropolis. "Drain" is defined by the Public Health Act, 1875, 38 and 39 Vict. c. 55, s. 4 (repeating the words of the 1848 Act) as "any drain of, and used for the drainage of, one building only, or premises within the same curtilage." All other "drains," except those vested in, or under the control of, a road authority, which is not also a local sanitary authority, are included in the term "sewer." But this distinction does not hold good in all places and under all circumstances. Whether premises are "one building only" has to be decided as a question of fact in every case. A pair of semi-detached houses may be separate buildings or one building. (See "Humphrey v. Young," 1903, 1 K.B. 44; and "Hedley v. Webb," 1901, 2 Ch. 126.) The word "curtilage" has been defined by a majority of judges in the Court of Appeal, not in the same sense as it is used in conveyancing, but in its meaning as fence or boundary. (See "Pilbrow v. Vestry of Shoreditch," C.A., 1895.") In urban districts the local authority may require every house erected since 1848 to be provided with a separate drain, if the drainage is not effectual, and are not obliged to sanction a combined drain for two or more houses. (See "Woodford Council v. Stark," 1902, 86 L.T., 685.) As to a "combined drain," it has frequently been decided that where a pipe takes the sewage of two or more houses, it, *ipso facto*, becomes a sewer. (See "Humphries v. Cousins," 1877, 2 C.P.D., 239, also "St. Martin's Vestry v. Bird," 1895, 1 Q.B., 428.) In such cases the drain becomes a sewer from the point where it receives the sewage of the additional house. (See "Kershaw v. Taylor," 1895, 2 Q.B., 471; "Hill v. Hair," 1895, 1 Q.B., 906.) An attempt to remedy this anomaly—the state of the law by which builders of property, by making a drain serve two or more houses (often without the sanction of the authority), subsequently got rid of the liability for the maintenance of such a drain—was made by the Public Health Act (Amendment), 1890, 53 and 54 Vict. c. 59, s. 19, in districts where Part III. of that Act had been adopted by the local authority. For the purpose of that section the definition of the word "drain" is extended to include a "drain" used for the drainage of more than one building, which would otherwise be deemed a "sewer," it being enacted that, where two or more houses belonging to different owners are connected with a public sewer by a single private drain, the local authority may, in cases where such drain is a nuisance, require the owner or the occupier of the premises to do the necessary works to put it right, or if they have to do the work themselves, may recover the expenses of same from the owners in such shares and proportions as may be settled by their surveyor or by a Court of Summary Jurisdiction. The meaning of this has provoked a lot of litigation. It seems to be taken as settled from these cases that it only takes drains which serve more than one house out of the definition of sewers, for the purpose of the section—i.e., for the purpose of apportionment of the cost of repairs amongst the owners, instead of it falling upon the local authority. (See "Mayor of Eastbourne v. Bradford," 1896, 2 Q.B., 205; "Mayor of Eccles v. Thomson," 1905, 1 K.B., 110.) The case of a conduit taking the drains of several houses in one ownership appears not to be provided for; it is a "sewer," as it is only for the purposes of this section (19), and, so far as that applies, that such a conduit is to be considered a "drain." (See "Jackson v. Wimbledon Council," 1905, 2 K.B., 27.) If conduits connected with several houses belonging to one owner which, by the definition, are sewers and not drains, discharge into a conduit which would be a "drain" within the meaning of this section, and so communicate with the main sewer, the conduit is not to be considered a "drain," but must be repaired by the local authority as a "sewer." (See "Wood Green Council v. Joseph," 1907, 1 K.B., 152.) In so far as the Metropolis is concerned, the statutes are the Metropolis Management Acts, 1855 to 1898. Their definition of "drain" includes any drain for draining any group or block of houses, by a combined operation, *under the order* of any vestry or district board (18 and 19 Vict. c. 120, s. 250). Power to approve of houses being drained by a combined operation is given by the Act. Cases which have been heard involving the question "combined drain" or "sewer" are, among others, "Bateman v. Poplar Board," 1886, 33 C.D., 360; "Kershaw v. Taylor," 1895, 2 Q.B., 471; and the result seems to be that a conduit taking the sewage of more than one house, to be a "combined drain," must be shown to have been constructed as such, with the approval, and by the order, of the sanitary authority at the time; otherwise it is a "sewer." The subsequent connection of another "drain" to a "combined drain" may convert the combined drain into a sewer—(see "Green v. Newington Vestry," 1898, 2 Q.B. 1) but it has been held that if a pipe has been wrongfully connected with a "drain" by an owner, the fact would not entitle him to claim that the "drain" was consequently a "sewer," whatever rights it might confer on an innocent purchaser. The legislation on these points requires amendment, and is being considered by the Local Government Board—Mr. Burns referred to the subject in the Commons a few days ago. Full reports of the cases referred to above can be found generally in the BUILDING NEWS under the dates given, as also several articles on the subject.—George Norman, 85, The Grove, Hackney, N.E.

[13030.]—DRAIN.—A paper on "Some Recent Law on Sewers and Drains" was read before the Society of Architects, May 17, 1906, by Mr. A. J. Poley, barrister-at-law, and was reported in the BUILDING NEWS of May 18, 1906, the following being taken from same: Section 250 of the Metropolis Management Act of 1855 says, "It is provided that in the construction of the Act that the word 'drain' shall mean and include any drain of, and used for the drainage of, one building only, or premises within the same curtilage, and made merely for the purpose of communicating with a cesspool, or other like receptacle for drainage, or with a sewer into which the drainage of two or more premises occupied by different persons is conveyed, and shall include any drain for draining any group or block of houses by a combined operation, under the order of any vestry or district board (for which we may now read the order of any borough council), and the word 'sewer' shall mean and include sewers and drains of every description, except 'drains' to which the word interpreted as aforesaid applies." Now, the drain is to drain one building only or premises within the same curtilage; if it drains more than one building it is a sewer, and if you can say that, on examination of a system of drainage, that the drainage drains two buildings, unless there is an order of a vestry or district board in existence, or something else which is not an order but which judicial ingenuity has said is an order, you may safely say that the so-called drain is a sewer, which the local authority are bound to keep in order. The Act of 1862 declared that the word "drain," in addition to the definition already given, should include any drain for draining a group or block of houses by a combined operation, laid or constructed before January 1, 1856, pursuant to the order or direction, or with the sanction of, the Metropolitan Commissioners of Sewers, who were created under that title in 1848. Therefore, in determining whether a drain draining two or more houses is a sewer, it is material to notice whether the houses were built before 1848; if they were, you may be certain that the so-called drain is a sewer. If between 1848 and 1855, if there is no order or direction, or evidence of the sanction of the Commissioners, then you may be also certain that the so-called drain is a sewer. If the drain draining two or more houses came into existence subsequently to 1855, you must not lightly think that there need be an order of a vestry or district board in existence, as the Act in express words says: There may be evidence of an order, which the judges have said is just as good as an order. A practical matter of some difficulty often arises when three, four, or more houses are drained by one drain, and by reason of there being no order or evidence of an order in existence, the drain is a sewer. The question is as to whether any part of the sewer is a drain or not. Let me take a case of three adjoining houses, numbered 1, 2, and 3 respectively. No. 1 draining into No. 2, and the joint drainage of Nos. 1 and 2 passing into No. 3. Is it a sewer from end to end? The answer is, No. A pipe receiving the drainage of more than one building, not being premises within the same curtilage, is a sewer from and below the point where it receives the drainage of more than one such building; above that point it is a drain, and not a sewer. In "Beckenham District Council v. Wood," 1896, Mr. Justice Cave said: The general rule, as I understand it, is that where a drain receives the sewage of two or more houses it is a sewer; where it receives the sewage of one house only it may still remain a drain, though not necessarily, because it may be a sewer, whether it takes the sewage of one house only or no house at all. A main sewer may be laid down by the local authority in a new street where no houses are built, but where it is intended houses shall be built. Subsequently the buildings may be built at the lower end of the street, and when the drains of one house are connected with the main sewer, the connecting pipes will be drains, and not sewers; but the sewer itself will no less continue to be a sewer, although it receives only the drainage of that one house, and, consequently, a sewer without a drain at all will be a sewer. Section 19 of the Public Health Acts Amendments Act, 1890, provides that, where two or more houses belonging to different owners are connected with a public sewer by a single private drain, an application may be made under section 41S of the Public Health Act, 1875 (relating to complaints as to nuisances from drains), and the local authority may recover any expenses incurred by them in executing any works under the powers conferred on them by that section from the owners of the houses, in such shares and proportion as shall be settled by their surveyor, or (in case of dispute) by a court of summary jurisdiction. For the purposes of this section the expression "drain" includes a drain used for the drainage of more than one building. In the case of "Joseph v. the Wood Green Urban District Council," decided in August, 1905, there was a common pipe which ran on private ground behind a row of 16 houses. Six of these houses, belonging to the respondent, Joseph, drained into this so-called private drain or pipe; but the houses did not possess single drains, but were drained in pairs, the drains of each connecting at the rear, and thence running into the common pipe, which discharged into the public sewer. Now, after the drains of each pair of houses had connected in the rear, the length of pipe which communicated with the alleged single private drain or pipe was a sewer. So you had six houses draining in pairs by three sewers into the alleged single private drain. Could the alleged single private drain be a single private drain under these circumstances? The Court thought not. They decided that, by reason of these three sewers discharging into it, it was not a single private drain at all, but a sewer.—J. W. Thorpe, 5, Woodville-terrace, Lytham.

[13030.]—DRAIN.—No definite legal decision has ever been arrived at on the question of when a drain becomes a sewer; but, technically, a drain is a channel conveying sewage from one building or premises on the same curtilage to the public sewer. But, unfortunately for this definition, a curtilage, or messuage of land, may have dwellings erected thereon occupied by many different tenants or trades. Consequently, the system of drainage is one of drains, which, at the same time, can equally correctly be described as sewers. The trouble is, that if they are drains, then the owner is responsible for the repairs, and if they can be classified as sewers, the municipal authorities are responsible.—Frank Wilson, 225, Nottingham-street, Sheffield.

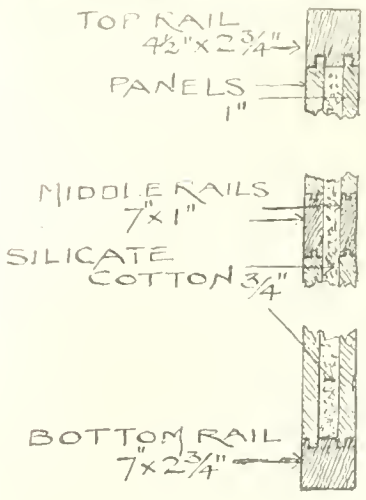
[13030.]—DRAIN.—For the purposes of the Public Health Acts, the word "drain" is defined to mean "any drain of, and used for the drainage of, one building only, or premises within the same curtilage, and made merely for the purpose of communicating therefrom with a cesspool, or other like receptacle for drainage, or with a sewer into which the drainage of two or more buildings or premises occupied by different persons is conveyed." The effect of the word "mean" in this, as in any other definition, is to limit the meaning of the word "drain" to those things which are specifically described in the definition, and to exclude everything else. On the other hand, the word "include" has an extending signification, as in the case of the definition of the word "sewer" given below. Stated briefly, the word "drain," as used in the P.H.A., may be described as that which is used for the drainage of a single building or curtilage into a cesspool or like receptacle, or into a sewer. The limitation is a twofold one. In the first place, the word is used only in connection with buildings, or land with buildings thereon, since a curtilage cannot exist except as an adjunct of buildings. The word "curtilage" is understood to mean "a courtyard, a backside, a piece of land lying near and belonging to a dwelling-house." Or, again, it is defined as "a little garden, yard, meld, or piece of void ground, lying near and belonging to the messuage." Many things, then, which for other purposes, or in popular parlance are called "drains," are not included. In the second place, it will be seen that the word is further limited by being confined to those drains which communicate with a cesspool, or other like receptacle, or with a sewer. Hence, not only is the word used in connection with buildings, but it is not every means of draining buildings which will fall within the definition. A direct communication from a house to a river, or a canal, or the sea, is excluded. It is not essential that a drain should carry off sewage in order to come within the application of the P.H.A.; the pipes which carry off surface-water only from the roofs and yards of houses are within the definition of the word "drain." Sewer "includes" sewers and drains of every description, except drains to which the word "drain" interpreted as aforesaid applies, and except drains vested in, or under the control of, any authority having the management of roads, and not being a local authority under the Act. This exception is now practically limited to drains of main roads which are under the control of county councils. The term "sewer" does not mean a conveyance of foul and excrementitious matter alone, and it would be none the less a sewer within the Act of 1875 if it conveyed only rain or surface-water. A line of pipes, which is constituted a sewer by the reception of the drainage of more than one house, remains a sewer, even though all the houses but one have adopted other means of drainage. There are no divesting provisions in the statutes. Where the P.H.A. Amendment Act (1890), Part III., has been adopted, Sec. 19 of that Act provides that, under certain circumstances, and for certain purposes, the word "drain" shall include a single private drain for two or more houses belonging to different owners connected with a public sewer. The effect of this Sec. is only material when considering the application of Sec. 41 of the P.H.A. (1875), to which reference should be made. Under other circumstances, and for all other purposes, the single private drain referred to in the Act of 1890 remains a sewer.—J. G. Hindmarsh, Town Hall, Stockport.

[13031.]—PIGEON COTE.—"Lever" does not describe the building, the gable end of which he wishes to adapt for pigeon keeping; but I take it, it is an ordinary outbuilding with slate or tiled roof, and about 15ft. wide. Under such conditions, to properly accommodate 150 utility pigeons, having their liberty to go in and out at will, a portion of the loft should be cut off, about 16ft. in length, by a cross partition of 4½in. brickwork (if practicable), or 2in matchboard on 4in. by 2in. quarters 12in. apart, as shown, with two plain ledged doors having



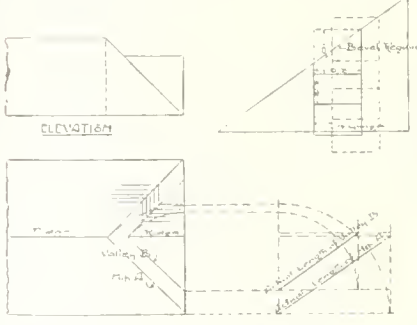
6ft. Nest-boxes for about 50 pairs are provided, and sufficient perches for old birds and young ones in proportion. Form the nest-boxes along the side walls, as shown, of 11in. by 9in. boards, in tiers 12in. apart, and divide into compartments 2ft. long. Each compartment will accommodate one pair, and these 2ft. boxes should be again subdivided down the centre by a 5in. by 1in. board on edge the width of the box, as pigeons commence to sit again before their last young ones are ready to leave the nest. 7in. boards nailed vertically down the fronts of the boxes, as shown, give the sitting birds the necessary seclusion. To prevent confusion from so many similar compartments, break them up into 4ft. bays, as shown, by 9in. vertical boards, to which nail cross bearers, to support the shelves. For roosting accommodation, broom-sticks cut into 4in. lengths, and nailed to battens, form excellent perches, and if spaced 12in. apart, the birds cannot fight, and are easily handled. A plain matched and V partition down the centre of loft, 6ft. high, and with three tiers of such perches on either side, will accommodate 60 head, and keep them quiet. Fix a 9in. by 1in. slanting board under each tier of perches, to catch the droppings, which can then be easily scraped into a bucket, and sold to florists as a valuable manure. Fix along the floor, 12in. out from the partition, a batten on edge, and fill the space with sawdust, which can be occasionally passed through a sieve. A skylight, 4ft. long by 2ft. 6in., on either side of the ridge will give ample light, and as regards ventilation, I have found that hardy pigeons will stand the most severe cold comfortably, but damp and draughts are fatal. Limewhite the whole interior of the loft, and paint the gable externally, as far in hot weather is objectionable to the birds. Earthenware nest-pans are desirable, though not essential, and I have found large flower-pot saucers, 9in. diameter by 2in. deep, as effective as purpose-made pans. The foregoing specification and hints should enable "Lever" to fit up a thoroughly serviceable "utility" pigeon-loft with ordinary tools and material.—W. B. Poole, Licentiate R.I.B.A., 25, Charles-street, Maidstone.

[13632.] SOUND-PROOF DOOR.—A door ordinarily used to deaden sound (4 panel) hung both sides, and covered with baize. Such a door is frequently used in addition to one or more doors, where the jambs are wide, and room to leave as much space as possible between the two doors. The arrangement is not unfrequently adopted, but unfortunately, [illegible] but unfortunately, [illegible] I do not [illegible] upon the lines of an [illegible] door, efficiently sound-proof [illegible] A at a busy railway [illegible] not immediately aware of this [illegible] door a trial.—Size, 6ft. 6in. [illegible] Hang on 1 butt both



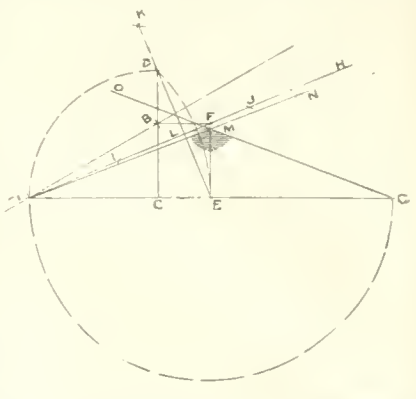
sides; top rail, 4in. by 7in.; bottom rail, 7in. by 2½in.; stiles, 4in. by [illegible]; middle rails (one pair), 7in. by 1in.; muntins (two pairs), 4in. by 1in.; panels (four pairs), 1in. thick; space inside door, 4in. deep, to be filled with silicate cotton (wired) in sheets, and properly fixed in position; frame 4in. by 3in., solid. Fittings: Double-action floor-spring, with adjustable top centre and adjustable shoe, 1 pair push-plates, 1 half-catch, 1 small mortise dead-lock. If constructed in oak or teak, this door will be both sound-proof and fire-proof. The accompanying sketch explains itself.—George Norman, 85, The Grove, Hackney, N.E.

[13633.]—BEVEL OF SLIP TILES.—I presume that by slip tiles the querist means the tiles that are cut to intersect at hips and valleys, when proper hip and valley tiles are not used, and substituted in the former case by roughly cutting the tiles and finishing as to a ridge, and in the latter by a lead valley, and neatly cutting the tiles to line with same. Although not to be recommended, these methods are sometimes more practical and less expensive when two roofs intersect at an angle which does not coincide with the recognised stock angle-valley or hip tile. In the case of patent tiles, of which there are many kinds, the lead valley and bedded ridge tile on the hip are frequently the only methods applicable; but in the case of plain tiles, the properly-bonded hip-and-valley tile make the best work. When it is proposed to cut the hip or valley tiles for a job, in the



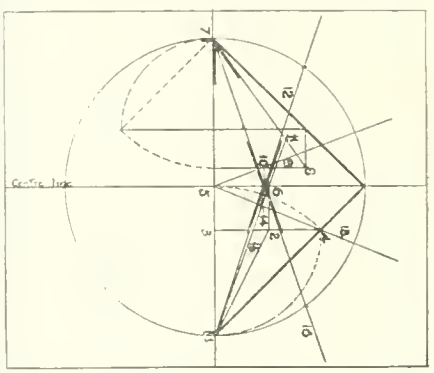
case of plain tiles, it is better to use the tile and a half, as the small strips of tiles that are the result of cutting an ordinary 10in. wide tile are not conducive to good work. To find the bevel for this work, it is only necessary to find the actual length of the hip or valley, as shown in the sketch. Set up a right-angled triangle, with its hypotenuse equal by scale to the upper face of the timber, as found. Mark off on the base of the triangle, the angle of which must be equal to that made by the horizontal tile line and the hip or valley, to same scale the lines of the tiling to the gauge to which they are to be laid; project the points on to the hypotenuse, when the bevel to be cut on each tile will be shown, also the number of rows of battens and tiles required.—Gordon L. Thorne, 10, Atherley road, Southampton.

[13634.] BEVEL OF SLIP TILES.—The writer has assumed that the method of obtaining bevels for hip-tiles is required. On a drawing showing section of roof, mark any length A B, draw A C horizontal, and B C vertical. Produce C B to D, making C D A C. Produce A C to E, making A E A D. Through B draw B F horizontal, and through E draw E F vertical. Produce A F to G, making E G A F. Join A F, producing it to any point H. From E with any radius cut A H in points I J, and with the same radius from centres I and J, draw arcs intersecting in K. Join K E, cutting A H in point L. From E, with radius E L, draw arc L M, cutting E F in point M. Join A M and M G. Produce A M to N and G M to O. Then A M G will be



the bevel for hip-tiles, and O M N the bevel for valley tiles for any pitch of roof. It is important to have hip tiles true to the required bevels; unless they are so, the difference is made up by mortar, which not only gives a very unsightly appearance, but is very liable to disintegration by frost.—T. Conrad Eckstein, 32, Newport-road, Stafford.

[13635.]—BEVEL OF SLIP TILES.—To ascertain the bevel of these tiles, first set out the plan and section of the roofs, as shown upon the accompanying diagram, which is a section through a collar-beam truss of 45° pitch, hipped at both ends, and intersected intermediately by a similar roof, where to obtain the bevels of the hips and valleys respectively upon the one diagram by marking off any length, such as from point 1 to point 2, and drawing a horizontal line 1—7 and a vertical line 2—3, producing the last to point 4 and equal to the length



1—3, as shown, while point 5 is found by taking 1—4 as radius and 1 as centre and scribing an arc 4—5. Now, join point 2 to point 6 by a line horizontal to 1—7, and drop a perpendicular to 5, and draw the line 11 through point 6. The point 13 is found by taking any radius, and with point 5 as centre, scribing an arc, cutting the line 1—12 in two places, giving the points 9 and 15 respectively, where, with the same radius, and these latter two points as centres, scribe an arc from each, the intersection of which is the required point, where, by joining to point 5, the remaining points are easily found, and the necessary lines produced. The intersection of line 5—13 with line 1—11 gives the point 14, and with a radius 5—14 (point 5 as centre), scribe an arc cutting the centre line, giving the point 16, where, upon joining to points 1 and 7, and producing to points 12 and 16 respectively, the required bevels are found, as will be seen, the hip tiles by 1—10—7, and the valley tiles by 12—10—16. On the left of the diagram is also shown the method of arriving at the pitch of the tiles.—Chas. A. Longley, 72, Ivanhoe-road, Denmark Park, London.

The consecration of the choir and chapels of St. Saviour, and St. Columba, of the new Cathedral of St. John the Divine on Morningside Heights, New York, took place on Wednesday.

The Lymington Improvement Association have purchased Great Flushards for £1,600 and will offer it to the town council for use as a recreation-ground for the borough. The property is in close proximity to the river-front, and provides delightful views of the Solent and the Isle of Wight.

Mr. P. C. Cowan, M.Inst.C.E., chief engineering inspector for Ireland, has held an inquiry upon the application of the Cork Rural District Council for sanction to a loan of £7,500 for the purpose of carrying out a sewerage scheme for the Douglas district devised by Mr. B. O'Flynn, C.E., and remedying the evils of a scheme carried out as recently as 1894 by which the sewage was discharged into the River Tramore.

Our Illustrations.

HOUSE AND STUDIO AT HYTHE.

This house, with the studio attached, has been erected for Mr. E. Yarrow Jones, M.A., on the south slope of the hills at the back of Hythe, overlooking the sea and old town, on a site which gives the building much originality of treatment. In a depth of 170ft. the ground falls over 45ft. This rapid slope restricted the planning very considerably, the main entrance being made in the basement level, with an open stairway leading to a hall on the general ground floor. A storage-room for cycles is arranged under the verandah, to avoid wheeling machines up the steep slopes. A west aspect was required from the drawing-room, giving a view over Romney Marshes towards Lympne. The studio for sculpture required a large north light, small west windows, and large south folding-doors, which could be thrown open for working on marble in sunlight. The dining-room has windows facing south and east, giving good views of the sea, the old church, and town. The walls are hollow, made of brick roughcasted, partly timber-framed, and finished white. The windows are of wood divided into small squares by stout wooden bars. The roofs are steep-pitched, covered with darkly-burnt local sand faced tiles. Local stone will be used for the garden walls, and the surplus soil from the excavations will form a terrace in front of the house. Internally, the house is finished in white plaster, and the woodwork finished dark brown. The house is lighted throughout with electric light, and heated with hot-water pipes and radiators, in addition to ordinary fireplaces, which are of sand faced bricks and roof tiles. Mr. Yates, of Frimley Green, Surrey, was the contractor. Messrs. H. R. and B. A. Poulter, Camberley, are the architects.

ST. MARY'S CHURCH, INGESTRE.

NATIONAL PRIZE DRAWINGS.

This beautiful but little known work, by Sir Christopher Wren, stands in the grounds of Ingestre Hall, Staffs. The foundations were laid in 1675, and the building was completed in 1676, at the sole cost of Walter Chetwynd, the then owner of the Ingestre estate. The church, consisting of nave with N. and S. aisle, chancel, and western porch, is simple in design. The walls are of regularly coursed ashlar, with rustication to the angles of the tower, the only enrichments being the acanthus-covered keystones of the windows and the cartouche and swags over the western doorway. Internally, the walls are panelled to a height of 6ft.; above this the stonework is whitened, and the ceilings are examples of exceedingly rich plasterwork. An interesting feature is the use of clusters of four columns (of the Tuscan order) to the nave arcade, each cluster carrying a fragment of an entablature, from which springs the arches. The chancel is separated from the nave by a screen, which, like the pulpit and panelling to the lower part of chancel walls, is richly carved. Wren's favourite pineapple is to be seen on the font cover. The drawings of the church were made some little time ago. Recently, a vestry, in keeping with the old work, has been added to the south side of the chancel.

T. Harold Hughes.

The town council of Stafford have acquired land at the junction of Lichfield and Newport roads as the site for a free library, towards the cost of which Mr. Carnegie has offered £5,000.

A Local Government Board inquiry was held at Mayfield on Wednesday with respect to the rural district council's application to borrow £2,300 and re-borrow £500 in connection with the Mayfield water-supply scheme.

Vancouver, B.C., is establishing new building records. The permits issued to date in this city for 1911 approximate 3,500,000 dollars in value. Vancouver stood sixth on the list of building totals of American cities for January. The five leading were New York, Chicago, Philadelphia, Los Angeles and San Francisco. Vancouver's increase over January, 1910, was 123.7 per cent., the highest jump recorded on the continent.

LEGAL INTELLIGENCE.

A BIRMINGHAM ARCHITECT'S FAILURE.—At the West Bromwich County Court, on the 12th inst., an application was made by Stephen James Holliday, architect and surveyor, formerly residing at New-street, West Bromwich, and carrying on business at Colmore-row, Birmingham, for his discharge in bankruptcy. Mr. Dalley (Assistant Official Receiver) said the receiving order was made in 1909 on debtor's own petition. The proofs of debt actually admitted amounted to £873 5s. 3d., and the probable claims not yet admitted amounted to £772 13s. 7d. The assets realised £142 7s. 3d., and the balance available for distribution among the creditors was £84 15s. 11d., a first and final dividend of 10½d. in the pound being paid. Debtor, who was fifty years of age, commenced business in 1883. He made himself responsible for financing speculative builders in connection with the development of some estates, and the speculations were unsuccessful. He was also guarantor for his brother, and had to pay about £769. His Honour granted the discharge on condition that debtor paid £29 for the benefit of his creditors.

COMPENSATION CLAIM FOR MALL IMPROVEMENT.—Mr. Chatfeild Clarke sat as arbitrator at the Surveyors' Institution on the 11th and 12th to fix the compensation to be paid to the Commercial Union Assurance Company by the London County Council with respect to the tearing down of the Company's premises at Charing Cross in order to open up the entrance to the Mall. Mr. Balfour Browne, K.C., and Mr. C. C. Hutchinson represented the Company, and Mr. R. Morten, K.C., and Mr. B. L. Houghton the County Council. Mr. Balfour Browne said that the offer which had been made by the County Council was entirely inadequate to the requirements of the Company or to what they were losing. The Company's claim amounted to £84,272. Mr. J. Anson Breach, valuer and surveyor, deposed that the value of premises had increased there enormously. He arrived at £74,587 as the value of the freehold interest as it now stood, and it would also be easy to earn £100 a year from illuminated signs, and for this he placed the claim at £2,200. In the last five years the value of property in that district had increased from 75 to 100 per cent. Mr. W. R. Peck, surveyor and valuer, estimated the total claim which should be made at £86,930. Mr. G. W. Rutter, a member of the firm of Hampton and Sons, estimated the value of the property at £74,496 and the total claim at £81,981. Mr. Harry Dove, manager of the West End branch of the Union Assurance Company for nine years, Mr. George Green, a member of the actuarial staff of the company, and Mr. R. B. Jarvis, chief accountant, supported the claim. Opening the case for the County Council, Mr. Morten said that from the County Council's point of view the figures were wildly impossible. On the question of fixtures, the parties had agreed that £1,070 should be paid for the cost of removal, reinstatement and stationery and advertising. There was, however, he contended, absolutely no evidence of loss of business. He called Mr. Leslie Vigers, President of the Surveyors' Institution, who placed the value of the property, at twenty years' purchase, at £35,200, plus the sum of £1,950 agreed upon as the cost of removal and reinstatement. The claim which had been made by the company worked out at £60 per foot for the land. In his opinion, its true value was £23 per foot. Witness admitted that the value of property in the neighbourhood had risen considerably from 1900 to 1909. Mr. C. W. Willoughby (Messrs. Weatherall and Green), valuer and surveyor, held that the price to be paid should be £38,514. Mr. Andrew Young, valuer to the County Council, stated that the Council had "made the market" in that neighbourhood, because it needed offices there. Mr. F. E. Eiloart, Chancery-lane, was also called. The decision of the arbitrator will be given after consideration.

Mr. A. W. Brightmore, Local Government Board inspector, held an inquiry at Lostwithiel on Thursday in last week into the application of the town council for sanction to borrow £1,500 for a new reservoir on Bodmin Hill.

Mr. R. Blanchard, of Leicester, has been appointed surveyor to the Cannock Urban District Council, in succession to Mr. J. T. Hendry. Mr. Blanchard has been for the past eleven years in the service of the Leicester Corporation.

Among the five members whose names have been endorsed by the executive of the Labour Party as suitable candidates for selection by Parliamentary constituencies is that of Mr. Alfred Gould, representing the Carpenters and Joiners.

TRADE NOTES.

The Boyle system of ventilation (natural), embracing Boyle's latest patent "Air-pump" ventilators and air-inlets, has been applied to Llanvaes School, Brecon.

The new fever hospital, Northallerton, is being supplied with Shorland's warm air ventilating patent Manchester stoves by Messrs. E. H. Shorland and Brother, Ltd., of Failsworth, Manchester.

The Enfield Brick and Terra Cotta Company, Ltd., of Accrington, announce that, owing to a reduction in price at the works, Accrington bricks will now be £4 10s. 6d. delivered instead of £4 13s.

CHIPS.

The memorial-stone of a Wesleyan people's hall and Sunday-school was laid in Holyoakes Field, Redditch, on Monday. The cost of the building will be £1,300. The site was given by the Earl of Plymouth.

The committee of the West Norfolk and King's Lynn Hospital have adopted plans submitted in competition by Messrs. MacAlister and Skipper, architects, for improving the entrance and front elevation of the hospital and erecting a new staircase. The alterations, which are estimated to cost £1,200, have been so designed as to provide the nucleus for an entirely new building.

From the profits on the Gothenburg tavern at Newtongrange, N.B., an institute has been built in the colliery district of Newbottle, and was opened on Saturday. The institute has been erected from plans by Mr. A. Murray Hardie, George-street, Edinburgh. The walls are of brick, harled with red sandstone dressings. The billiard-room is 50ft. by 28ft. The accepted estimates for the whole work amounted to about £2,700, exclusive of furnishings.

At Buffalo, New York State, a tower building seventeen stories in height is about to be erected by the Buffalo Electric Company. The area of the lot on which the building is to be erected is 65ft. by 185ft. A granite base three stories high will be used. Above this will rise ten stories of smaller area, crowned by four stories in a tower. It will cost over £100,000 sterling. The architects are Eisenwein and Johnson, Buffalo.

At a meeting of the Gwynfair Rural District Council at Carnarvon on Saturday, Mr. John Griffith, who has been surveyor to the council for several years, was presented with a gold watch, suitably inscribed, and a gold seal, in recognition of his services and as a token of respect. Mr. Griffith has just resigned the surveyorship to go to Vancouver. On behalf of the workmen, also, Mr. Griffith was presented with a travelling-trunk.

The Municipal Court Building in St. Louis, Mo., now nearing completion, is situated between Market-street, Clark-avenue and Thirteenth and Fourteenth streets. A Greek treatment has been adopted by the architect, Mr. Isaac S. Taylor, of St. Louis. It is four stories high 220ft. by 355ft. ground floor dimension, and the superstructure is of blue Indiana oolite limestone. The cost of the building, not including furnishing, will be about £200,000 sterling.

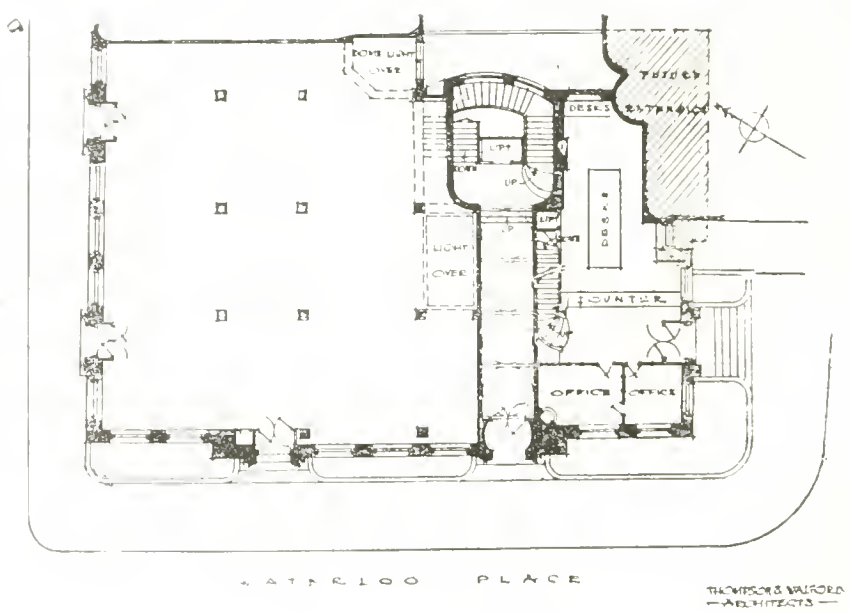
In the case of the application on behalf of John Robert Brinkwater (carrying on business as J. R. Drinkwater and George S. Drinkwater), carrying on business at Edge-lane, Chorlton-cum-Hardy, under the style of J. R. Drinkwater, also carrying on business under the style of George S. Drinkwater at Bengal-street Wharf, Oldham-road, Manchester, builder and contractor and builders' merchant, the order of discharge has been suspended for four years ending March 22, 1915.

After the death of Mr. John M. Swan, R.A., the well-known painter and sculptor of wild animals, Mr. J. C. J. Drucker, London, proposed a scheme for the purchase of Mr. Swan's drawings and sketches, with a view to their ultimate distribution among the public galleries of the country. Some twenty of the art gallery committees responded, and, with their subscriptions and subscriptions from private sources, a sum of £3,161 16s. was raised and paid over to Mrs. Swan for her late husband's drawings. These have now been apportioned, according to the amount subscribed, among the galleries (taking them in alphabetical order) of Aberdeen, Bath, Birmingham, Bradford, Cambridge, Dublin, Edinburgh, Leeds, London (British Museum, Guildhall, and National Gallery), Manchester, Melbourne, Newcastle-on-Tyne (Armstrong College and Laing Gallery), the Luxembourg, Paris, Rotterdam (Bornman's Museum), and Worcester.

NORTH BRITISH AND MERCANTILE INSURANCE COMPANY'S NEW OFFICES, WATERLOO PLACE, S.W.
Messrs. Thompson and Walford, Architects.

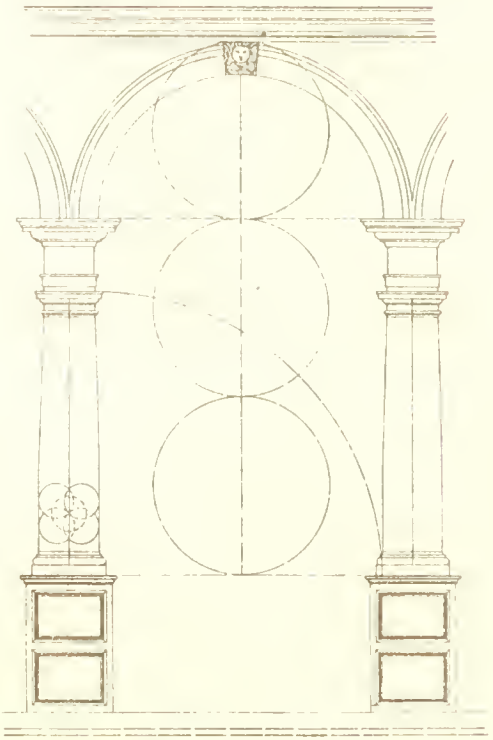
THE NORTH BRITISH AND MERCANTILE INSURANCE COMPANY'S NEW OFFICES, WATERLOO PLACE, S.W.

This important block of buildings in Waterloo place has just been completed by the architects, Messrs. Thompson and Walford, of Leadenhall buildings, E.C. The builders were Messrs. Patman and Fotheringham, of Islington, N., and the fireproof construction was done by Stuart's Granolithic Co., Ltd. The reinforced concrete floors are somewhat unique, in so far as regards spans, which are about 20ft. 0in. in the narrowest way. It was a condition that no secondary or auxiliary beams be employed, only those main girders carrying the structure. To overcome the difficulty of spanning those, and having regard to the safe loading of 2cwt. per super. foot, recourse was made to reinforcing the floor by means of diagonal bracing made up of steel rods, and those and the ordinary longitudinal and transverse rods were the only reinforcement used. The floors are 7in. thick, and were left ready to receive on the surface either wood block or floor boards, and the soffits were skimmed over by plastering. Stuart's Granolithic Co.'s design for the steel girder framing work was also approved by the architects. As the buildings were to be carried out in two sections, to suit the exigencies of the tenants, it was decided to abandon the first idea of a wholly reinforced concrete structure, for steel beams and stanchions, all of which, by the way, are totally encased in Stuart's concrete. The lifts were supplied by the "Otis" Elevator Co. The Standard Otis electric passenger elevator travels in staircase well from basement to top floor; it has a lifting capacity of ten persons, with car speed at the rate of about 275ft. per minute. The elevator is controlled from the car by means of a two speed, self centring, lever handle switch; the car and counterbalance guides are on steel tee section, and Standard safeties are fitted to car, and counterbalance weights for the purpose of arresting descent of either car or counterbalance in the remote contingency of the steel ropes breaking. Messrs. Smith, Major, and Stevens, and Messrs. Bolding and Sons were responsible for the sanitary fittings.



SECTION THRO' CHANCEL

Scale of Feet

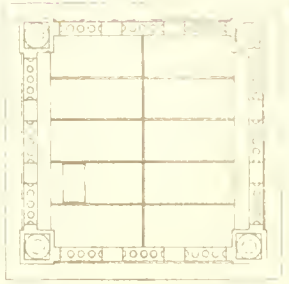


DETAIL OF ARCADE

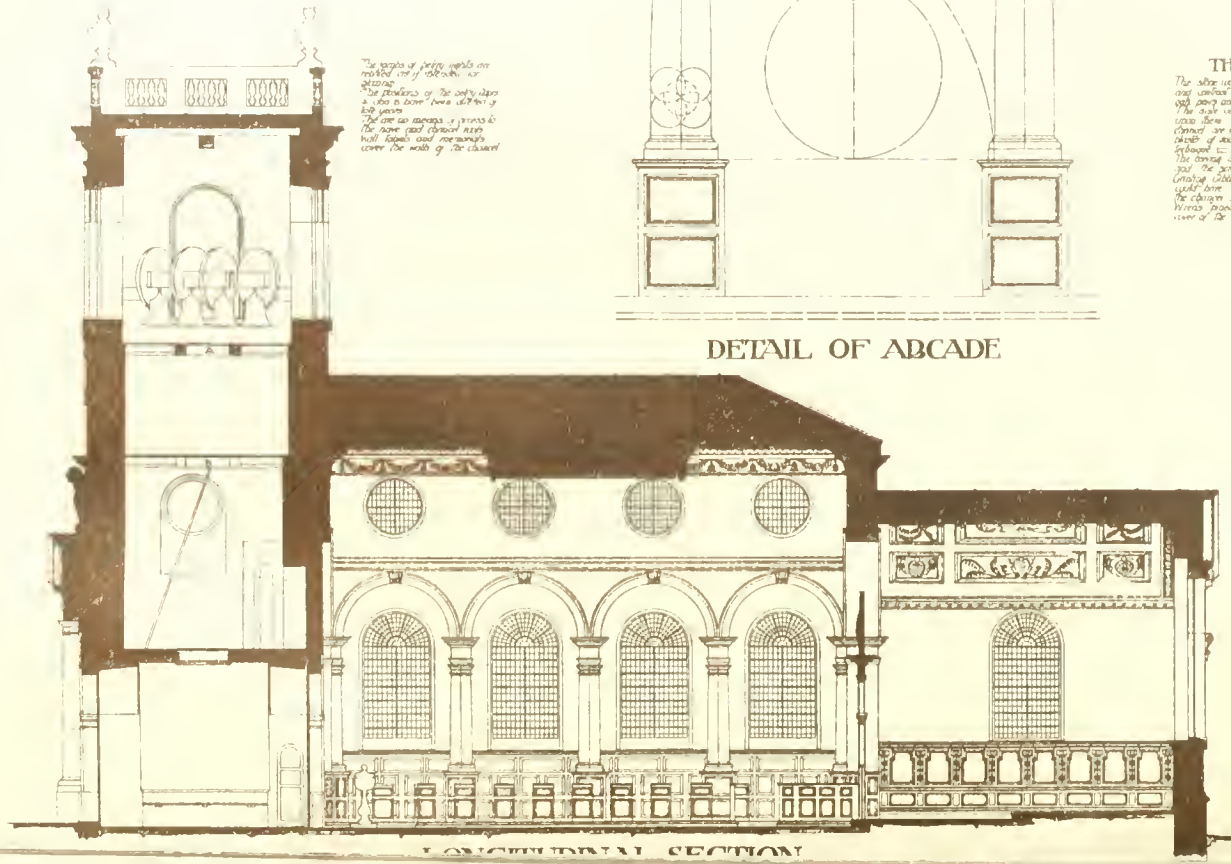
CROSS SECTION

Looking East

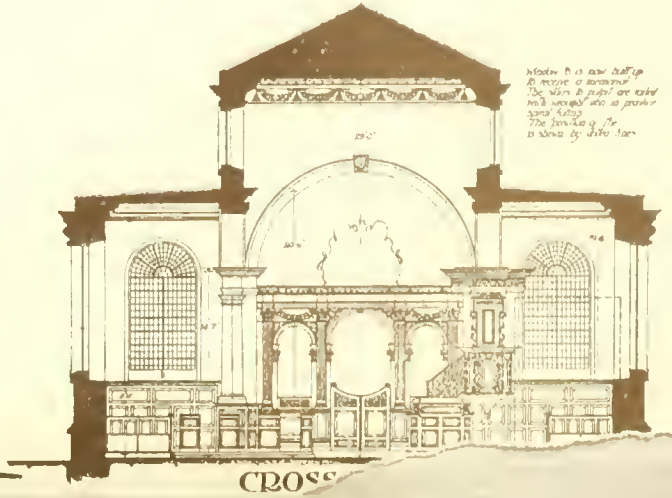
THE INTERIOR



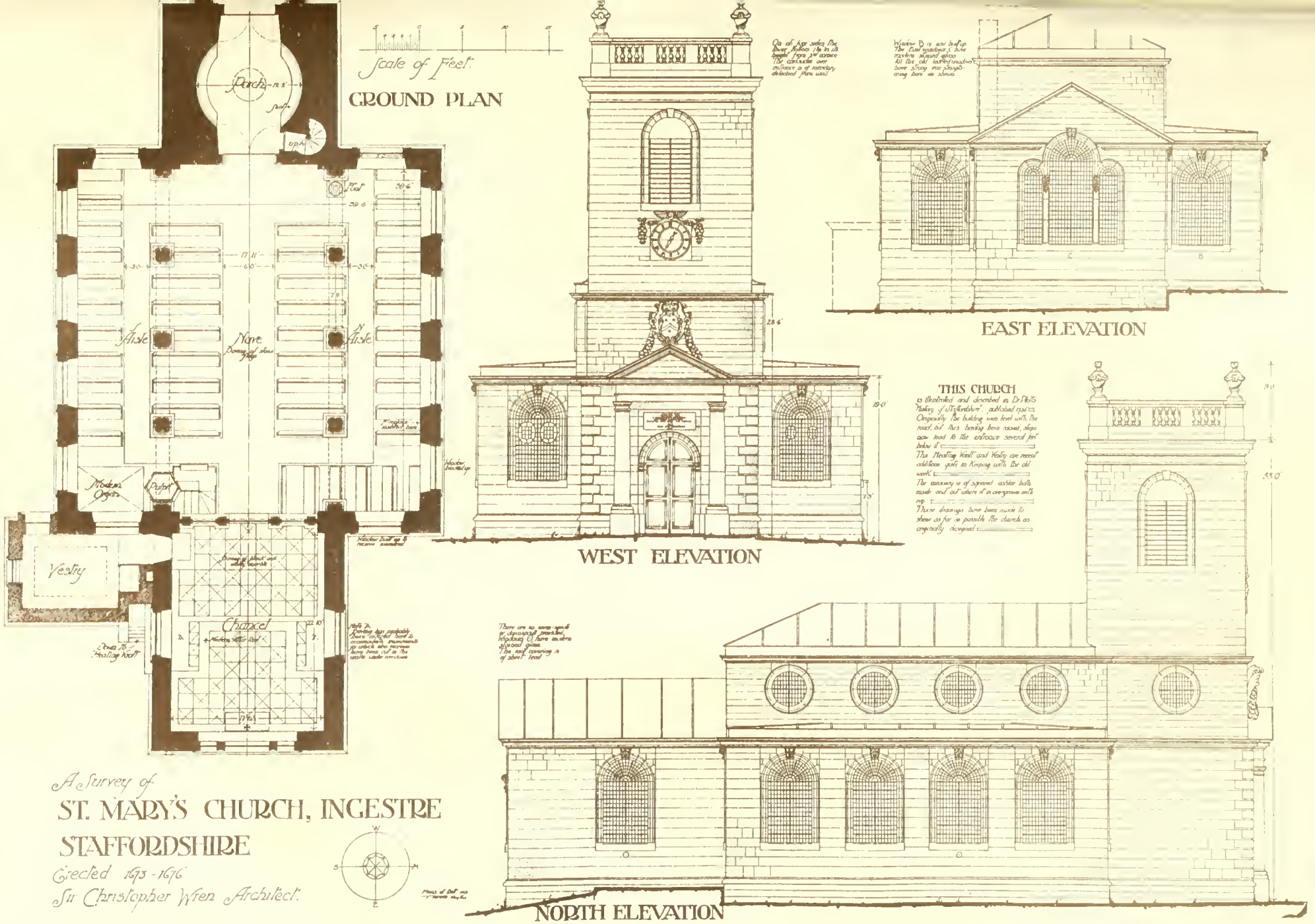
ROOF PLAN OF TOWER



LONGITUDINAL SECTION



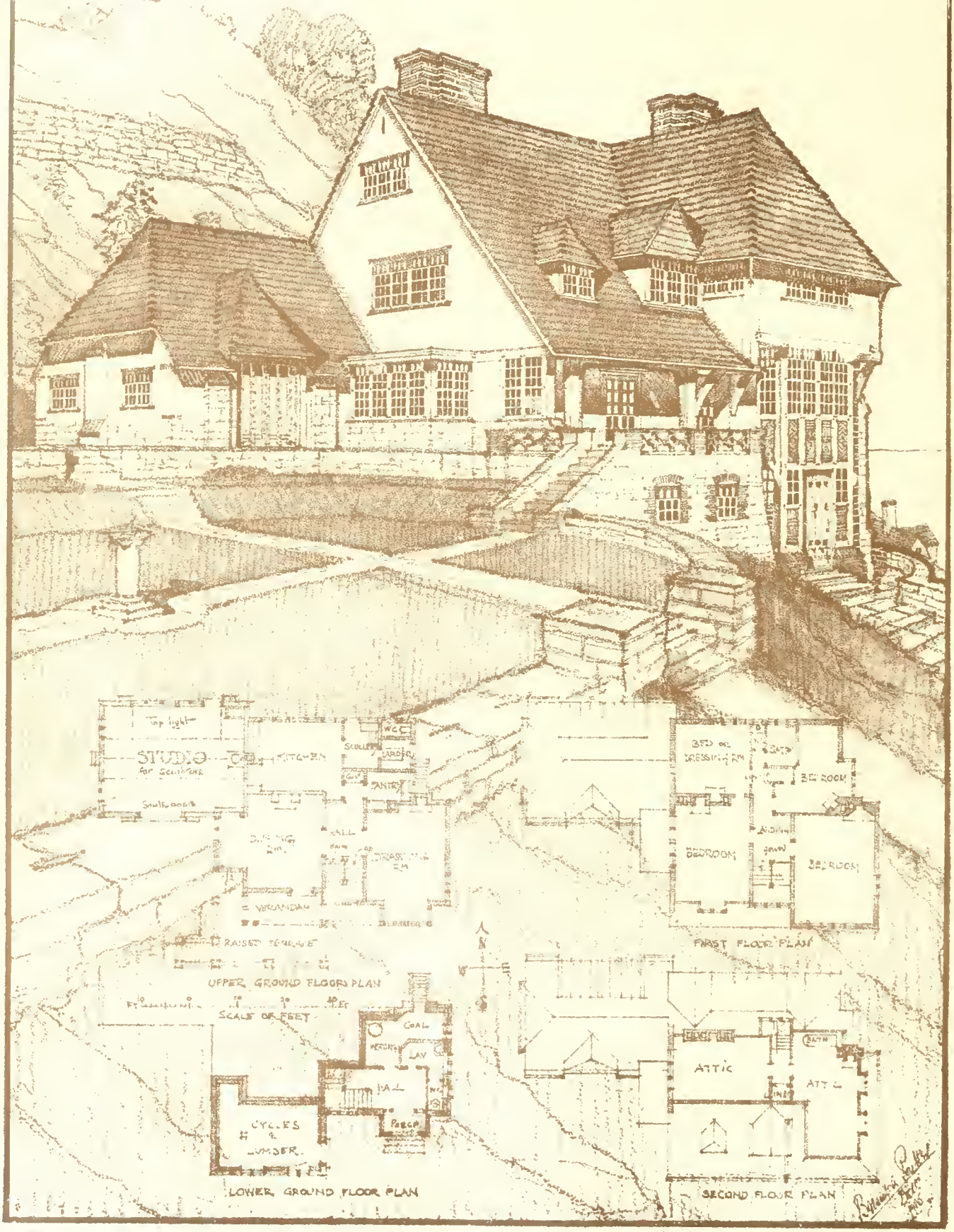
CROSS



NATIONAL PRIZE DRAWINGS BY T. HAROLD HUGHES.

HOUSE & STUDIO AT HEATH END, NEAR FARNHAM, SURREY.

H. R. & B. A. POULTER, ARCHTS., CAMBERLEY.



"PHOTO-TINT," by James Akerman, 6 Queen Square London W.C.

"PHOTO-TINT" by James Akerman 6 Queen Square London W.

NORTH BRITISH AND MERCANTILE INSURANCE COMPANY'S OFFICES WATERLOO PLACE S.W

THOMPSON & WALFORD, ARCHITECTS.

NORTH BRITISH AND MERCANTILE INSURAN

Messrs. Thompson

COMPANY'S NEW OFFICES, WATERLOO PLACE.
WALFORD, Architects.

ROYAL INFIRMARY, LIVERPOOL: NEW OUT-PATIENTS' DEPARTMENT.—Mr. J. Francis Doyle, Architect.

NEW OUT-PATIENTS' DEPARTMENT, LIVERPOOL ROYAL INFIRMARY.

This building has been placed at the north-west corner of the site of the hospital, at the junction of Pembroke-place and Brownlow-street, being approached from Pembroke-place through the existing gateway for out-patients to an archway under a tower at the end of the administration block, forming a porte cochere, from which there is a spacious entrance into the ante-hall for unsorted patients.

At the north end of this entrance, or ante-hall, on the right-hand side is the "Registration" office, leading into the central hall, a spacious apartment, lighted from above, where there is accommodation for 300 patients, who wait in groups until admitted to the medical and surgical examination rooms. At the south end of the central hall is the medical department, away from traffic noises, with waiting-rooms, physicians' rooms, and examination rooms. At the north end is the surgical department, with the necessary surgeons' rooms, waiting-rooms, and dressing-rooms. On the west side of the central hall is an "operating theatre," with accessory apartments, and a room for "clinical" examinations. At the south end of the entrance-hall is the dispensary, with a serving counter, which the patients will pass on leaving the hall. This dispensary is large, and will serve the dual purpose of supplying not only out-patients, but the whole of the hospital, with medicines, having storage accommodation in basement.

An electric lift from the basement to the first floor is provided in the staircase. There is a covered way to the main building from a passage behind the dispensary, which will act as an entrance to a casualty department, to which use part of the former out-patient department will be devoted. On the south side of the covered way are two small rooms for the temporary isolation of infectious cases which may be detected in the examination of patients. On the first floor are accommodated the throat department on the east side, the ophthalmic department on the north and west sides, and the gynæcological department on the south side. In the basement are the departments for skin, Lock, and massage cases. Also the dispensary laboratory and wine and drug stores, with a stairway to the dispensary above. There is a chamber for the boilers warming the building and supplying hot water and steam to the various departments; also a sterilisation and fumigating room. The central portion of the basement, which is arched and groined and lighted from above, is available for waiting and other purposes. Sanitary arrangements are provided on each floor.

The treatment of the exterior of the building has been designed in harmony with the existing infirmary buildings. Care has been exercised to secure as much light as possible in every part of the building, and effective and thorough ventilation. The building is constructed of fireproof materials, and lighted by electricity. The work has been executed by Messrs. Joshua Henshaw and Sons, of Liverpool, to the designs of Mr. J. Francis Doyle.

A new permanent church is about to be built at Thornbury, near Bradford, from plans by Messrs. Austin and Paley, of Lancaster.

CHIPS.

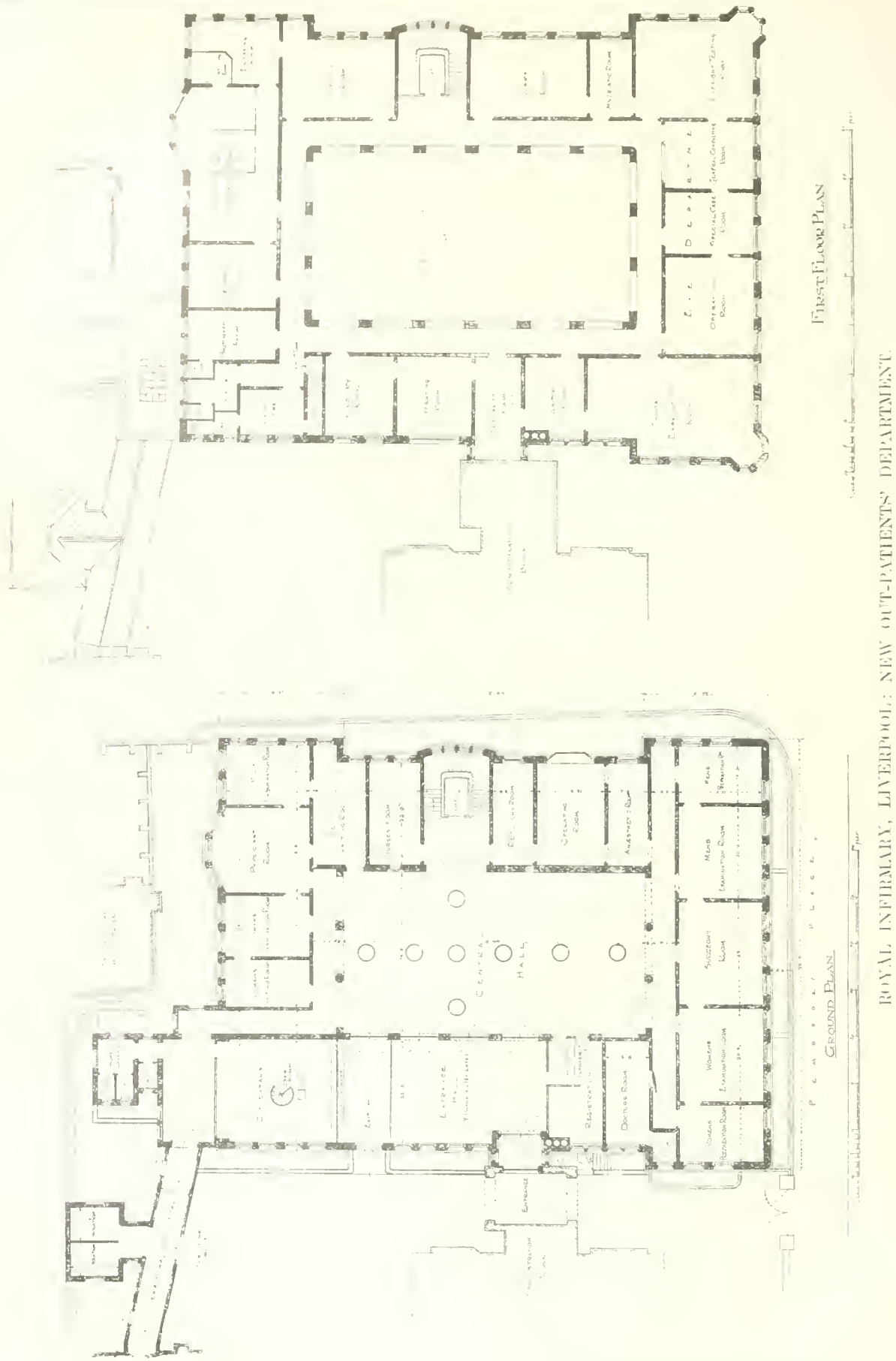
Mr. Richard Evans, C.E., Cork, has prepared plans for a sewerage scheme for Bantry, and it is intended to apply to the Local Government Board for sanction to a loan for the purpose.

The Archbishop of Canterbury has consecrated the new Church of St. Andrew, Reading-street, in the parish of St. Peter-in-Thanet. The church has been built at a cost of £3,600, and has accommodation for 350 people. The architect is Mr. J. S. Alder, of Arundel-street, Strand.

The first section of a permanent Roman Catholic Church of St. Felix is being built near the Town Railway Station at Felixstowe. It will consist only of the sanctuary and two bays of the nave, and is faced with Weldon stone with Bath dressings. The architect is Mr. F. B. Banham, of Beccles, who designed the minster there, and the builder is Mr. Frederick C. Thurman, of Walton.

The North Bohemian cement factories have decided to form a syndicate which is to enter into kartel relations with the German cement unions in Silesia and South Germany. An arrangement has been arrived at among the German cement unions concerning the export trade whereby free competition as regards prices has been given more scope, especially in the matter of the oversea trade.

H.M. Commissioners of Public Works have commenced work upon the alterations of the Linen Hall in Dublin to fit it for the reception of the Stationery Office, at present located at the Custom House. £14,000 has been provided in the estimates for the carrying out of the alterations, and another £1,400 to cover the expense of the removal. The Linen Hall, which has long been unoccupied since it was disused as a barracks, contains some very fine mantelpieces in the principal rooms.



ROYAL INFIRMARY, LIVERPOOL: NEW OUT-PATIENTS' DEPARTMENT.

CHIPS.

An out patients' department is being added to the hospital at Worthing, at a cost of £2,700. Mr. A. Morris Butler, F.R.I.B.A., of Finsbury-circus, E.C., is the architect.

An inquiry has been held at Chorley, Lancs., by an inspector under the Local Government Board, with respect to an application of the corporation for sanction to the borrowing of £8,833 for private street improvement works.

The salary of the surveyor to the Perthshire Central District Committee has been increased by £20 to £300 per annum.

The Shoreditch Borough Council have constructed over the canal bridge at Whiston street, Haggerston, a bridge of reinforced concrete on the "Hennebique" system. The contract of Messrs. Higgs and Hill of Crown Works, South Lambeth, amounted to £424. The old bridge was condemned in 1908.

A new city hall is about to be built for Cleveland, Ohio, at an estimated cost of £520,000 sterling. The architect is Mr. J. Milton Dyer, of Cleveland.

A Local Government Board inquiry will be held at Southall on Tuesday next into an application of the urban district council for sanction to a loan of £7,750 for the extension of Southall Park and the Southall Green Recreation ground.

Our Office Table.

A Local Government Board inquiry will be held on Wednesday into the scheme for the clearance of Tabard-street. This will take place at the Southwark Town Hall, and the proceedings are expected to last three days. The area to be cleared is about sixteen acres in extent, and at present is covered with dilapidated slum property. It will be replanned, and an open space and balcony block dwellings provided, while a portion of the estate will be utilised for commercial purposes. The number of persons whose rehousing has to be considered is about 4,550, of whom, it is expected, about half will be accommodated in the new dwellings. The net cost of the scheme will be £387,000. The municipal authorities will urge that the scheme should be carried out in sections in order to "de-house" as few people as possible at a given time. In regard to the erection of block dwellings on the site, the Bermondsey Borough Council objects to high buildings being erected, and suggests that the County Council should fix the limit at three floors.

The London County Council has recently decided to make a maintenance grant of £8,000 to the Imperial College of Science and Technology, S. Kensington, S.W. In return for this grant it secures the privilege of nominating twenty-five students for one year's free instruction at the Imperial College. These places are to be filled as from October, 1911. The instruction will be of an advanced nature, and therefore only advanced students who are qualified to enter on the fourth year of the course should apply. There is no restriction as to income, but intending candidates must be ordinarily resident in the administrative County of London, and must be students at an institution aided, maintained, or approved by the Council for this purpose, who have attended regularly courses of instruction for at least two sessions. The free studentships do not entitle the holders to any maintenance grants, but cover all ordinary tuition fees. No examination will be adopted for the final selection of the students from the applications received. The free studentships will be awarded on consideration of the past records of the candidates, the recommendations of their teachers, the course of study they intend to follow, and generally upon their fitness for advanced study in science applied to industry. It is quite possible that, in special cases, the free places may be extended to two or more years. Application forms (T. 2268) can be obtained from the Education Officer, London County Council, Victoria Embankment, London, W.C., and must be returned not later than Saturday, May 27, 1911.

In pursuance of its policy of indicating houses of historical interest in London, the London County Council has recently erected tablets on the Grove, Hampstead (to commemorate the residence of Sir George Gilbert Scott), and on 32, Soho-square (where Sir Joseph Banks once lived). While residing at the Grove, the two chief works which occupied Sir Gilbert Scott were the erection of the Foreign and India Offices in Whitehall and the preparation for the Albert Memorial. On March 10, 1864, Sir Gilbert wrote that the special characteristic of his successful sketch for the Albert Memorial "was that the ciborium was designed in some degree on the principles of the ancient shrines. These shrines were models of imaginary buildings, such as had never in reality been erected; and my idea was to realise one of these imaginary structures, with its precious materials, its inlaying, its enamels, etc. This was an idea so new as to provoke much opposition. Cost and all kinds of circumstances aid this opposition, and I as yet have no idea how it may end."

The Secretary for Scotland has appointed a Committee to consider and report on certain questions relating to Forestry in Scotland. Sir John Stirling-Maxwell, Bart., is the Chairman, and the other members are the Right Hon. R. C. Munro-Ferguson, M.P., Mr. John D. Sutherland, Oban, Sir John Fleming, Sir Matthew Wallace, and Mr. R. H. N. Sellar, of Aberdeen. Mr. H. Warre Cornish, Dover House, Whitehall, will act as Secretary to the Committee. The terms of the reference to the Committee are as follows:—"To report as to the selection of a suitable location for a Demonstration Forest Area in Scotland; the uses, present and prospective, to which such area may be put (including the use that may be made of it by the various forestry teaching centres in Scotland); the staff and equipment required for successful working; the probable cost; and the most suitable form of management. To report as to any further steps following upon the acquisition of the said area which, in the opinion of the Committee, it is desirable should be taken with a view to promoting sylviculture in Scotland, due regard being had to the interests of other rural industries."

The second Irish Roads Congress was opened on Wednesday evening in the theatre of the Royal Dublin Society, Dublin, and was largely attended. Mr. P. J. O'Neill, chairman of the County Dublin Council, in his presidential address, referred to the proposals of the Road Board as regards Ireland, and complained of the insufficient grant which it was proposed to make. It was absolutely unjust to fix Ireland's grant for a period of ten years, regardless of the fact that the Board's income must be progressive. The Road Board administration in Ireland was certain to be inefficient, wasteful, and extravagant unless it was controlled from a centre in Dublin conversant with local needs and conditions, and directly in touch and in sympathy with the local governing bodies. Several papers dealing with the question of the roads—their upkeep, cost, and construction—were afterwards read and discussed.

The ruins of Newark Abbey, an Augustinian priory founded in the reign of Richard I. at Send, near Guildford, have, with the consent of Mary Lady Lovelace, passed into the hands of the Historical Monuments Commission. It is proposed to excavate the foundations, and this work will probably be undertaken by the Surrey Archæological Society, who a few years ago carried out similar operations at Waverley Abbey, the Cistercian monastery near Farnham. The ruins of Newark Abbey consist of the south transept and three bays of the choir. After the dissolution of the priory the building was neglected. Some of the walls were pulled down in order that the stones might be used for repairing the roads, and but for the interposition of Arthur Onslow, a former Speaker of the House of Commons, even the present ruins would have disappeared.

In a paper read before the Yorkshire section of the Institution of Electrical Engineers Mr. W. B. Woodhouse refers to the advantages of overhead electric mains for purposes of distribution. For a long time local authorities and the Board of Trade greatly hindered the use of overhead wires on grounds of safety and appearance. Fears as to the former have been shown to be practically groundless, whilst the unsightliness of the overhead wires is a matter of dispute. They possess, however, certain marked advantages. One is lower first cost. Mr. Woodhouse compared the costs for one mile of village street, with 36 lamps and 40 house-services, with overhead service mains and with underground mains. In the former case the cost was £440 and in the latter £769. The saving with overhead wires amounted to about 1d. per unit consumed. Another advantage of the overhead system is its convenience in country districts. Connections, both permanent and temporary, can easily be made. Farmers in particular seem to appreciate electricity, applying it for chopping food, churning, lighting, and threshing. Perhaps, too, they will soon be employing it as a fertilising agent. For this class of work cheapness is essential, and every method of reducing costs deserves sympathetic consideration. Capital outlay is especially important, as it usually accounts for at least half the total cost of current.

Reinforced concrete roads have been selected for stretches of one and a quarter miles in Harrison County and a quarter-mile in Pike County, Ohio. In both cases the work is located on sections that are subject to overflow, and it was partly on this account, according to the report of Mr. James C. Wonders, State Highway Commissioner, that concrete was selected. The concrete will be 18ft. wide and 6in. thick, made in the proportion of one part Portland cement, two and a half parts sand, and five parts gravel; it will be reinforced with No. 11 wire, woven in a 6in. mesh. The reinforcement will be placed midway between the upper and lower surfaces, and the work will be cut in sections 50ft. long. The joints will be at an angle of 45deg. with the line of the road. The concrete will be a wet mixture and will be rough floated, with a plank template so as to leave a safe footing for horses.

Recently it was decided by the Stirling Joint Bridge Committee, composed of representatives from Stirling Town Council and Stirlingshire County Council, to ask His Majesty's Commissioners of Works to have the old bridge of Stirling put under the care of the Commissioners, under the Ancient Monuments Protection Acts. A reply from Mr. W. T. Oldrieve, F.R.I.B.A., of H.M. Board of Works, has been received, stating that the authority of the Lords of the Treasury would be sought for the transfer if the county and town of Stirling would undertake jointly to contribute a moiety of the initial cost of the work necessary for putting the bridge into a state of repair. He estimated the cost of the repairs to the bridge would amount to £400. At a meeting of the Stirling Town Council on Monday night it was agreed that the sum of £200 be contributed in equal shares by the Stirling County Council and Stirling Town Council.

The eighth report of the Board of Trade as to the working of the Conciliation Act shows that much valuable effort is being directed to the avoidance of trade disputes. During 1910 the Board intervened in sixty-seven cases—the highest number of any year since the passing of the Act in 1896, and of these fourteen arose in the building trades. Throughout the eight years that the Act has been in operation, by far the largest number of cases out of the building trades, one hundred and thirty-three in all, the next in numbers being the metal, engineering, and shipbuilding trades, which only necessitated seventy-seven interventions, and the mining and quarrying industries, which came third with fifty four.

According to P. Rohland (*Z. Chem. Ind. Kol.*, viii. 48), efflorescences on mortars, bricks, etc., are caused by crystalloid substances (acids, bases, or salts), and not by colloids. The extent of the efflorescence depends partly on the porosity of the mortar, bricks, etc., for in a very porous material the soluble salts may crystallise partly in the interior of the material, whereas with a material of close structure the water, with its dissolved salts, is forced to the surface. Soluble salts may separate quantitatively on the surface of the mortar, etc., after hardening. For example, if plaster-of-Paris be gauged with water containing 0.05gm. of copper sulphate in solution, the plaster remains pure white during setting and hardening, but after several hours the blue copper sulphate crystallises out on the surface quantitatively.

The ordinary general meeting of the Val de Travers Asphalte Paving Company, Ltd., was held on the 12th inst. at the offices, Hamilton House, Bishopsgate, under the presidency of Mr. H. C. Scott. The chairman, in moving the adoption of the report, spoke of the work done by the company during the year 1910, which had enabled a dividend of 7½ per cent. to be paid for the year. Out of the Compagnie Générale fund the board had placed to the credit of profit and loss £2,450, and recommended a bonus of 3d. per share in addition to the dividend proposed, the balance carried forward being £529. One important feature in regard to the future was, he stated, that they proposed to supply second-grade work, not, he added, in regard to roads, but for mastic. That was in consequence of the continued keenness of competition. The great future for asphalte lay in

MEETINGS FOR THE ENSUING WEEK.

[illegible]

[illegible]

[illegible]

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (50c.ft.)	£20	0	0	to	£21	10	0
,, Java ,, ,,	15	0	0	,,	18	0	0
	Per cubic foot.						
Oak Planks: U.S.A., imported..	0	1	9	to	0	2	6
,, Boards ,, ,,							
Prm.	0	2	4	,,	0	2	9
,, ,, ,, ,, Mdm.	0	1	10	,,	0	2	2
Sequoia (Californian Redwood)	0	3	0	,,	0	3	6
Birch: Quebec logs	0	1	6	,,	0	2	2
,, ,, sawn planks	0	1	0	,,	0	1	2
Oak: Austrian Wainscot	0	6	0	,,	0	7	0
Walnut: Prime boards & planks	0	5	0	,,	0	6	0
,, Mdm. ,, ,,	0	3	4	,,	0	3	6
Greenheart: Hewn logs	0	3	6	,,	0	4	6
Cedar: Cigar box	0	3	6	,,	0	4	8
Satin Walnut: Imp. sawn boards, prime	0	2	3	,,	0	2	6
Orhsm: Imp. sawn boards, prime	0	1	10	,,	0	2	2
Mahogany: St. Domingo, Cuba, and Honduras	Per foot of 1in.						
	0	0	5½	to	0	0	6
,, African, Assinee, &c.	0	0	4½	,,	0	0	9
,, Lagos and Benin	0	0	3½	,,	0	0	4½
,, Sekondi and Cape Lopez	0	0	2½	,,	0	0	3½
,, Gaboon	0	0	1½	,,	0	0	0
Satinwood: West Indian	0	0	10	,,	0	2	2
Rosewood Per ton	7	0	0	,,	12	0	0
Lignum Vitæ ,,	4	0	0	,,	11	10	6

STONE.*

Red Mansfield, in blocks per foot cube	£0	2	4
Darley Dale, ditto ,, ...	0	2	3
Red Corsehill, ditto ,, ...	0	2	2
Closeburn Red Freestone, ditto ,, ...	0	2	0
Ancaster, ditto ,, ...	0	1	10
Greenshill, ditto ,, ...	0	1	10
Chilmark, ditto (in truck at Nine Elms) ,, ...	0	1	9
Beer, ditto ,, ...	0	1	6
Hard York, ditto ,, ...	0	2	10
Ditto ditto 6in. sawn both sides, landings, random sizes per foot sup.	0	2	8
Ditto ditto 3in. slab sawn two sides, random sizes ,, ...	0	1	

* All F.O.R. London.

Bath Stone, delivered on rail at quarry stations per foot cube	0	1	0
Delivered on road waggons, Paddington Depot ,, ...	0	1	6½
Ditto ditto, Nine Elms Depot ,, ...	0	1	8¼
Beer Stone, delivered on rail at Seaton Station ,, ...	0	1	0
Ditto, delivered at Nine Elms Station ,, ...	0	1	6

Portland Stone, in random blocks of 20ft. average:—

	Brown Whit Bed.			White Base Bed.		
Delivered to railway depot at the quarry per foot cube	£0	1	5¾	£0	1	7¼
Delivered on road waggons at Paddington Depot ... / Ditto, Nine Elms Depot ... / Ditto, Pimlico Wharf ... ,, ...	0	2	1	0	2	2½

SLATES.

	In.	In.	£	s.	d.	
Blue Portmadoc	20 × 10	...12	12	6	per 1000 of 1200 at r.stn.	
,, ,,	... 16 × 8	.. 6	12	6	,,	,,
Blue Bangor	20 × 10	...13	2	6	,,	,,
,, ,,	... 20 × 12	..13	17	6	,,	,,
First quality	20 × 10	...13	0	0	,,	,,
,, ,,	... 20 × 12	...13	15	0	,,	,,
,, ,,	... 16 × 8	... 7	5	0	,,	,,
Eureka unfading green	20 × 10	..15	17	6	,,	,,
,, ,,	... 20 × 12	..18	7	6	,,	,,
,, ,,	... 18 × 10	...13	5	0	,,	,,
,, ,,	... 16 × 8	...10	5	0	,,	,,
Permanent green	20 × 10	...11	12	6	,,	,,
,, ,,	... 18 × 10	... 9	12	6	,,	,,
,, ,,	... 16 × 8	... 6	12	6	,,	,,

BRICKS.

(All prices net.)

Hard Stocks	£1	6	6	per 1,000 alongside, in river
Rough Stocks and Grizzles	1	6	0	,, ,, ,,
Picked Stocks for Facings	2	10	0	,, delivered at railway station.
Flettons	1	6	0	,, ,, ,,
Pressed Wire Cuts	1	18	0	,, ,, ,,
Red Wire Cuts	1	14	0	,, ,, ,,
Best Fareham Red	3	12	0	,, ,, ,,
Best Red Pressed Roabon Facing..	5	0	0	,, ,, ,,
Best Blue Pressed Staffordshire	3	15	0	,, ,, ,,
Ditto Bullnose	4	0	0	,, ,, ,,
Best Stourbridge Fire Bricks	3	14	0	,, ,, ,,
2½" Best Red Accrington Plastic Facing Bricks	4	10	0	,, Net, delivered in full truck loads in London.

Per 1,000

3½" Accrington Best Red Plastic Facing Bricks	£2 10 0
3" Ditto Second Best Plastic ditto	2 2 6
Ditto Ordinary Second Bricks	1 11 3
Ditto Plastic Engineering Bricks	1 17 6
Sewer Arch Brick, not more than 3½" at thickest part	2 0 0
3½" Chimney Bricks fit for outside work	2 6 0
3½" Ditto Ditto through and through	2 0 0
3½" Beaded, Ovolo and Bevel Jambs; Octagons; 2¼" and ½" radius Bullnoses; Stock patterns	3 7 6
Accrington Air Bricks, 9" × 2 course deep, each	0 0 6
Ditto Ditto 9" × 1 course, each	0 0 3

Accrington Camber Arches:—

3 course deep, 4½" soffit, per foot opening	...	0	1	3
4 ditto 4½" ditto ditto ditto	...	0	1	8
5 ditto 4½" ditto ditto ditto	...	0	2	1
6 ditto 4½" ditto ditto ditto	...	0	2	6
3 ditto 9" ditto ditto ditto	...	0	2	1
4 ditto 9" ditto ditto ditto	...	0	2	11
5 ditto 9" ditto ditto ditto	...	0	3	9
6 ditto 9" ditto ditto ditto	...	0	4	6

Net, free on rail or free on boat at works.

GLAZED BRICKS.*

HARD GLAZES. (PER 1,000.)

White, Ivory, and Salt Glazed. Best.	Seconds.	Buff and Cream.	Rest. Other Colours.	Second Colours.
Stretchers— £10 17 6	£9 7 6	£12 7 6	£16 7 6	£10 17 6
Headers— 10 7 6	6 17 6	11 17 6	15 17 6	10 7 6
Quoins, Bullnosc, and 4½in. Flats— 13 17 6	12 17 6	16 7 6	19 17 6	14 7 6
Double Stretchers— 16 7 6	14 17 6	19 7 6	22 17 6	16 7 6
Double Headers— 13 7 6	11 17 6	16 7 6	19 17 6	13 7 6
One side and two ends, square— 17 7 6	15 17 6	20 7 6	24 17 6	17 7 6
Two sides and one end, square— 18 7 6	16 17 6	21 7 6	25 7 6	18 7 6
Splays and Squints— 15 17 6	14 7 6	20 7 6	23 7 6	15 17 6

Plinth and Hollow Bricks. Stretchers and Headers—
5d. each 4d. each 6d. each 6d. each 5d. each

Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres—
5d. each 4d. each 6d. each 6d. each 5d. each

Rounded Internal Angles—
4d. each 3d. each 5d. each 5d. each 4d. each

MOULDED BRICKS.

Stretchers and Headers—
8d. each 6d. each 6d. each 6d. each 8d. each

Internal and External Angles—
1/2 each 1/2 each 1/2 each 1/2 each 1/2 each

Cill Bullnose, Stretchers and Headers—
5d. each 4d. each 6d. each 8d. each 5d. each

	Per 1,000
Majolica or Soft Glazed Stretchers and Headers	£21 17 6
,, ,, ,, Quoins and Bullnose ...	26 17 6

Compass bricks, circular and arch bricks of single radius £6 per 1,000 over above list for their respective kinds and colours / Not exceeding 9in. × 4½in. × 2½in.

Camber arch brick, any kind or colour, 1s. 2d. each /

Stretchers cut for Closers and Nicked Double Headers, £1 per 1,000 extra.

* These prices are carriage paid in full truck loads to London stations.

	s.	d.	
Thames and Pit Sand	7	0	per yard, delivered
Thames Ballast	5	6	,, ,,
Best Portland Cement	28	0	per ton, ,,
Best Ground Blue Lias Lime	19	0	,, ,,

Exclusive of charge for sacks.

Grey Stone Lime	11s. 6d. per yard, delivered
Stourbridge Fireclay in sacks	27s. 0d. per ton at rly. stn.

TILES.

	s.	d.	Delivered
Plain red roofing tiles	42	0	per 1000 at rly. stn
Hip and Valley tiles	3	7	per doz. ,, ,,
Broseley tiles	50	0	per 1000 ,, ,,
Ornamental tiles	52	6	,, ,, ,,
Hip and Valley tiles	4	0	per doz. ,, ,,
Ruabon red, brown, or brindled do. (Edwards)	57	6	per 1000 ,, ,,
Ornamental do.	60	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	0	,, ,, ,,
Selected "Perfecta" roofing tiles:—Plain tiles (Peake's)	46	0	per 1000 ,, ,,
Ornamental do.	48	6	,, ,, ,,
Hip tiles	3	10½	per doz. ,, ,,
Valley tiles	3	4½	,, ,, ,,
"Rosemary" brand plain tiles	48	0	per 1000 ,, ,,
Ornamental tiles	50	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	6	,, ,, ,,
Staffordshire (Hanley) Reds or Brindled tiles	42	6	per 1000 ,, ,,
Hand-made sand-faced	45	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	6	,, ,, ,,
"Hartshill" brand plain tiles, sand-faced	50	0	per 1000 ,, ,,
Pressed	47	6	,, ,, ,,
Ornamental do.	50	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	6	,, ,, ,,

OILS.

Rapeseed, English pale, per tun	£28	15	0	to	£29	5	0
Do., brown	,, ...	26	15	0	,,	27	5	0
Cottonseed, refined	,, ...	29	0	0	,,	30	0	0
Olive, Spanish	,, ...	39	10	0	,,	40	0	0
Seal, pale	,, ...	21	0	0	,,	21	10	0
Cocoanut, Cochin	,, ...	46	0	0	,,	46	10	0
Do., Ceylon	,, ...	42	10	0	,,	43	0	0
Do., Mauritius	,, ...	42	10	0	,,	43	0	0
Palm, Lagos	,, ...	32	5	0	,,	33	5	0
Do., Nut Kernel	,, ...	35	0	0	,,	35	10	0
Oleine	,, ...	17	5	0	,,	19	5	0
Sperm	,, ...	30	0	0	,,	31	0	0
Lubricating U.S. per gal.		0	7	0	,,	0	8	0
Petroleum, refined ,,		0	0	6¾	,,	0	0	6¾
Tar, Stockholm per barrel		1	6	0	,,	1	10	0
Do., Archangel ,,		0	19	6	,,	1	0	0
Linseed Oil per gal.		0	4	2¾	,,	—		
Baltic Oil ,,		0	4	5	,,	—		
Turpentine ,,		0	5	6	,,	—		
Putty (Genuine Linseed Oil) per cwt.		0	11	0	,,	—		
,, Pure Linseed Oil, "Stority" Brand ,,		0	10	0	,,	—		

GLASS IN CRATES.

	15oz.	21oz.	26oz.	32oz
English Sheet Glass:				
Fourths	1¾d.	2¾d.	3¾d.	4¾d.
Thirds	2¾d.	3¾d.	4¾d.	5d.
Fluted Sheet	2¾d.	3¾d.	6d.	6¾d.

Hartley's English Rolled Plate:	¼in.	5/16in.	⅜in
	2¼d.	2¾d.	3 l.
Figured, Rolled, and Repoussine:	White.		Tinted.
	3¾d.		5d.

VARNISHES, &c.

	Per gallon.		
Fine Pale Oak Varnish	£0	6	0
Pale Copal Oak	0	10	0
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of churches	0	14	0
Fine Elastic Carriage	0	12	6
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	16	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flatting Varnish	0	18	0
White Copal Enamel	1	4	6
Extra Pale Paper	0	12	6
Best Japan Gold Size	0	10	0
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	6	0
Berlin Black	0	16	0
Knotting	0	10	0
French and Brush Polish	0	10	0

A joint committee of the Chester-le-Street Urban and Rural District Councils have approved the plans of a two-span main-road bridge to cross the Wear at Chester-le-Street, at an estimated cost of £12,450.

Mr. J. Morris, who was for many years engaged as an electrical engineer by the Government of Japan, in the establishment there of the telegraph system when the country had just been opened to foreigners, has died at Barnet after a protracted illness.

The Stalybridge and Dukinfield Joint Sewage Board are about to proceed with a modified form of their 1908 scheme for sewage-disposal works at Bradley Hurst, for which the Local Government Board have already granted powers to borrow £31,528. Mr. J. P. Wilkinson, engineer to the joint board, has somewhat altered the plans for the work.

The public works committee of the communal council of Ixelles, a suburb of Brussels, lately made experiments for ascertaining how far reservoirs are efficacious for flushing sewers. Far from the starting-point of the flush, two barrow-loads of sand were shot into the sewer through an inspection-shaft, and after the flush had passed the sand was found to have been quite swept away. It is, therefore, decided to apply flushing reservoirs to a new system of sewers in the Rue Van Aa district.

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OGILVIE & CO. Many years connected with the late firm of W. H. LASCELLES & CO., Ltd. of Bunhill Row.

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WM. OLIVER & SONS, Ltd.,
120, Bunhill Row, London, E.C.

TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender; it adds to the value of the information.

Ashton-under-Lyme.—For the construction and installation of thirty-three mechanical filters for purifying the water supply, for the Ashton-under-Lyme, Stalybridge, and Dukinfield Joint Water Board:—
Mather and Platt, Ltd., Manchester (accepted).

Beccles.—For converting the old town hall into offices, for the borough surveyor, for the corporation:—
Johnson, G., Beccles (accepted) ... £167 3 4

[illegible] M. W. [illegible] Ltd.

[illegible] £7,34[illegible]
[illegible] £ 850 [illegible]
[illegible] 6,2[illegible]
[illegible] 5,[illegible]
[illegible] 5,[illegible]
Hayward and [illegible] 5,[illegible]
Bridgeman, [illegible] 5,[illegible]
Stalls 5,[illegible]
Bowman, W., [illegible] 5,[illegible]
Howells, [illegible] 5,[illegible]
Davies, D., [illegible] 5,[illegible]
Stubbs [illegible] 5,[illegible]
Bristol [illegible] 5,[illegible]
Sharp, [illegible] 5,[illegible]
Cullompton [illegible] 5,[illegible]

[illegible] at the Licensed [illegible] Kent-road, Camberwell. Mr. Chas. J. [illegible], architect. Quantities prepared by Mr. C. R. Griffiths, surveyor, Warwick-court, Gray's Inn, W.C.:—

	A.	B.	C.	D.
[illegible] H., and Son—				
[illegible]	£[illegible] 0 0	£[illegible] 0 0		£970 0 0
Arnold, C.—				
[illegible]	28 0 0	123 0 0	617 0 0	948 0 0
Hesketh, T. W.—				
[illegible]	289 0 0	172 10 0	390 0 0	851 10 0
Dearing, C., and Sons—				
[illegible]	138 15 0	99 0 0	410 0 0	647 15 0
King, W. H.—				
[illegible]	113 13 0	93 9 6	298 1 0	505 4 0
Maskell, R.—				
[illegible]	15 0 0	75 10 0	275 0 0	415 10 0
Pickard, A. J.—				
[illegible]	117 0 0	85 0 0	210 0 0	412 0 0
Garner, W., and Co.—				
[illegible]	98 15 0	64 10 0	210 15 0	374 0 0
Dawes, F., and Co.—				
[illegible]	107 0 0	76 0 0	189 0 0	372 0 0
Clark, W., and Co., Nunhead (accepted)—				
[illegible]	119 4 0	83 18 0	127 15 0	330 17 0
Eames, H., Peckham—				
[illegible]	64 0 0	54 10 0	132 10 0	251 0 0
Webster, F.				
[illegible]	103 11 3	75 16 0	—	—

A.—Boardroom and varnishing. B.—Chapel. C.—Houses. D.—Totals.

Croydon.—For erecting drill-hall, Mitcham-road, for the Territorial Force Associations. Messrs. Jarvis and Richards, 10, Queen Anne's-gate, S.W., architects. Quantities by Messrs. Robinson and Boods, 8, New-court, Carey-street, Lincoln's Inn, W.C.:—

Fireproof Partition and Spandrel Wall Co., Tooley-street, S.E.	£3,201 0 0
Easterfield and English, Sunny-hill-road, Streatham, S.W.	2,599 0 0
McLaughlan and Harvey, Ltd., Brecknock-road, N.W.	2,411 0 0
Cropley Bros., High-street, Epsom	2,394 0 0
Truett, Steel, and Sons, High-street, Thornton Heath, S.E.	2,390 0 0
Downs, W., Hampton Works, W.	2,387 0 0
Fryd, A. H., Southchurch-road, Southend-on-Sea	2,351 0 0
Patrick, J. and M., Point Pleasant, Wandsworth, S.W.	2,349 0 0
Parker, G., and Sons, Somner-road, Peckham	2,337 0 0
Kirk and Randall, Warren-lane Works, Woolwich	2,334 0 0
Munday, G., and Sons, Botolph-lane, E.C.	2,326 0 0
Peddle, E., Bamilton-road, West Norwood	2,308 0 0
Honour, F. W., The Green, Warlingham	2,305 0 0
Foster, F. and G., South Norwood, S.E.	2,288 0 0
Burgess, J., and Sons, Wychlfe-road, Wimbledon	2,280 0 0
Harbrow, W., South Bermondsey Station	2,275 0 0
Hann, H., High-street, Collier's Wood, Merton, S.W.	2,260 0 0
Lole and Co., Trafalgar square, Chelsea, S.W.	2,279 0 0
Everitt and Sons, Ltd., Windmill-road, Croydon	2,245 0 0
Saunders, E. J., Wellesley-road, Croydon	2,245 0 0
Minter, F. G., Ferry Works, Putney	2,237 0 0
Field, W. A., and Cox, Preston-street, Brighton	2,200 0 0
Blay, W. F., Ltd., Little Trinity lane	2,218 0 0
Gibson, W., and Co., Hendon lane, Finchley, N.	2,180 0 0
Smith, W., and Sons, London-road, Croydon	2,161 0 0
Cook, R., and Son, Crawley, Sussex	2,142 0 0
Smith, J., and Sons, South Norwood	2,139 0 0
Price, C. R., Bishopsgate, E.C.	2,137 0 0
Gathercole Bros., London-road, Norbury (accepted)	2,089 0 0
Fletcher, J. W., Maxbury-street, Addis-street, Lower Tooting, S.W.	2,072 0 0
Ponge, R., Mount Pleasant, Sevenoaks	1,899 0 0
Nicholds, H. W., King's Court, Broadway, Westminster	—
Sabey and Son, Ltd., St. Peter-street, Islington Green	—

Dover.—For making-up Brooklyn-road, Dover-court, for the Harwich Town Council:—

Saunders, J. A. (accepted)	£275 0 0

Dunmow.—For building a hostel in Hatch-street, for the Society of Jesuits. Mr. C. B. Powell, architect:—

Conder, W. & Son, Upper Dominick-st., Dublin (accepted) about	£20,000 0 0

Grinstead.—For the completion of the church of St. Mary the Virgin, East Grinstead. Mr. Wm. Thorold [illegible], L.R.I.B.A., M.S.A., 25, John-street, Bedford-row, W.C., architect. Quantities by Mr. J. Rookwood, [illegible], Bedford-row, W.C.:—

	A.	B.	C.
Wells, G.	£2,170	£113	£2,583
Brooker Bros.	2,215	278	2,523
Rice, C. and H.	2,100	297	2,163
Gasson Bros.	2,154	215	2,369
Linford, J.	2,133	245	2,378

* Accepted. All of East Grinstead.

A.—Two bays and narthex. B.—Fleche. C.—Total.

Gorseinon.—For erecting a new church, Gorseinon. Mr. W. D. Jenkins, Llandilo, architect:—

Lloyd Bros., Swansea	£9,150 0 0
Smith, H., Wolverley	8,918 0 0
Hatch, J., and Sons, Lancaster	8,900 0 0
Davies, D., and Sons, Cardiff	8,845 0 0
Bridgeman, R., & Sons, Lichfield	8,738 0 0
Stephens, Bastow, and Co., Bristol	8,689 0 0
Howells, D., and Son, Llandebie	8,500 0 0
Wilkins, R., and Sons, Bristol	8,228 0 0
Colborne, A. J., Swindon	7,898 10 0
Turford and Southward, Ltd., Ludlow	7,893 0 0
Mercer, G., Llanelly	7,849 0 0
Revised Tenders from the four lowest Tenderers, substituting local stone for common brick:—	
Mercer, G., Llanelly	£7,685 0 0
Wilkins, R., and Sons, Bristol*	7,500 0 0
Colborne, A. J., Swindon	7,398 10 0
Turford and Southward, Ltd., Ludlow	7,340 0 0

* Accepted.

Harwich.—For making-up Back-road, between Victoria-street and Station road, for the Harwich Town Council:—

Newton, E. E. (accepted)	£255 0 0

Hither Green, S.E.—For the erection of a drill-hall, riding school, and administrative building for the 4th London (Howitzer) Brigade R.F.A., at Eunersdale-road, for the Territorial Force Association of the County of London. Mr. George A. Lansdown, F.R.I.B.A., 9, Regent-street, Waterloo-place, S.W., architect:—

Kent, H.	£10,128 0 0
Mowlem, J., and Co.	9,235 0 0
Lea, H. and E.	8,993 0 0
Parker, G., and Son	8,823 0 0
Johnson and Co.	8,729 0 0
Downs, W.	8,573 0 0
Higgs, F. and H. F.	8,531 0 0
Marsland, J., and Sons	8,478 0 0
Godson, G., and Sons	8,457 0 0
Patman and Fotheringham	8,423 0 0
Price, C. R.	8,387 0 0
Treasure and Sons*	8,300 0 0

* Slightly reduced and accepted.

Hull.—For the erection of twelve almshouses for aged people on the Holderness-road, for Mrs. Ferens:—

Kirkwood, H. J., Holl (accepted).	

Jarrow.—For the construction of sewers for the corporation. Mr. J. S. Weir, A.M.I.C.E., Town Hall, Jarrow, borough surveyor:—

Kennedy, W., and Son (accepted). (Seven tenders received.)	

Laindon.—For erecting post-and-rail fence adjoining station-road, for the Billericay Rural District Council. Mr. R. J. W. Layland, Billericay, Essex, surveyor:—

Heard, S. J., Billericay	£98 10 0
Fordham, F. A., Laindon	85 10 0
Harris Bros., Billericay (accepted)	65 0 0

London.—For the pulling down and rebuilding of the Westminster Arms public house, Warner-place, Bethnal Green, N.E., for the New Westminster Brewery Co. Mr. G. A. Lansdowne, F.R.I.B.A., 9, Regent-street, Waterloo-place, S.W., architect:—

Parker, G., and Sons	£2,397 0 0
Rice and Sons	2,269 0 0
Marsland and Sons	2,235 0 0
Johnson and Co.	2,200 0 0
Kirk and Kirk	2,121 0 0
Smith, J., and Sons	1,995 0 0
Strutt and Co.	1,985 0 0
Lea, H. and E.	1,955 0 0
Snewin Bros. and Co. (accepted)	1,890 0 0

Malesgate.—For the construction of a stone bridge, for the Longtown Rural District Council. Mr. J. Murray, Kirkhington, Carlisle, surveyor:—

Edgar Bros., Moat Longtown	£149 14 1½
Scott, J., and Sons, Newcastleton	142 9 0
Armstrong, J., Newcastleton*	95 3 6

Surveyor's estimate, £119.
* Accepted.

Merthyr Tydfil.—For erecting infants' school, Mount Pleasant, for the education committee. The Deputy Surveyor, Town Hall, Merthyr, architect:—

Colborne, A. J., County-road, Swindon (accepted)	£3,769 17 0

Mortlake, S.W.—For additions to electricity works, High-street, for the Barnes Urban District council. Mr. G. Bruce Tomes, A.M.I.C.E., High-street, Mortlake, S.W., architect:—

Skinner, R., Mortlake	£490 0 0
Hampton, S. W., Ashford	475 0 0
Wells and Co., Southend	456 0 0
Fletcher, F. W., Tooting	446 0 0
Lowe, W., Castelnau, Barnes, S.W. (accepted)	420 0 0
Peddle, E., Norwood	419 0 0

Newton Abbot.—For alterations to Town and Courtenay-street Halls, for the urban district council. Mr. C. D. White, Town Hall, Newton Abbot, surveyor:—

Zealley, F. J., Newton Abbot (Accepted.)	£332 9 0

Nunhead Green, S.E.—For repairs to three houses, Wade's-place, Nunhead Green, S.E., for the Committee of the Metropolitan Beer and Wine Trade Asylum (adjoining). Mr. F. G. Holmer, secretary; Mr. W. F. Potter, architect:—

Clark, W., Nunhead Green (accepted).	

Penygroes.—For the erection of public hall, Penygroes. Mr. W. D. Jenkins, Llandilo, architect:—

Davies, L., Penygroes (accepted)	£1,089 0 0

Sandbach.—For erecting upper standard schools, for the administrative sub-committee of the Congleton Union Area. Messrs. A. Price and Son, Sandbach, architects. Quantities by architects.

Dolan, J., and Son, Warrington	£6,500 0 0
Storrs, W., Sons, and Co., Stalybridge	6,349 0 0
Birchall Bros., Middlewich	6,295 0 0
Matthews, F., Nantwich	6,240 0 0
Jackson, S., and Sons, Smallwood	6,231 0 0
Wellerman Bros., Hyde	6,197 0 0
Stringer, J., Sandbach	6,150 0 0
Brown, L., and Son, Wilmslow	6,132 0 0
Bennett Bros., Burslem	6,097 0 0
Huxley, F. G., Malpas (accepted)	6,050 0 0

South Molton.—For erection of drill-hall, for the Territorial Force Association. Mr. Spencer Edwards, Barnstaple, architect. Quantities by the architect:—

Stewart, J. W., London	£2,454 0 0
Sanders, W., and Son, South Molton	2,327 0 0
Somerville, D. G., and Co., London	2,265 0 0
Yorkshire Hennebique Contracting Co., Leeds	2,246 17 0
Pickett, R., Ilfracombe	2,200 0 0
Cater, J., and Son, Barnstaple	2,095 0 0
Soper, J. M., Exeter	2,080 15 3
Woodman and Son, Exeter	2,033 0 0
Pollard, G., Ltd., Taunton	2,030 0 0
Woolaway Bros., Barnstaple	1,990 0 0

Spalding.—For rebuilding, in reinforced concrete, the present brick bridge at the Cuckoo, Spalding, for the Deeping Fen Drainage Trustees:—

Liverpool Ferro-Concrete Contracting Co. (accepted)	£225 0 0

Wem, Salop.—For laying a sewer in Mill-street, for the urban district council:—

Jones and Son, Wem (accepted)	£61 11 6

West Ham.—For erecting bridge (60ft. span) at Cook's road, Stratford, for the town council. Mr. J. G. Morley, Town Hall, West Ham, E., borough engineer:—

Kirk and Randall, Woolwich	£2,024 0 0
Myall and Upson, Ilford	2,003 0 0
Coxhead, F. J., Leytonstone	1,997 0 0
Kavanagh and Co., Surbiton Hill	1,997 0 0
Ditto (alternative tender for ferro-concrete)	1,523 0 0
Garrett, J., and Son, Balham-hill	1,973 0 0
Ditto (alternative tender for ferro-concrete)	1,598 0 0
Keay, E. C. and J., Ltd., Victoria-street	1,944 0 0
Leslie and Co., Ltd., Kensington-square, W.	1,753 0 0
Fowlingsoos and Co., Quality-court, W.C.	1,711 10 9
Moss, S. E., Southend-on-Sea	1,700 0 0
Jackson, D. T., Barking	1,675 12 3
Strong, J., and Co., Marble Arch	1,648 0 0
Braithwaite and Kirk, Lime-street, E.C.	1,610 11 0
Wall, C., Ltd., Lloyd's-avenue	1,602 0 0
Ditto (alternative tender for ferro-concrete)	1,297 0 0
Pattinsons and Sons, Ltd., Parliament-street	1,582 16 0
Findlay and Co., Ltd., Victoria-street, S.W. (accepted)	1,575 8 1
Muirhead and Co., Ltd., Queen Victoria-street	1,563 7 3
Elliott, H., and Co., Ealing	1,545 15 0

Weymouth.—For kerbing, channelling, tar-paving, and other works, Old Castle-road, for the town council:—

Wettam, J. T., jun.	£450 0 0
Vallance, J.	381 19 3
Coles, J., and Son	376 0 0
Bowring, G. F.	371 0 0
Jesty and Baker*	344 5 6

* Recommended for acceptance.

Weymouth.—For kerbing, channelling, laying tar-paving, and other works from opposite Mr. Royal's, North Quay, to the gasworks, for the town council:—

Coles, J., and Son	£346 10 0
Wettam, J. T., jun.	317 0 0
Bowring, G. F.	262 0 0
Vallance, J.	259 7 1
Jesty and Baker*	244 7 6

* Recommended for acceptance.

Wimbledon.—For the erection of the Nelson Hospital, for Wimbledon, Merton, and District. Messrs. Francis Hateh and R. A. Hinds, F.R.I.B.A., Wimbledon Hill, architects. Quantities by Mr. E. C. Le Mesurier, Merton Park:—

Rogers, W., Wimbledon	£8,540 0 0
Foster and Dicksee, Chelsea	7,521 0 0
Willett, W., Chelsea	7,461 0 0
Renshaw, W. J., Putney	7,430 0 0
Carmichael, J., Wandsworth	7,412 0 0
Holloway Bros., Belvedere-road	7,397 0 0
Minter and Co., Putney	7,330 0 0
Whitehead Bros., Wimbledon	7,290 0 0
Parsons, J., Waterloo-road	7,170 0 0
Parsons & Townsend, Wimbledon	7,160 0 0
Burgess, J., and Sons, Wimbledon*	7,040 0 0
Blake, W. E., London and Plymouth	6,990 0 0
Fairhead, G. and J., Bermondsey	6 913 0 0
Dorey, J., and Co., Brentford	6,765 0 0

* Accepted.

Winchester.—For the conversion of the master's house into ten dwellings for brethren, for the trustees of the hospital of St. Cross:—

Thompson and Sons, Peterborough (accepted).	

April 28, 1911. Volume C.—No. 2938.

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House, Strand, W.C.

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OUR ILLUSTRATIONS.

Coventry Municipal Buildings and Hall: First, Second, and Third Premiated Designs. (1) Messrs. Garrat, Simister, Buckland, and Farmer; (2) Messrs. Couch and Barnard; (3) Mr. Herbert J. Rowse, A.R.I.B.A.

Portrait of John Passmore Edwards. Born March 24, 1823. Died April 22, 1911.

Concrete Cottages.

THE SOCIETY AND THE INSTITUTE.

The decision arrived at last week by the Society of Architects to amalgamate with the Royal Institute of British Architects has, we are persuaded, the hearty endorsement of every true friend of architecture and architects. The Society has done well the work which mainly justified its existence. The Institute is doing better to bring about that which we all want accomplished—the legal recognition of architecture, and the proper restriction of its practice to qualified men. The union of the two Societies on business-like terms guarantees fresh impetus to the movement for registration, and its early success. It brings about, moreover, a unity of representation, without which, as things are to-day, it is hardly likely any Government would entrust the guardianship of entry to the profession. The Society's twenty-six years' existence has been a vigorous and beneficial one. It was brought into being under circumstances that none deplored more than its founders. The immediate agitation at Conduit-street which preceded it was well summarised by one of the most loyal Fellows of the Institute in his letter to us on p. 309 of our issue of Feb. 22, 1884. "I have seen for years," wrote Mr. Lacy W. Ridge, "that the existence of a large body of professional members who are without the ordinary privileges of membership hangs like a dead weight round the neck of the Institute. Nothing can be more futile than calling on the Council for help. That body, from its constitution, and from the tradition it has received, is essentially inert, and opposed to change." Many other letters deploring the hopelessness of reform will be found in our pages during the early months of 1884. Many more reached us that were never printed. Many appeals, some by letter, some personally, were made to us to help found a new Society. We hesitated, but at last consented to call a meeting, which was held in the Board Room of the Strand Board of Works on May 8, 1884, at which a resolution pledging those present who voted for it to join, was carried. A provisional committee was appointed, Mr. G. A. T. Middleton undertaking the secretaryship. Members speedily came along, a first Council was elected, and a first President, the late Colonel C. O. Ellison, who, at considerable sacrifice of time, gave his best services.

The late George Jacob Holyoake once remarked to us, towards the end of his long life, that the many movements, social and political, which had engaged his efforts, and their results, appeared to him, looking back, to group themselves under "Things that went as they should" and "things that went as they would"; and that now and then, however otherwise it seemed at the time, the things that went as they would turned out best. There have been times when we have regarded the history of the early years of the Society of Architects as belonging to that of the "things that went as they would." Some of us, however, though glad enough to see and help along its growing prosperity and usefulness, made up our minds it should be kept busy and virile, and that a "long pull and a strong pull" should be taken towards the achievement of "Architectural Federation." With that view, a conference was held on April 6, 1886, at the Freemasons' Tavern, presided over by the second President, Mr. Hugh Roumieu Gough, F.R.I.B.A. The proceedings were fruitful. A committee was appointed to consider the means necessary in order to obtain an Act of Parliament "making it compulsory for all architects to hold a Government diploma." Meanwhile, as the Society of Architects increased in numbers, and newer men came along to take up and continue the work, it became gradually a body more and more like the Institute, and settled down into steady pursuance of similar ends. It is not so certain that this was exactly the end and aim of those who, in 1884, had assisted at its formation. Indeed, at the first meeting, as will be seen by reference to our issue of May 9, 1884, an amendment was moved favouring the idea of a "United Art Society," having rather in view a sort of missionary propaganda in favour of the reforms that seemed hopeless at the Institute than the initiation of a second purely professional Society. That amendment was rejected, and "things went as they would." But some of us, as already hinted, did our best to concentrate the work of the early years rather on general reform and the enlistment of the interest therein of the prominent members of the profession, than on the elaboration of examinations and committees like those of the Institute; and, so far with success, that "Architectural Federation," and the demand for a Government diploma, were gradually hammered out by successive conferences and committees into the more practical "Registration Bill," which was introduced into the House of Commons, and which, year after year, was reintroduced, discussed, and modified in accordance with the wisdom of experience.

As a matter of fact, Registration became the *raison d'être* of the Society's existence, and the increasing attraction to new members. Like most movements of its kind, it had, of course, to encounter, first ridicule, then indifference, and, lastly, the assurances of those who had either ridiculed or stood aloof, that it was the very thing they had always been in favour of. One need not inquire too curiously to what extent the activities of the Society were responsible for the new life that began to reanimate the Institute. All of us have rather welcomed heartily the change that has come, and appreciated the wisdom that has led the Institute to broaden its borders, and to become the live, capable, and thoroughly representative organisation of the profession it is to-day, to which the united voice of its members may legitimately demand that the guardianship of architecture from charlatans shall be committed, first in the public interest, which is, and ought to be, supreme, and next in that of the legitimate and qualified architect. None have more wisely perceived that this being so, the days of the Society of Architects were numbered, than its present President and Council. No more generous recognition of the fact that to the Society was due the inauguration of the work it has since taken up itself could have been accorded by the Institute than the consent to the scheme of amalgamation that has been mutually arrived at. Nor could one welcome any more hopeful augury of the early attainment of Registration than the unity thus achieved in the consolidation of interests effected.

We have been blamed by some at times for the response to the appeal that led to the formation of the Society in 1884 for "the encouragement of revolt," as it has been called. Our reminder to such has been that the Royal Institute itself was cradled in revolt against the comparative neglect with which all matters not immediately connected with painting and sculpture were treated by the parent institution, the Royal Academy. Turning to the old *Mechanics' Magazine* of March 17, 1838, we find some bilious critic declaring that the "Institute comprises a motley throng of architects and 'gentlemen at large,' being apparently open to all comers, provided they produce the necessary golden key, and of the professional part, by far the greater number belong to the two great classes of the 'small known' and the 'interesting obscure.' The Academy will not suffer any of its members to be connected at the same time with any other society, as demonstrated very recently in the case of Mr. Cockerell, who was not even suffered to be on the Council of the offset institution itself. The British Architects are but too happy to catch all the fish that come to their net." All this was in a review of

ROYAL ACADEMY

ARCHITECTURE

[illegible] by a very large drawing hung [illegible] of the Gallery, giving the [illegible] New Royal College of Mines [illegible] Imperial College of Science and Technology now in course of erection in Prince Consort road, South Kensington, and extending some 460ft. long from the corner of Exhibition road to the Royal College of Music which is situate immediately to the rear of the Albert Hall. A future extension is also contemplated on the remaining site to the west of the Royal College of Music where a quadrangular building will stand, filling the space bounded by the Science Museum and the Imperial Institute Galleries, on to which these extensions will abut in both instances, the City and Guilds Institute being adjacent to the Exhibition road front of the present great building, which naturally makes the most important example of architecture shown at Burlington House this year. The central block is distinguished by the recessed grand entrance, flanked by the lecture-theatre to the west and the professors' laboratory and class rooms to the east, beyond these being built the hydraulic laboratory, which also extends along Exhibition road, enclosing the structural laboratory placed to the rear. The ores department, mineral shed, and settling pits are divided off by a private roadway at the back of the western wing and central part of the premises. From these general remarks, it will be realised how considerable an addition to the educational institutions of the Metropolis is thus being made. We shall illustrate this transparently tinted drawing by a four page plate next week, also giving the plans which are essential for the comprehension of the scheme. The design is broadly handled with simplicity and dignity, divided by massive piers, and a handsome cornice above, emphasis being given to the middle pavilion by a solid attic, surmounted by a group of statuary, set over the inscription panel designating the purpose of the building. The arched porch of apsidal plan adds much to the monumental character of the façade, which also obtains a lightness and touch of individuality by the wide splayed jambs to the range of mullioned windows under the main cornice.

MR. JOHN BELCHER, R.A., AND MR. J. GRAHAM JACKSON, R.A.,

are both unrepresented in the present assemblage, and we miss several other well-known exhibitors this year, while we hear, as usual, of a few notable rejections, but, on the whole, the collection is well hung and not overcrowded, there being about forty less exhibits this year than last; but many that are hung are large in scale, and [illegible] coloured drawings prevail, and [illegible] being in the minority all [illegible] much to the interest of Mr. Newton's domestic work. His fourth drawing gives the garden front of a country house at Ewhurst, done more after his most successful manner with big canted bays and massive chimneys, also pedimented dormers. An iron balcony unites the middle bay with the projecting wings of the house.

MR. EDWIN L. LUTYENS

contents himself with one contribution, and in this we think he certainly is distinguished, for not only is the subject "The Rand Regiments' War Memorial, Johannesburg" (1492) exceedingly refined in itself, but the drawing, as a picture, is eminently adapted to gallery display. A severe archway rises into a pediment to front and rear, while a winged figure, presumably of Victory, surmounts the top of the pavilion, which is flanked by balustraded enclosures and water-pools, terminating with piers, on which statuary occurs, or by columns supporting birds stretching their wings, the whole being backed by vast yew trees hedges of an imaginative extent, which we can only presume many years will be needed to supply.

MR. LEONARD STOKES,

the President of the Institute, is rather strongly represented this year by views (1497-8) of Downside School, near Bath, where he is proposing to add two quadrangles of buildings, and the scheme includes a suggested library for the monastery near the great church, for which this institution is so famous. The bold and well-designed massive tower which Mr. Leonard Stokes has designed is particularly well shown, the work being after a Tudor type well adapted to collegiate buildings, and a quaint freshness is introduced with good effect without interfering with the more Gothic fancies of the earlier buildings at Downside. Perhaps the entrances to the tower go less well with the other part of Mr. Stokes's design, and if so, of course, he cannot blame others for that; and perhaps when an architect is trying to assimilate what he is doing in making additions to previous erections in concert with their style, he is not unlikely to overlook incongruities of his own. The same architect shows the completion of St. Wilfrid's Hall at the Brompton Oratory (1678), bringing up the end of a not very pleasing old façade closer towards the street frontage. The water-colour is a highly successful instance of a treatment peculiarly well adapted for a building of this plain type, which needs the artifice of colouring to give it interest, and, of course, the architect could but follow the lines imposed by the adjacent premises.

MR. STANLEY HAMP (COLLCUTT AND HAMP)

shows one of quite the most important buildings of its kind now in course of erection in the City of London—viz., the great frontage in Queen Street-place, Southwark (1700) represented by Mr. Fulton's finely-delineated elevation, illustrating a somewhat florid and French-like façade, with blocked Ionic columns very freely handled between arched windows. The centre-piece is perhaps over-fanciful in its detail; but the slope of the site is particularly well allowed for, while the two plain upper stories serve as a foil to the richer work below, and we recognise many difficulties which must hamper a commercial building of this magnitude, and Mr. Hamp is to be congratulated on so fine a result.

SOME OTHER EXHIBITS.

Closely the last is a splendid water-colour (1709) of a grand staircase at 10 Carlton House-terrace, exhibited by Messrs. D. Blow and F. Billerey, with an elaborate bronze balustrade sweeping down

from floor to floor, and balconettes set to the tiers of windows above in a handsome way, moderated by good taste. The effect of the colour is quite dramatic, the contrast of cool greys on the ground-floor cortile, and hot yellows and browns above the stairway, suggesting sunshine and gaiety and golden sumptuousness.

There are two capably-tinted drawings by Messrs. E. V. Harris and T. A. Moodie of the Glamorgan County Hall, Cathays Park, Cardiff, which, if we remember rightly, they won in competition (see Building News, Feb. 5 and 12, 1909), and we are glad to observe them so well hung on this occasion as examples of contemporary work of a high order (1668).

Mr. Roland Plumbe has not been represented at the Academy for many years; but he has made up for long absence by showing the present big picture (1685) of the Y.M.C.A. great building now rising with such masterful dimensions in the Tottenham Court-road. We illustrated the same view some time ago, speaking from memory, and we have before instanced the work as an exceptionally clever example of planning for complex purposes, economically utilising every foot of inclosed area to advantage.

Mr. Cecil G. Hare shows some plain mullioned new buildings, built for Queens' College, Cambridge (1696), with a gabled front set off by oriels and bays, quite in keeping with the spirit of the University. Mr. Frank T. Verity is equally felicitous in his handling of the great additions which he is making to Regent-street, where the Polytechnic forms the centre-piece, and he has quite caught the spirit of modern street architecture without allowing it to overmaster his conceptions, and we are glad to note that the shop-fronts are somewhat subordinated to the rest of the façade. The water-colour which illustrates this big addition to London is by an artist whose skill evidently has made him much in demand.

Messrs. Gibson, Skipwith, and Gordon have been fortunate in his hands with their very clever new Guildhall, about to be built at Westminster Broadway (1655), and this same drawing appeared in our pages a little time since. The detail of the entrance (1660) shows this excellent building to further advantage.

The new Façade to the Savoy Hotel on the Embankment, by Messrs. Collcutt and Hamp (1490) is nicely drawn, and no doubt its position precludes a less sharp point of view for the artist's sketch; but somehow this graceful study hardly brings out the points which made this refacing work so capable and adroit as it certainly is.

The new wing to the front of the Guildhall, built in 1910 by Mr. Sydney Perks, reproducing the rest of the façade by Dance, is here represented by a somewhat too spirited a drawing (1642), which does not quite accord with the type of bygone work to which Mr. Perks was restricted. We are bound to say he copied it excellently well, even to the smut-stains of the masonry, so that the new ashlar should not mar the old.

The proposed London Goods Clearing House, Clerkenwell, shown by Mr. Stephen Ayling, is an enormous undertaking, with five turrets or towers to the rear, breaking up the skyline, but, capable as parts are, the general scale seems deficient in imposing proportions which simplicity would help to insure.

*** We regret the limited time and facilities allowed by the Royal Academy to the Press will prevent us this year and henceforth devoting space to review the pictures and the sculpture, as in previous years. Our main concern, naturally, is with the architectural subjects; and while one of our staff is busy with them during the day and a half allowed on the Wednesday and Thursday, admitted by the single ticket which is vouchsafed, it is impossible to send the others who would deal with the pictures and the sculpture. Other exhibitions always send a double ticket, which is also available during the whole time they are open, and which enables journals like ourselves to deal really adequately with the works on view.

COVENTRY MUNICIPAL OFFICES COMPETITION.

After the number of unsatisfactory competitions which have been organised recently, it is pleasant to be able to record one on such fair and straightforward lines as that for the proposed Municipal Offices and Town-hall at Coventry, the designs for which were on view at St. Mary's Hall, Coventry, on Friday, Saturday, and Monday last. Instead of, as is so often done, only selecting the assessor after the conditions have been issued, the Corporation appointed one (Mr. E. Guy Dawber, F.R.I.B.A.) at the outset, the result being that the conditions include essential points only. Those who compete regularly know only too well the endless trouble and waste of time caused by the conditions drawn up by the average town clerk, who seems to possess a genius for concealing the few really important points in a mass of needless detail regarding minor requirements which can have no possible bearing on the result.

The drawings were to include both for Municipal Offices and a Town-hall, which were to be designed as one scheme; but in such a way that the erection of the Town-hall might be deferred until some future date. The site is situated in the centre of the city, adjacent to St. Mary's Hall and St. Michael's Church, both well known old buildings, and it was stated that, although the Corporation had no wish to dictate to competitors the style to be adopted, they felt strongly that the new buildings should harmonise with the character of the surrounding ones. The drawings were to be to a scale of 16ft. to the inch, with one sheet of half-inch details. The municipal offices were to be planned so that the front elevation extended for the whole length of the Earl-street frontage of the site, and it was suggested that, owing to the fall of the land, there should be a basement, partly above and partly below ground level, at the St. Mary-street end of the Municipal Offices. The accommodation in the council suite was to include council-chamber for sixty members and officials, two committee-rooms, mayor's parlour, ante-rooms, and lavatories, etc., the council-chamber to have public gallery with separate access. The various departments to be provided for were town clerk, city engineer, waterworks, city treasurer, rates, medical officer, weights and measures, education, electric light, gas, and police. The Town-hall was to seat 1,200 on the ground floor, with another 300 or so in the galleries, together with reception and cloak-rooms, etc., and a caretaker's house. The cost of the Municipal Offices was not to exceed £50,000; but that of the Town-hall was left to the discretion of competitors.

If no instructions are given to the architect placed first to proceed with the Municipal Offices within twelve months from the date of the assessor's award, he will receive a sum equal to $\frac{5}{8}$ per cent. on the estimated cost; and if, at the end of a further twelve months, no instructions are given, he will receive a further $\frac{5}{8}$ per cent., this $1\frac{1}{4}$ per cent. to merge in his commission if the work ever does go on. There were several other points in which the conditions were distinctly more favourable to architects than is usually the case, this being, no doubt, due to the assessor's influence. A novel feature was that all the drawings were insured against fire to the value of £50 per set.

No fewer than 130 designs were submitted, the assessor's award being—First, Messrs. Garrat, Sinister, Buckland, and Farmer, Norwich Union Chambers, Congreave-street, Birmingham; Second, Messrs. Couch and Barnard, 82, Victoria-street, Westminster, S.W.; Third, Mr. Herbert J. Rowse, A.R.I.B.A., Great Crosby, Liverpool.

THE DESIGN PLACED FIRST.

We should imagine that very few of the competitors will quarrel with the assessor's award, at any rate, so far as the design placed first is concerned. Although by no means an ideal plan, this had fewer faults than, and, in many cases, was far superior to, any of the others. We should have preferred a plan laid out more on axial lines; but the extremely awkward shape of the site rendered this almost impossible without a large amount of waste, and it was this very feature of compact and economical planning which has been the chief cause of this plan's success. There is one main corridor following the line of Earl-street, with short ones branching off at either end, the main entrance and staircase being in the centre of the Earl-street façade. The council suite, which is exceedingly well arranged, is placed at the rear of the building, and adjoins the main staircase. One of the best parts of the scheme is the planning of the rates offices, which are placed on the St. Mary-street frontage, with ample counter space, and separate entrance and exit for the public—a great advantage at busy times, and a point which most of the competitors have overlooked. The Town-hall, which has its main entrance in Bayley-lane, is a well-planned room with good vestibule and crush hall. Four emergency exits are provided into Hay-lane, and four into the open space adjoining St. Mary's Hall. The assessor, in his report, says: "Each department has been kept distinct and self-contained, and the Municipal Offices can be erected quite independently of the Town-hall, and do not encroach unduly upon the Hay-lane frontage. The elevations have been broadly treated with a certain amount of Gothic feeling, simple yet monumental in character, which would harmonise well with the style of the old buildings in the city." The cost of the design is estimated at £49,469 for the Municipal Offices and £15,072 for the Town-hall.

THE DESIGN PLACED SECOND,

by Messrs. Couch and Barnard, is not nearly so attractive as the winner—at any rate, as regards the plan, being lacking in that compactness and economy which is such a strong point in favour of the selected scheme. The authors of this design have evidently not considered it advisable to comply with the suggestion that the elevations should be similar in style to those of the surrounding buildings, as they have treated them in a severely Classic manner, with a high tower at one corner, which hardly seems in keeping with the rest of the building. The drawings were beautifully finished; but the $\frac{1}{2}$in. detail was not up to the standard of the rest.

DESIGN PLACED THIRD

In many ways we like Mr. Rowse's design better than the second one, though neither of them can be compared with the one placed first. The plan is rather straggling, and wasteful in corridor, while the elevations are remarkably similar to those of the second design, except that the tower is omitted.

Considering the large number of designs submitted, there were very few of striking merit. The difficult shape of the site appears to have been too much for many of the competitors, and in several of the new cases where really good plans had been evolved, their chance was spoilt by the very feeble Gothic elevations, which gave one the impression that, as no doubt was the case, their authors had been trying to design in an unaccustomed style in order to comply with the Corporation's suggestion. The design placed first is without doubt the best; but neither the second nor third appears to fill the assessor's position. Both are lacking in balance and symmetry, and there were half a dozen others at least which grappled frankly with the difficulties of the site, and, laying out their plans on axial lines, evolved a homogeneous scheme superior to either of these.

Among the rest of the designs, the following were the most worthy of mention; but as no names were attached to the drawings, we can only refer to them by number.

No. 33 was a well-balanced plan, in which the main corridor was, roughly, diamond-shaped, with the main entrance in the centre, and subsidiary ones at the ends. This might have made an excellent building; but the long length of corridor ruled it out on the score of expense. The elevations were Gothic of a rather feeble type.

No. 66 was another absolutely symmetrical plan on very similar lines to No. 33, beautifully drawn, and with simple and well-proportioned Renaissance elevations.

No. 69 was a clever plan, which seemed to fit the site admirably. The rates department in particular was well arranged; but instead of one main entrance and staircase, there were two of equal importance, both of which were somewhat insignificant.

No. 14 was an original plan, which had distinct possibilities about it; but the huge clock-tower put it out of court on the question of cost.

No. 105 showed a well-laid-out plan, with an ingenious arrangement for lighting the main corridor. The elevations, however, were hardly as good as the plan.

No. 91 was another instance of a clever and symmetrical plan, having its chance spoilt by poor elevations, the half-inch showing some deplorable Classic detail of the most debased type.

Among the remainder, the best were perhaps Nos. 29, 35, and 73.

THE ASSESSOR'S AWARD.

Gentlemen,—I have most carefully examined the 130 designs submitted in competition for the Municipal Offices and Town Hall, and after a long and exhaustive comparison have placed first that numbered 31.

The problem was not an easy one to solve, and, as a consequence, it has produced a series of designs greatly varying in merit.

The instruction to competitors that "the Council felt strongly that the new building should harmonise with the character of the old," somewhat hampered the independent treatment of the subject, and competitors have either dealt with it in a so-called Gothic spirit, or have thrown this aside and designed their buildings in the freer Classic style of the day.

The site is a somewhat difficult one to deal with, as the Municipal Offices, having to occupy the entire frontage to Earl-street, necessitated the buildings being spread out, and tended to the multiplication of corridors leading to the various departments.

The number and variety of these departments and their grouping and relationship to each other, all constituted an important factor in any decision upon the merits of the respective plans.

The author of design marked 31 submits an extremely well-thought-out scheme for both the Municipal Offices and Town Hall. The plan is admirably arranged and is most economical, the corridors are few and short, and there is no wasted space; each department has been kept distinct and self-contained, and the Municipal Offices can be erected quite independently of the Town Hall, and do not encroach unduly upon the Bay lane frontage.

The elevations have been broadly treated, with a certain amount of Gothic feeling, simple yet monumental in character, which would harmonise well with the style of the old buildings in the city, and, in my opinion, the whole scheme is by far the best of those submitted in the competition.

I further consider that the second best design is that numbered 104, and the third that numbered 76.

Messrs. Stoner and Sons, quantity surveyors, of London, have checked the cubical contents of all three designs, and whilst they are of opinion that the scheme submitted for the Municipal Offices numbered 31 could be built for the sum stipulated, yet they think a somewhat too sanguine view has been taken of the cost of the Town Hall; but this would depend upon the character of the building as worked out in detail.

I therefore advise, subject to the fulfilment of the conditions and instructions to competing architects, that the author of design No. 31 be appointed architect to the new buildings, and receive, in addition, the sum of £150; that the author of design No. 104 be paid a premium of £175, and the author of design No. 76 receive a premium of £125.

At Tuesday's meeting of the city council of Coventry the recommendation of the general works committee to accept the design of Messrs. Garrat, Simister, Buckland, and Farmer, of Birmingham, for Municipal Buildings and Town-hall, and that the committee shall proceed with the scheme for the former block, the estimated expenditure being £50,000, was carried. Mr. Pugh criticised the placing of the education offices on the second floor, and said he was sorry the committee had not decided to proceed also with the Town-hall; but as it was proposed to give a hall for 1,500 people, it was perhaps as well that there should be time for further consideration. He thought there should be accommodation for from 2,500 to 3,000 persons.

COLD WINDS AND THIN WALLS. II.

Continuing result observed, as detailed last week, we have:—

10. *Wooden Buildings with Slab Casings.*—Mr. Osborne-Smith took the Committee to see a sanatorium of this kind which he had built at Harrow on a difficult and hilly site. The outer walls are of timber framing 4in. thick, faced on both sides with "Fram" slabs, on the outside 2in. thick and 1in. thick on the inside. The floor was of "Fram" material, rendered with cement and covered with linoleum: practically a jointless floor on a cement table, the legs being of steel and concrete. The "Fram" could be sawn like wood, and was easily repaired. The building has stood remarkably well. On the outside it is finished with cement roughcast. The Committee did not consider this kind of construction would save much under ordinary conditions; but they thought it made a sound and comfortable building, and the architect believed that on a site not so difficult and so hilly it might have been erected for 5d. instead of 6d. per cube foot.

11. *Buildings Entirely of Wood.*—In a few cases such buildings have been approved for temporary use. One advantage of such buildings is that they can be easily and quickly taken down, and re-erected in another position. The system very widely used abroad is the Doecker patent. The Education Authorities have tried it in Derbyshire, Carnarvonshire, and Kent. It is of timber framing weatherboarded outside, and encased inside either with matchboarding or in some fir proof material in large sheets, fixed by an ingenious system of hooks and eyes, so as to be easy to take down and put up again. The space between the inside lining and the outside covering is filled with some bad conductor of heat, such as cork powder or sawdust. Mr. Widdows stated that he had built a school of this type at Long Eaton for 220 children, in which the building itself came to £951, its foundations to £80, and its plumbing, lighting, etc., to £71—that is, to £1,104 altogether, and said that he had since obtained estimates for a similar school at still cheaper rates. The Departmental Committee formed a general opinion that schools so constructed were better and more comfortable than those of corrugated iron lined with wood. This is what one would naturally expect, though they would be likely to require a little more expenditure for painting and repairs. In small schools of this type, the Committee thought the risk of fire was practically negligible.

The information thus collected referred, of course, in the first instance to public elementary schools. But the Board of Education do not encourage experiment by their rules, and local authorities have the power (which nearly every witness protests against) of paralysing everyone who wants to make a forward movement, and to try something that has not been tried before. It is natural to say "Awake, ye sleepy souls!" But behind local authorities and local regulations is the law of England; and a Parliament, as Mr. Herbert Spencer pointed out a lifetime ago, for ever making fresh laws and threatening us with fresh pains and penalties if we dare to think or to act for ourselves in any conceivable direction. So far we have given a considerable list of ways in which it has struck different people that building, not merely of schools, might be cheapened. But behind the local committees there is generally a County Committee, or something that corresponds to it; and behind this County Committee is the Government committee, and behind the Government committee is the law and its officers. And, as if this were not enough, around the architect of the building there stands a ring of would-be architects with microscopical eyes to mark every failing and venomous tongues to exaggerate it: "Brother Architects," forsooth! From this sort of brethren, and their "slippery" ways, may the Lord deliver us all!

When the average Englishman wants to cut down the cost of his buildings, as the above list pretty plainly shows, the first thing he thinks of is to thin down his walls. And when those are thinned, the next thing he does—unless he is merely a child, and has to endure all the petty cruelties with which his elders may think it their duty to torment him—is, naturally enough, to complain of the cold. The report gives us the opinions of many witnesses on the practical difference between 14in.-thick walls and 8in. slabs in keeping out cold. Fancy goes a long way: and people with strong faith and sound constitutions find the South Pole fairly comfortable, while others shiver with cold even in London and Paris. On the whole, however, the testimony is much in favour of the popular belief that elementary schools, as a rule, are not overdone with brickwork. Mr. Lingen Barker got estimates from patentees, and satisfied himself that a good two-story building, with steel framework and weather-resisting curtain walls, could not be erected more cheaply than a similar structure in brick. Mr. H. W. Burrows objected to a couple of 4½in. walls with a 3in. cavity between them because they carried sound from room to room. The Land Agents' Society thought, as many of us think, that a great deal of money was wasted on elaborate and inferior ornamentation; but whether land agents are exactly the people to put an end to this folly some of us may doubt. The world at large is rather disposed to think that the land agents have been the persons to begin it and to make it popular. Mr. H. H. Dunn thought that 9in. walls with cement roughcast outside would be quite satisfactory for small rural schools; but the use of 9in. walls would necessitate more heating power. Nine-inch walls in cement, with a ¾in. space, and grouted with liquid cement every fourth course,

would be stronger and less costly. Mr. Fisher questions whether school buildings are not now designed for too long a life: and several other witnesses have agreed with him here. Mr. Fisher considered that schools of the "pavilion" type required from five to ten per cent. more heating surface than those of the ordinary plan; and, if the main walls were reduced from 14in. to 9in. brick or 6in. concrete, from five to ten per cent. more heating surface would be required to keep the buildings warm. Mr. W. Jacques said with two thicknesses of 4½in. brick and a space between them there would be a saving of about twenty per cent. in the cost of the external walls as compared with 14in. ones. Ferro-concrete construction would be of little advantage, as to expense, for a one-story school; for a two-story or three-story school it might be cheaper than brick. It would, however, require means such as an air-space in the walls to prevent penetration of damp, condensation, and loss of heat. Double 4½in. walls, with a 2½in. space between them, tied across with iron ties, would be quite suitable for small one-story schools. He had built, about 1876, a small mission church on this system. It cost about 2½d. per cube foot, and was still quite sound. Most by-laws were out of date as far as they have to do with the structural part of buildings. Mr. Littler (Lancashire) said the Lancashire common brick would not, as a rule, stand weather. No great economy, he thought, was possible from steel-framed buildings, though with heating by hot water the thickness of walls was not the sole determining factor. The great superficial area occupied by glass had also to be remembered. A solid 9in. wall was stronger than an 11in. cavity-wall, and transmitted sound less. Mr. Taliesin Rees (Liverpool) thought that for glazed brickwork seconds were quite good enough. Mr. Rees, might have added, we think, and quite as artistic as glazed bricks of what the makers call "best quality." Dr. George Reid, county medical officer (Staffordshire), objected on grounds of health to thinner walls than 14in. brick. He thought the governing considerations were heating and condensation. The "warmth" of a room does not entirely depend on the temperature of the air as measured by a thermometer, but greatly on the rate at which heat is abstracted from the surface of the body: and this largely depends on the temperature of the walls. Mr. W. E. Riley, architect to the London County Council, said it was difficult to speak yet of the relative cost of brick and steel-frame construction, because the latter was new to the workmen; while at the former he and his progenitors had, from first to last, had centuries of work. Mr. H. D. Searles-Wood thought a solid 3in. concrete wall would prove unsuitable because of the difficulties of temperature. For temporary buildings he preferred wood to iron. Timber schools built on the Swedish system (which he rather fully described) would last, he said, for thirty years. He considered a 9in. wall covered with roughcast as quite satisfactory for a school. It would be dry and, with sufficient heating power, quite healthy. Mr. Shelmerdine (Liverpool) is proposing to build a new steel-frame building in that city. The thin walls (about 4½in.) may, he thinks, necessitate additional heating-power. Twenty-five years ago, to cope with an epidemic, he introduced a timber form of construction on brick foundations. These buildings have lasted perfectly well. Mr. J. Osborne Smith disapproved of a construction in simple concrete slabs, because the thin walls would make the building cold. Sir Alexander Stenning considered that for permanent or semi-permanent buildings wood was the most suitable material. Mr. Noble Twelvetrees advocated reinforced concrete, but did not think there would be any saving in it over brick in the case of small single-story schools. Mr. C. F. Ward (Newport, Mon.) thought that in school buildings three stories high, ferro-concrete might probably save 5 per cent.; but a competent clerk of works would have to be employed to insure proper workmanship. Ferro-concrete carries sound easily, so the floors would have to be made soundproof. Ferro-concrete is a material requiring very great care. Extra heating would be required with it.

On the whole, nobody, unless in crowded districts, seems urgently in want of thinner walls. Few people expect to save much by using them. Most people prefer wood for semi-temporary schools, or wood with "Frazzi" slabs and cement or roughcast. Hollow walls transmit sound, and are not generally considered as strong as solid ones.

THE BUILDING TRADES EXHIBITION.

A FAIRLY GOOD FIRST WEEK.

The Building Trades Exhibition at Olympia had a good send-off last Saturday, and increasing numbers of visitors have repaired thither daily. The coming week doubtless will be still more largely taken advantage of by the additional thousands reminded by ourselves and the other building papers of the many excellent exhibits claiming the attention of all interested.

From the main entrance the general view of the great hall is impressive, and the importance of the stands that first meet the eye at once manifest. On the right, at Nos. 4 and 5,

MESSRS. W. OLIVER AND SONS, LTD.,

have a characteristically fine display of wainscot oak, mahogany, teak, walnut, Cuba, and other hard woods, fully seasoned and fit at once for joinery purposes, both in the rough and polished, together with a selection of prepared hardwood joinery and hardwood flooring and matchings.

THE MANX MARBLE COMPANY, LTD.,

at Stand 7, show various adaptations of their well-known material, which stands weather, water, and heat, and, with its capability of treatment as marble, gives the effect thereof at the cost of glazed tiles.

BELL'S UNITED ASBESTOS COMPANY, LTD.,

claim with good reason the successful establishment of a new British industry with their "Poilite." Asbestos-cement tiles and sheets, to be seen at Stand 28, were originally manufactured on the Continent under patents which were revoked on an appeal to the High Court in March, 1909. The roofing tiles constitute a permanent and indestructible roofing material. Among other advantages, they may be fixed at 13½in. centres and to steel laths, and, moreover, are equally hot-cinder and frost-proof. The asbestos sheets are made from $\frac{1}{32}$in. to 1in. thick, in all sizes up to 12ft. long by 4ft. wide, for walls and ceilings, and are especially suitable for electrical generating-stations.

MESSRS. GEORGE M. CALLENDER AND CO., LTD.,

well sustain their reputation for the various applications of their pure bitumen specialities at Stand 36, which insure the dryness of buildings from foundation to roof. Their bitumen sheeting has stood the test of forty years' use, and their "Callendrite" and "Ledkore" lead and bitumen dampcourses are unsurpassed. The visitor will not fail to note the adhesive tenacity of their "Protex" plaster for keeping walls dry, or the absolute protection of iron and steel from rust afforded by their Bituminous Solution. Their "Veribest" rubber roofing can be seen in the covering-in of the office, and on it the pleasing effect of their "Rooferite" waterproof paint, which can also be used with advantage on ordinary tarred felts. Specially suitable for hospitals, or, indeed, any buildings where an economical and comfortable-looking homogeneous floor is desired, their "Permalithic" flooring will commend itself to all who can appreciate a material which is jointless, water, fire, and acid-proof, silent and sanitary.

MESSRS. C. A. PETERS AND CO., LTD.,

for more than twenty-six years have satisfactorily proved the success of their famous wood preservative, "Carbolineum Avenarius." The pavilion (No. 64) has been treated with it, and therein will be found some portable stoves and "Carbotron" fuel, specially suitable for motor-houses and garages, and identical with those used on Captain Scott's expedition to the South Pole.

THE BRITISH URALITE COMPANY, LTD.,

have erected at Stand 87 a specially-designed bungalow, 20ft. by 16ft., showing the adaptability of their well-known manufactures. It is practically fireproof, and most effective. Within it are to be seen various specialities for which the company is noted.

MESSRS. C. JENNINGS AND CO.

show a most creditable selection of hardwood joinery at Stand 92, including stairs, doors, gates, fret-cut grilles, arches, balustrades, fencing, wood-block flooring, mouldings, etc. The most casual visitor will hardly leave without the modest investment of sevenpence in their four-fold brass-jointed souvenir rule, which, though made for advertisement only, is no mean specimen of the accuracy of workmanship and excellence of material which are combined in their various productions.

MESSRS. J. A. KING AND CO.,

the makers of the well-known "Mack" fire, sound, and vermin-proof slabs and blocks, exhibit a novelty at Stand 111, called "Ferro-Glas," which certainly is a new departure, and without doubt will attain a vogue second only to that of the firm's other widely-used specialities. Briefly, it may be described as being made up of translucent glass blocks, in all possible sizes and thicknesses, assembled and reinforced with mild steel rods and cement mortar, giving, in the case of all horizontal construction, a crystal glass ceiling with practically invisible joints, and at the same time a weight-carrying construction. The advantages of thus combining floor and ceiling together with artistic effect is obvious. The advantages claimed are fire-resistance, great bearing strength, minimum expense for maintenance, maximum light, no shadow cast as in iron-frame construction, no painting necessary, no iron to rust, rapid construction, and easy cleaning.

MESSRS. WILLIAM MORRIS AND CO., LTD.,

show some remarkably good stained and leaded glass at Stand 112; but we particularly direct attention to their reversible casements and the patent "two-point" handles for use thereon. Nothing simpler in action, of more easy use, or more satisfactory in appearance can be desired.

THE KLEINE PATENT FIRE-RESISTING FLOORING SYNDICATE, LTD.,

has deservedly established a reputation second to none for the excellent system on which its reinforced hollow-brick floors, roofs, and stairs are constructed, as exemplified at Stand 117. All material and labour employed are British, and all work carried out is guaranteed "for all time." We believe it to be absolutely reliable, and should not hesitate to use it anywhere.

THE ASSOCIATED PORTLAND CEMENT MANUFACTURERS (1900), LTD.,

who represent twenty-two firms or companies, every name of which is, and always was, a guarantee of highest quality, have a most instructive exhibit at Stand 118, which no architect or builder will miss. The practical tests carried out daily at the stand are sure to be studied attentively by all cement users, not one of whom can spend half-a-crown more profitably than on the well-compiled and profusely-illustrated hand-

[illegible] as a guide [illegible] reinforcement of Portland [illegible] garden [illegible] farm [illegible]

[illegible] ENT OF NEW BOOKS AND A[illegible]
OMPAN[illegible]

[illegible] by [illegible] with [illegible] [illegible] known [illegible] that this "is [illegible] tried that has [illegible] requirements." Mr. [illegible] H. Brock, the managing partner, is [illegible] showing at this stand a remarkably use[illegible] [illegible] [illegible]. It is called the "Stonal" [illegible] [illegible]. The glaze is burnt on to a [illegible] proof metal backing at a very high tem[illegible] temperature, and it is practically indestructible. It will not crack, discolour, or come away from the wall, and can be fixed anywhere to anything. It is made in a great variety of artistic shades, and is remarkably eco[illegible] [illegible].

THE UNITED STONE FIRMS, LTD.

[illegible] the leading combination of quarry owners, embracing depots and quarries at Bristol, London, Portland, Belfast, and Ply[illegible], producing stone of varied descrip[illegible] and the best quality, including Bath [illegible], Portland, Mountcharles, grey and blue [illegible] Forest of Dean, granites, etc., have one of the most attractive pavilions in the Exhibi[illegible] [illegible] at Stand 1146. It is designed by Messrs. Ernest Runtz and Son, F.R.I.B.A., and well indicates the artistically advantageous com[illegible] bination of various tinted stones, possible [illegible] under similar and suitable occasions. It can be removed before the construction at the close of the Exhibition, and affords a unique oppor[illegible] tunity for utilisation at a reasonable price as a park rotunda, a lounge in a winter garden, or a tennis [illegible] tea house. The interior at present is arranged to show the pavilion as it [illegible] [illegible] [illegible] and the landscape effects on the second side of the structure, designed and painted by Mr. Walter Hemsley, are very pleasing. The interest to architects and builders [illegible] [illegible] lies in the ease with which the general and individual effect of the various stones used can be grasped. Every different kind of stone, moreover, is clearly marked in the same time, and with the [illegible] [illegible] available as to crushing [illegible] [illegible] analysis, and maximum [illegible] [illegible] [illegible] obtainable, a far better idea of [illegible] [illegible] can be arrived at than by the mere handling of ordinary sample blocks.

THE BRITISH STONE AND MARBLE CO., LTD.,

[illegible] at Stand 118 a fine [illegible] [illegible] [illegible] building stones of every [illegible] [illegible], wall linings, garden [illegible] [illegible] [illegible] B[illegible] the chief feature, and [illegible] [illegible] [illegible]

MESSRS. DAVIS, BENNETT, AND CO.

show four model bathrooms at Stand 39, similar to those fitted at the Carlton Hotel, Hotel Cecil, and other hotels, with various froms of w.c.'s, urinals, etc., together with specimens of tiling, marble wall-linings, many varieties of sinks, hospital sanitary appliances, lavatories, an electric radiator for discharging warm fresh air into bathrooms, and special systems of gas lighting and heating.

THE CALMON ASBESTOS AND RUBBER WORKS, LTD.,

have erected a small asbestos slate building at Stand 29. The roof of this is covered with their asbestos slate tiles, and for the walls and ceilings their asbestos slate sheets are utilised. Similar buildings, only on a much larger scale, have been erected in the Tropics. The material can also most advantageously be used for the erection of hospitals, barracks, moving picture shows, and the like.

THE NOSTELL BRICK AND TILE WORKS

have, at Stand 202, good exhibits of their terracotta and constructional faience. Special attention should be given to their "Ceramo" tiles, which cannot fail to impress all with their beauty and adaptation. Noticeable also are their extra long blocks of terracotta, as now being used for artisans' dwellings for the Liverpool Corporation.

THE OAKELEY SLATE QUARRIES CO., LTD.,

have a working exhibit at Stand 165, showing the entire process of manufacturing the finished slate from the rough block. "Random" slating, as shown on roof of Stand, is now largely adopted for churches, private residences, and high-class public buildings. The fancy "Mansard Vertical" slating in "Best Old Vein" insures perfect dryness to outside walls, and forms a special feature of this exhibit. Samples of slates which have been in use for 100 years and more, also slates which have been removed from an old smithy, where they were exposed to sulphurous fumes for more than 70 years, will be found on the Stand. These slates have a crumbling weight of 21,000lb. per square inch. They are not affected by frost, or by the acids of smoky atmospheres. They are less than half the weight of tiles, and being split from the natural rock, do not warp or discolour, as do most slate substitutes now upon the market.

JOHN TANN

shows, at Stand 107, examples of his well-known fire and burglar-proof safes, bent solid at all twelve corners from one steel plate, and also their party-wall and warehouse doors, to meet the requirements of the L.C.C. and the fire offices committee. There is also a good display of cash and deed boxes, copying presses, and their patent reliance and improved lever locks for all purposes.

SISSONS BROS. AND CO., LTD.,

at Stand 108, display their varied and world-renowned products of this firm, its distempers, paints, enamels, varnishes, etc. The two apartments, which form the main features, are decorated in different but equally successful styles. The larger room, measuring 19ft. by 19ft., is in the Adams style, and the smaller room, 16ft. by 10ft., is in the Louis XV. style. The two rooms give a comprehensive idea of the effects obtained in the successful decorative treatment of panels, walls, and ceilings by the various materials manufactured by this firm. The key-note to the decoration in the larger room is flatted white, with a very delicate harmonious colour scheme introduced into the panelling, the colour adopted being green. The small room shows how Messrs. Sissons' paints lend themselves equally well to the decorations applied to the larger room, and to those styles of decorations where elaborate and heavy ornamentation plays a conspicuous part. The colour contrasts are pleasingly arranged on a white background. The ceilings in both rooms show distemper work upon Adams swags and patterns of attractive design. The exterior of the stand is tastefully panelled throughout in Adams style, treated with Hall's distemper in various shades. There are two entrances, the principal being surmounted by a cornice with round columns, decorated with Hall's distemper, the doors being treated with Orientolac.

THE BRILLIANT SIGN CO., LTD.,

at Stand 57, Row D, exhibit their popular brilliant letter, which is stamped up out of stout copper from steel dies, gilt with 23 carat English gold leaf, and hermetically sealed to the back of the glass, together with specimens of large fascia work, gilt wood-letters, enamel letters, brass letters, metal letters of all kinds, sections of brass and metal shop-fronts, stallboards, tablets, swing signs, etc.

THE RUBEROID COMPANY, LIMITED.

occupy a site in the centre of the hall on one of the main aisles (No. 151). The white joinery forms a pleasant contrast to the roof of the building, which is of green ruberoid, and gives an excellent demonstration of the pleasant coppery green appearance of the material. The exhibit consists of full size models, showing the practical application of ruberoid roofing on flat and pitched roofs. The method of flashing, etc., which is of particular interest, is fully shown on these models. This system obtained the silver medal, the highest award, at the recent exhibition at Allahabad, India. As an example of its utility, it is interesting to mention that some 130,000 square feet of ruberoid roofing were used by Messrs. Lever Bros., manufacturers, on their new works at Durban, Natal, South Africa, whilst the portable buildings, which were taken to the Antarctic by the Scott Expedition, were built of identically the same material. The methods employed and shown for weather-proofing concrete roofs will be of particular interest to architects and engineers, owing to the development of this construction. A portion of the exhibit is also devoted to their well-known product, ruberoid damp-course, which has during past years so rapidly increased in use as to become one of their leading specialities. This material is one of the few building materials which possess the combined attractions of reliability and low cost. The Giant insulating papers so well known throughout the world are also fully displayed, and their uses in connection with cold storage for ship refrigeration are demonstrated. This will prove very interesting to all connected with cold-storage business. The Stand is, as usual, floored with ruberoid flooring, which material is specially manufactured for use on concrete and brick floors, and for passage-ways and verandahs exposed to the weather. Like ruberoid roofing, ruberoid flooring is manufactured in three colours—slate, red, and green—and possesses many attractions, besides being extremely durable. The Ruberoid Company have recently constructed new and extensive works at Brimsdown, Middlesex, and their products are all manufactured under the most careful supervision.

MESSRS. DOULTON AND CO., LTD.,

have an extensive exhibit of the most modern and improved sanitary appliances, suitable for all and every class of building. A portion of their stand in the main building is very ingeniously arranged into five bath-rooms—a central large one, known as the "Vulcan," having four others grouped round it. Each represents a different style, and will instantly command attention as being very suitable for a modern mansion. It will be observed that the bath, lavatory, sitz bath, and closet are all of white glazed fire-clay, and are not only massive in appearance, but also simple in design. Special attention should be paid to the closet, which is flushed by a water-waste preventing valve, instead of a cistern, which can be regulated to discharge any quantity of water, and is approved of by the Metropolitan Water Board. In the bathroom, which is lined with white veined marble, it will be noticed that the bath, lavatory, and closet have a raised decoration, known as the "Doulton" design. Similarly, the bidet is decorated to match the rest of the glazed ware. The fittings in the room are more decorative than those previously described. Where the former would perhaps appear too severe for some tastes, this bathroom supplies a richness of effect without the decoration in any way affecting the efficiency of the various appliances. The walls of the next bathroom are panelled with Pavonazza marble, with relief framings of Dark Devon, and the decoration adopted throughout on the bath, lavatory, and closet is what may be aptly described as the "Gold Knot." Another bathroom shown is suitable for an ordinary house where economy is desired consistent with a complete equipment, so that in calling attention to the "Model" bathroom, Messrs. Doulton feel convinced that the interest aroused will be not only in the high-class quality and appearance, but in the very moderate prices; while those wishing to equip a small villa or bungalow will surely find their requirements met by the fifth bathroom, called the "Villa," where may be seen everything that is absolutely essential for a bathroom, without the additional accessories and elaborate decorations shown in some of the other rooms. Special attention is directed to the smooth, glossy surface of the enamelled ware, particularly in regard to the cast iron. If one is contemplating the erection of a house, the rest of the sanitary appliances required, such as the sinks, both housemaid's and slop, etc., will attract attention to another part of Messrs. Doulton's stand, devoted to a more general exhibit of their specialities, such as closets, lavatories, urinals, etc. Particular mention should be made of the sanitary statuary marble lavatory, which is provided with an entirely new pattern waste; also of the valves fitted, which are made perfectly plain, without any corners or ridges on which to allow dirt, etc., to accumulate, and so designed as to be readily accessible for renewal of seatings as desired.

THE RAVENHEAD SANITARY PIPE AND BRICK CO., LTD.,

is set up to show the effect of this company's rustic facing bricks built up, and also a variety of special bricks to show that almost any shape can be produced in this class of work. It is not, of course, intended as an architectural design, but to exhibit the effect built up in walls of various thicknesses of bricks—arches, angles, sills, etc. There is a low wall of bricks 9in. long by 2in. thick, showing a half-round coping in rustic bricks, with bevels and bullnose worked in at the stop end, another of bricks 9in. long by 2¼in. thick, showing double brick air grids, plinths, and weathered arch, with springer blocks, and also weathered sill, with corner blocks. This arch and sill are very effective, both in design and usefulness, for throwing off the weather, and another of bricks 9in. long by 2¼in. thick, with a small bay, showing plinths, octagons, and plain sill, and some short lengths of mullions. There is also a wall (No. 5) of bricks 9in. long by 2¼in. thick, showing a plinth and a raven's head—this being one of the company's trade marks—in bold projection, formed of bricks also 9in. long by 2¼in. thick, surrounded by a moulded brick frame. The floor is paved with the company's clinker pavors, in "Upholland" brindle buff and "Ravenhead" red, each brick being 6in. by 2in. by 2in. This makes a very hard, non-slippery pavement, and lends itself in setting to a variety of designs.

MR. JOHN P. WHITE

exhibits, at Stand 155, chiefly English oak, of which he is the holder of a large stock. Sample boards are shown which have been cut for many, many years, and photographs of his stocks, and also of the various jobs executed in the material mentioned. Examples of his garden gate furniture in English oak, models of oak entrance gates, and also a variety of hardwood doors executed in Austrian oak, are also shown.

RONUK, LTD.,

have, at Stand 116, a well-designed showroom which well embodies the advantages of their unrivalled "Ronuk" sanitary polish for floors. As nearly everyone knows, this is not merely a polish, but a sanitary cleanser and preserver; but it fills the pores of the wood, and so prevents all accumulation of dust and other noxious matter. It is also fragrant and pleasant to use, and may be employed with great advantage for cleaning linoleum.

MESSRS. R. WAYGOOD AND CO., LTD.,

are exhibiting their Waygood passenger lift, [illegible] size, for taking passengers to Gallery at Stand 123; also one hand power Waygood passenger lift, full size, one model electric passenger lift operated by pushes, one model hand power service lift operated by endless rope and controlled by brake [illegible] one model hand power service [illegible] controlled by handle and controlled [illegible]

MESSRS. THOMAS [illegible]

have a handsome [illegible] character at Stand [illegible] designed by one of the best known [illegible] London architects, exhibiting [illegible] the wonderful bright "L. L. B." [illegible] and sand-faced facing bricks for which this firm has been so long and deservedly famous all over the world together with some of their latest productions of mixed multi-coloured and varied mottled shades of hand made facings, both in ordinary London stock size and in 2in. thin bricks. The exhibit being erected on an island site, the whole of the four sides are well seen, and can be viewed with comfort at a fair distance. The exhibitors have, therefore, advantageously used different kinds and colourings of bricks and roofing tiles for each of the four elevations.

MESSRS. JAMES LATHAM, LTD.,

have found it necessary to secure more room this year for their practical exhibit of seasoned hardwoods, and have acquired a more spacious stand (No. 161) in the main building, near the Addison road entrance. Many excellent specimens of mahogany from both America and Africa are shown along with wainscot and other oak, teak, walnut, ash, whitewood, satinwood, and every description of timber used in the building trade. Very finely figured boards and planks, in which the firm specialises, are a striking feature of this exhibit, and show some wonderful vagaries of nature. A special teak named "Mahoborn" is well shown by means of some finished doors and other joinery, and strongly appealed to us on account of its very low selling price, whilst it looks well, and, we are assured, works easily and stands as well as Moulmein. Mouldings, floorings, handrails, etc., from the firm's Mahtal Moulding Mills, are good in design and excellently machined.

THE GLUICON MANUFACTURING COMPANY,

at Stand 37A in the Gallery, are showing parquet floors in various designs. This company lay all floors with "Gluicon," their speciality (which is a special strong glue, and claims to be heat-resisting and waterproof), by experienced British workmen, and their prices compare favourably with those of other competent firms. They are also showing the Mozantum portable dancing floor; the panels are 2ft. 6in. square, fixed together with iron tongues, and can be quickly laid as a temporary floor for dancing, as supplied to hall furnishers, for purchase or on hire.

THE COATOSTONE DECORATION COMPANY

of 77, Mortimer-street, W., who are exhibiting Neal's patents, have their Stand No. 37, in the Gallery under the large clock. "Coatostone" (liquid stone) is shown in various tints for interior and exterior decoration. This material can be lined out with a bricklayer's jointer, which gives a slight indentation, and with a painted line giving it the appearance of stonework, with a mason's joint. Examples of their interior and exterior roughcast are also shown. This material can be used for obtaining a pleasing effect of rubble work, regular and irregular coursed, and rock face work. "Nealstone" is also shown resembling ashlar work, and imitating Portland stone with moulded cornices and fluted pilasters, with carved caps and moulded bases. It will be noticed that several stands in the Exhibition have been decorated with the specialities supplied by the Coatostone Decoration Company.

MESSRS. C. H. MUSSELWHITE AND SON,

Surrey Canal, Deptford, show, at Stand 181A, Row J, their well-known "Cebino," the up-to-date distemper in paste form. It is in three tints, but any colour can be supplied to order, and is unequalled for high-class quality and price, whilst there is no comparison between the old-fashioned white-wash and "Cebino" for covering power.

MR. W. KENNEDY,

11, Furzeham road, West Drayton, shows, at Stand 34A, Row C, his machine for bending tubes, angles, tees, and other sections. This is particularly applicable to reinforced-concrete work, as the rods can be bent *cold*, correctly and economically *on the job*, either by hand or power. Demonstrations are given continuously, proving the usefulness of the invention.

MESSRS. W. T. LAMB AND SONS

show, at Stand 88, Row E, their well-known dark mottled "Tegon" roofing tile. Absolute regularity in shape minimises breakage, giving a roof impenetrable by rain or driven snow. Exceptionally hard firing prevents the lamination so prevalent in light red tiles. Specimens of the re-pressed sand-faced and moulded bricks of the Down Mill (Bracknell) Brick Co., Ltd., are also on view.

THE "DURABAR" DRAUGHT, DUST, AND WEATHER EXCLUDER.

This useful device, the patent of Mr. A. R. Groome, A.R.I.B.A., for stopping the draught space found under every door and window, has recently been installed in Windsor Castle for his Majesty the King, having earlier proved very successful in Marlborough House. The latter installation was the outcome of the visit of the present King and Queen to the Building Exhibition two years ago, when Mr. Groome had the honour of explaining the "Durabar" to their Majesties. The "Durabar" may be seen on Stand No. 93, Row E, and is also fitted to the front door of the Model Cottage and a number of other exhibitors' doors throughout the exhibition.

Although they have not taken any space at Olympia, it is, perhaps, worth noting that the "Ideal" boilers and "Ideal" radiators of the National Radiator Co., Ltd., 439, Oxford-street, W., are in use on the stands of no less than three exhibitors — a fact sufficiently testifying to the merits of the company's specialities, to which we have more than once called attention in these columns.

THE IDEAL ARTIST IN THE MAKING.

At the annual exhibition of the Royal Drawing Society now being held at Fishmongers' Hall, Mr. T. R. Ablett, hon. secretary of the Society, delivered an address on Friday afternoon on "Mental Picturing and Its Expression by Drawing: the Ideal Artist in the Making." Mr. Lionel Cust presided. Mr. Ablett said the advent of the ideal artist had been looked for in the past, and might be expected as the product of the coming years. He was in the making, and it would be the glory of the present age to see him developed. The ideal artist would show the beauties of his profession, whatever it might be: he might be a sailor, an engineer, a botanist, a zoologist, or a geographer. The ideal artist showed by drawing his power of observation and his latent sympathies. For the development of this skill the qualities of the teacher were invaluable and rare. The great thing was for the teacher to be himself observant, and to try to realise what the young observers were aiming at. An accurate mental picture must be the product of unbiassed, whole-hearted, and sincere study on the part of both teacher and pupil; and this sincerity ennobled both the workers and the onlookers. The intellect grew in dealing with sense impressions. Children who scribbled were really scribbling movement, which was one of the most difficult things in the world to do. Unfortunately, too many children were made to copy, and that was why they were less courageous than the ideal artist. However talented a person might be, he would be less clever than those who were able to make a drawing of their mental impressions, and the cultivation of this art in the young must necessarily lead to a correct, minute, and thorough knowledge of any subject such as was calculated to secure advancement in whatever professional calling might be undertaken. The importance of the latent capacity in children for forming the ideal artist could not be over-estimated.

WALLPAPERS AND ILLUMINATION.

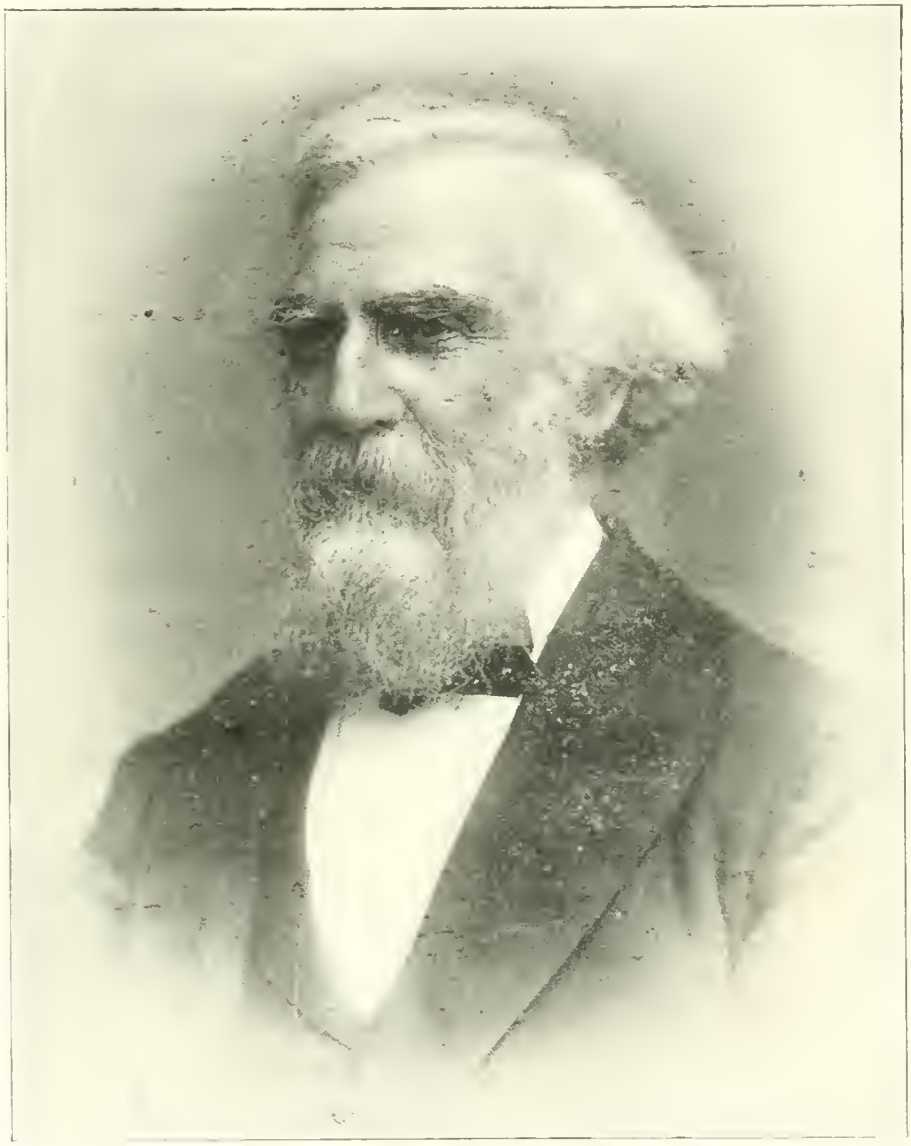
Mr. P. J. Waldram presented "Some Notes on the Effect of Wallpapers on Illumination" to a recent meeting of the Illuminating Engineering Society, for the gist of which we are indebted to the *Times*.

A successful scheme of artificial illumination, he said, seemed to demand collaboration between the architect and the lighting expert at an early stage in the design. But architects were fairly shrewd, and they were not likely to vary their designs or their schemes of decoration unless the lighting expert could base his requisitions upon exact knowledge—and could answer pertinent questions thereon. What was expected of any scheme of artificial illumination was: (1) That the working or table plane of the room should receive an equable light, as much diffused as possible, sufficient for the purposes for which the room was to be used, without being excessive; (2) that the walls and ceilings should receive and reflect such an amount of light that they appeared to be neither too glaring nor too dull, with all essential architectural features brought into sufficient prominence. Up to the present it had been customary more or less to neglect the wall and ceiling illumination and to consider the working plane illumination as being a criterion of the whole. This was not only wrong, but also injudicious. An interior might have an excellent illumination on the table, but not one person in a hundred would give it credit for being a well-lighted room on that account. The light reflected by the walls and ceilings had a psychological effect upon those who used, judged, and paid for it, which neither the architect nor the lighting expert could afford to disregard. Gas and electricity were sold and bought in order that a certain amount of light should be reflected from objects which must be viewed under artificial light; but lamps and mantles emitted light in all directions, and users ought to understand that a large proportion of light which fell upon walls and ceilings of poor reflecting capacity was absorbed permanently, and represented money thrown away.

The author gave some particulars of tests of effects of wallpapers in a given interior which he was completing. The method adopted was to divide the floor, walls, and ceilings into a number of equal rectangles. The c.p. distribution curves of the lamps having been measured, readings were then taken with an illumination photometer of the illumination received by a detached test-plate placed in the centre of each rectangle. Then another series of readings was taken with a small black screen placed about halfway between the test-plate and each lamp, so as just to cut out the direct lamp-rays, whilst obliterating as little as possible of the light reflected from the ceiling. The second set of readings isolated the increase due to all reflections and counter-reflections for that size of room and colour of wall and ceiling surfaces, and the difference between the sets of readings should equal the direct flux as calculated from the c.p. curves. A room about 19ft. by 12ft. 3in. by 10ft., papered with very dull red paper, possessing a coefficient of reflection of only about 11½ per cent., was temporarily fitted with two 35-watt Mazda pendent lamps and tested with different Holophane shades, varying the incidence of the light rays. The walls were then altered from an approximately bad to an approximately best condition, by covering them temporarily with white lining paper with a coefficient of reflection of 100 per cent., and similar readings were taken. Under average conditions the increase of flux of illumination on walls by reflection tended to vary between 50 per cent. and 70 per cent. with white wallpaper, down to between 20 per cent. and 30 per cent. with very dark papers. The increase of flux of illumination on white ceilings appeared to be in about the same proportion as on the wallpapers to which they were adjacent.

JOHN PASSMORE EDWARDS.

Of the many journalistic enterprises with which our dead chief, Mr. John Passmore Edwards, who passed to his rest last Saturday, at the full age of 88 years, was associated, the BUILDING NEWS came earliest into his possession of those which survive, and was the first to benefit by the vigour and originality which marked his conduct thereof. It was in May, 1862, that Mr. Passmore Edwards bought this journal, which, after a brilliant and successful career of several years, had begun to share the results of the rest of the vicissitudes of its previous proprietors. At that time Mr. Edwards had not long assumed the control of the old *Mechanics' Magazine*, under a reciprocal arrangement with its then owners, and to its offices at 166, Fleet-street (since demolished) the BUILDING NEWS was removed. Both journals speedily felt the benefit of Mr. Edwards' keen perception of the necessary conditions of their success, and his indefatigable industry in the application thereof. His conduct of the *Mechanics' Magazine* expired in 1867; and, feeling that its owners were indisposed to give him a sufficiently free hand, he relinquished it, and, after passing into other hands for a while, it was ultimately incorporated with another journal, which has long ceased to exist. The BUILDING NEWS, after incorporating the *Illustrated Builders' Journal*, the copyright of which Mr. Edwards had acquired, moved westward into Tavistock-street, Covent Garden, to the more spacious offices demanded by its increasing circulation and requirements, where it remained till 1884, when, the Duke of Bedford requiring the premises, with the rest of the adjacent houses, for the enlargement of Covent Garden Market, another move was made to 332, Strand, and joint occupation of that historic old home of the *Morning Chronicle* with the *Weekly Times*, which had just become Mr. Edwards' property. In the meantime, in April, 1869, Mr. Edwards had bought the copyright of the *English Mechanic*, which had then been founded nearly five years, from the late Mr George Maddick. Thence, when the London County Council effected the Holborn-Strand improvement, we had once again to move and find fresh quarters in Clement's Inn Passage, which, being required last autumn by the owners for extension of the adjoining printing works, was demolished, and we migrated once more to our present home at Effingham House. Of the uninterrupted progress made during those years it is not for us to speak here, further than to say that its impetus was given by the adoption by Mr. Edwards of the new processes of architectural illustration which superseded wood-engraving, and which the BUILDING NEWS was the first to utilise, and sustained by the best efforts of those who, associated with him for nearly 50 years, have owed its continuance mainly to his inspiration. His more immediate control necessarily became less active in 1876, when he acquired the *Echo*, which he so brilliantly and prosperously conducted for more than 20 years, but his interest in the BUILDING NEWS never flagged. To him in all times of hesitation or emergency recourse has most advantageously been had for counsel, till the very recent years of his retirement.



Elliott and Fry, Copyright.

JOHN PASSMORE EDWARDS. Born March 24, 1823. Died April 22, 1911.

The main incidents of Mr. Edwards' career are familiar to most. Born in the little village of Blackwater, in Cornwall, on March 24, 1823, his father was a Cornish carpenter, and his education was obtained at a village school. After some little experience in the office of a Truro solicitor, he started work in Manchester as an agent for the *Sentinel*. His literary aspirations and his vivid interest in the political questions of those stirring times brought him to London in 1846, and during the succeeding few years there were few popular movements with which he was not associated. We find him in active and close co-operation with Bright and Cobden, and busy as a delegate to the Great International Peace Congress in Brussels in 1848, and to similar assemblies in Paris in 1849, and Frankfort-on-the-Main in 1850. Meanwhile, he was busy with many ventures —notably with the foundation of the *Public Good*, a monthly magazine which he started in 1850, the scarce volumes of which are eagerly sought by appreciative collectors. His resources were slender, and his labours and anxieties many. "I was my own editor, publisher, clerk, advertisement manager — everything," he has said to us in years gone by; "but I should have pulled through all right had I not been stricken down by illness, with no one to keep things going." During that illness matters went to the bad generally, and on his recovery there was nothing for it but to effect an arrangement with his creditors, who fully sympathised with his misfortunes, and to make a fresh start. From that time for some few years it was a tough struggle, always animated by one resolve — to pay every creditor every shilling in the pound. Many honourable men have done that in the days of returning prosperity, but Mr. Edwards would not wait. When the turn of the tide came, and as soon as there was money enough at the bank to cover the total required, the cheques were drawn and sent. "I feel now I can look any man in the face again!" he said to us, on the eve of the dinner at the Albion in Aldersgate-street on October 29, 1866, at which his grateful creditors met to offer him a visible and substantial token of their appreciative esteem.

There was one other secretly-cherished purpose in his mind even then, and its existence was humorously divined by one old friend at the banquet just referred to. He had determined that if wealth came it should be devoted to the alleviation of present misery, and the spread of the means of education. "You may endow charities, and their scope will be diverted; you may build schools, and those you meant them for will see them occupied by others; and you may do many other things

[illegible] Queen and Empress [illegible] Ministers [illegible] words were: [illegible] dear. [illegible] to her? [illegible] peacefully [illegible] sons, an [illegible] British Press, and one who [illegible] and vigorous life, large heart, [illegible] possessed to benefit his [illegible] He leaves a widow, [illegible] daughter to mourn his loss.

Mr. Benjamin Scott, Secretary.

THE KING'S REPLY.

The following telegram was received from Sir Montagu Ommanney, Private Secretary to the King: "I am commanded by the King to thank you for your telegram, and to express His Majesty's sympathy with you and the management of the Sailors' Palace at the loss you have sustained in the death of your benefactor.—Signed: Ponsonby, Windsor Castle."

Among the almost innumerable buildings erected by the munificence of Mr. Passmore Edwards, the following have been illustrated (often on pages the name of the architect being given in parentheses): Art galleries, Newlyn (the late James Hicks, architect, February 8, 1895; Peckham road, Camberwell (Maurice B. Adams), April 10 and July 31, 1896, and January 7, 1898; Boys' Club, Mansfield House, Canning Town, E. (H. C. Lander), June 13, 1900; Children's holiday home, Clacton (the late Charles Bell), May 20, 1898; Convalescent homes, Herne Bay, friendly societies (A. Saxon Snell), November 5, 1897; do., railway men (A. Saxon Snell), June 16, 1899; Limpsfield (J. J. Thomson), July 17, 1896; Pegwell Bay (M. B. Adams), July 16, 1897; Perranporth (John Symonds and Son), September 2, 1892; Staplehurst (Charles Greeve), October 16, 1896; Cottage hospitals, Liskeard (James Hicks), March 29, 1895; Sutton, Surrey (Cecil A. Sharp), January 10, 1902; Tilbury (Rowland Plumbe), October 25, 1895; Wood Green, N. (Charles Bell), August 13, 1894; Cripples' home, Bournemouth (Frederick Warman), June 17, 1898; Drinking fountains at Blackfriars Bridge, Camberwell, Hoxton-square, and Islington, April 25, 1902; Epileptics home, Chalfont St. Peter (Ernest C. Shearman), May 7, 1897; do., for men, boys and girls, Chalfont (M. B. Adams), June 25, 1897; Free libraries, Acton (M. B. Adams), October 28, 1898, and January 5, 1900; Blackwater, and Institute, John Symonds and Son), August 11, 1896; Bodmin (the late Sylvanus Trevail), May 1, 1896; Borough road, S.E. (Phipps and Jackson), December 3, 1897; Bow, E. (S. B. Russell), November 8, 1901; Camberwell, St. George's (Maurice B. Adams), July 19, 1901; Camborne (S. Trevail), April 13, 1894, and May 24, 1895; Dulwich (Charles Barry and Son), October 23, 1896; East Ham (S. Trevail), November 11, 1898; Edmonton (M. B. Adams), April 9, 1897; do., medallions of John Keats and Charles Lamb, Sir George Frampton, R.A., February 17, 1899; Falmouth, and art schools (E. J. Bellamy and W. H. Tresidder), April 13, 1894; Limehouse (Clarkson Brothers), November 1, 1901; Liskeard (John Symonds and Son), February 11 and May 1, 1896; Lower Edmonton (M. B. Adams), November 8, 1895, and April 9, 1897; Newton Abbot (and technical schools (S. Trevail), July 4, 1902; Nunhead green (R. P. Wheelock), April 17, 1896; Plaistow (S. B. Russell), August 15, 1902; Redruth (James Hicks), August 3, 1894; St. Ives, Cornwall (John Symonds and Son), May 1, 1896; St. George's-in-the-East (M. B. Adams), May 21 and September 24, 1897, and October 28, 1898; Shepherd's Bush, Hammersmith (M. B. Adams), March 29 and July 5, 1895, do., sculpture of Shepherd in the Bush (Nathaniel Hitch), March 13, 1896, and bronze panels of Leigh Hunt and Charles Keene (Sir George Frampton, R.A.), January 14, 1898; Shoreditch, Kingsland road (M. B. Adams), June 12, 1896; Shoreditch, Pitfield street (Hare, Spalding, and Cross), December 13, 1895, and January 13, 1899; Truro (S. Trevail), May 17, 1895; Hospitals: East Ham (S. Trevail), August 3, 1900; Falmouth (B. C. Rogers), April 13, 1894; West Ham (Lewis Angell), February 8, 1895; Willesden green (Newman and Newman), May 12, 1899; Institutes: Hayle (S. Trevail), September 22, 1893; St. Bride's, Fleet street, E.C. (R. Cunninghame Murray), November 17, 1893; London School of Economics, Clare Market (M. B. Adams), December 13, 1895, and May 30, 1902; Museums: West Ham (S. B. Russell), October 19, 1900; Polytechnics: Peckham road, Camberwell (M. B. Adams), May 22 and December 25, 1903; Sailors' palace: Limehouse (Niven and Wigglesworth), July 12, 1901, January 3, 1902, and August 7, 1903; Settlement, Tavistock place, W.C. (Brewer and Dunbar Smith), August 9, 1895, July 3, 1896, and October 19, 1900; Teachers' orphanage, Westwood House, Sydenham (the late J. L. Pearson, rearranged by E. L. Pearson), September 22, 1899; Technical schools, Truro (S. Trevail), May 28, 1897. But this by no means exhausts the list of his benefactions. Among the other institutions erected at his cost may be named the Whitechapel public library and museum and picture gallery, the Caxton Convalescent Home, Limpsfield, the home for little boys, Swanley; cottage hospital, Acton; the hall at London University, institutes at Chacewater and St. Agnes, and school and meeting house at St. Day. Mr. Passmore Edwards also presented between eighty and ninety thousand well-selected volumes to public libraries, reading-rooms, hospitals, and convalescent homes.

COMPETITIONS, &c.

CHEAP CANADIAN WORKMEN'S HOUSES.—The Model Homes Association of Ottawa has inaugurated a competition among architects' draughtsmen for designs of working men's homes. The originator of the plan was Mr. C. P. Meredith, the well-known Ottawa architect. His Excellency, Earl Grey, and many leading Government officials have become patrons of the association. Circulars have been sent out through the Canadian Dominion so as to give all draughtsmen a chance to compete. Architects are invited to send in plans on a non-competitive basis. The best designs submitted will be reproduced and kept on file at the City Hall, Ottawa. These will be available upon application and for a small fee. The maximum value of the houses is fixed at 2,500dol., or £500 sterling. There are eighteen classes of houses for which designs are asked, and prizes of 15dol., 10dol., and 5dol. will be awarded in each class. The closing date for submitting plans is May 20.

The commission for the memorial of Archbishop Cranmer to be placed in Jesus College, Cambridge, has been entrusted to Mr. A. Bruce Joy.

The foundation-stone of the new Church of St. Paul, King Cross, was laid by the Bishop of Wakefield on Saturday. The architect is Sir Charles Nicholson, Bart., F.R.I.B.A.

In St. Catharine's Church, Neath, South Wales, the east-end window of three lights has been filled with stained glass. The window was designed and executed by Messrs. Heaton, Butler, and Bayne.

The annual dinner of the Royal Institute of British Architects will be held this year on Tuesday, July 4, at the Fishmongers' Hall, by the courtesy of the Worshipful Company of Fishmongers.

The new upper mixed school at Okehampton was opened by Lord Clifford on Wednesday. It has cost over £3,000, and has been built from plans by the county architect for Devon, by Messrs. Blatchford and Daw, of Okehampton.

The partnership hitherto subsisting between J. R. Bennett, J. R. I. Bennett, A. E. Bennett, and H. K. Bennett, builders, Cambridge, under the style of J. R. Bennett and Sons, has been dissolved, so far as regards J. R. Bennett.

Messrs. L. and C. Hardtmuth, Ltd., the makers of the celebrated Koh-i-noor pencils, recently received a remarkable letter, enclosing a piece of Koh-i-noor pencil about 1in. long, the finish of a pencil which the writer declared had given five years' service. The writer said he could not speak too highly of the quality of the lead, which had not broken once since he had purchased the pencil. It is such evidence as this that best shows why the Koh-i-noor—a four-penny pencil mind you—enjoys such world-wide popularity.

CURRENTE CALAMO.

We have said something elsewhere about the aims which inspired the benefactions of our late chief, Mr. Passmore Edwards, and may add here that we know that, although a subsidiary source of gratification to him, it was no mean one, that the expenditure of the large sums he gave benefited the great arts and industries of which this journal is the representative to a considerable degree. Few men have put more money into "bricks and mortar," and few clients have been more desirous of seeing the work well done, or more appreciative of the co-operation of the artists, architects, and builders who were associated with the design and execution of his gifts. It is no exaggeration to say that his numerous buildings throughout the country will prove a lasting and considerable contribution to Late Victorian architecture, and no mean representation of the genius of the leading architects of the period.

We are sure, also, that he would have valued highly the discriminating and sympathetic remarks of the *Morning Post* last Monday with reference to one of his institutions, the welfare of which was very dear to him—the Passmore Edwards Settlement, near Tavistock-square. It is undoubtedly true, as our contemporary said, that "if anyone wants to become intimate with the life of the people a workman's dwelling is a better habitation than a 'settlement'; but if those who have had the chance of acquiring a wide interest in life desire to help others to extend their horizon, then the settlement is the best of all devices. . . . . Men who will imitate the munificence of Mr. Passmore Edwards can do a great work for the education of the country." We trust these words may inspire some other wise winner of well-won wealth to spend it in the same way and to extend and multiply "settlements" which shall be in a real sense educational centres throughout the realm.

Physical exercises are very fine things; but I often wish more of our boys and girls could be spared occasionally from the performance of some of the wonderful things they are taught to do, and which I expect they never attempt after leaving school, for half an hour of "Motion Study," as a clever American engineer calls it, and whose book under that title, just published by Messrs. Constable and Co., Ltd., I have been reading with much interest. As Mr. Frank Gilbreth truly remarks, "There is no waste of any kind in the world that equals the waste from needless, ill-directed, and ineffective motions." When one thinks that, in bricklaying, for instance, the adoption of proper motions will cut down the bricklayer's work by more than two thirds, it is possible to realise the amount of energy that is wasted by bricklayers, and how easily they might save themselves needless fatigue and earn more money. I should add—to appease the possible wrath of any trade-unionist—that the adoption of these motions depends more on provisions to be made by the master than by the man!

It goes without saying that the patriotic Briton will buck considerably at any "Yankee foolishness" which offers to save his muscle at the expense of his brains. When Mr. Gilbreth was over here at the Japan British Exhibition he watched a girl putting papers on boxes of shoe-polish at considerable speed. He timed her twenty-four boxes product in forty seconds, and told the girl that she was not doing her work right. Her wrath at such criticism from "a mere man" may be imagined. Mr. Gilbreth, however, has evidently "a deludhering way" with him, and presently—the more readily, perhaps, as the girl was on piecework—she consented, under his guidance, to arrange her work differently and dispense with half her motions. On her first attempt she did twenty-four boxes in twenty-six seconds and the second time she did it in twenty seconds.

Most of Mr. Gilbreth's illustrations have reference to bricklaying, so that it will well pay builders to study his book. If they are intelligent and unprejudiced, I think they will see how tremendously output can be increased by attention to the variables of the worker, his surroundings, and the motions. At the Military Tournament and at well-trained fire-brigade displays we have all marvelled at the celerity with which things are done—with a rapidity that seems incredible, and that would, of course, be impossible but for the training of the men in quick and proper motions. Can we not get the alphabet of "motion study" taught our children, instead of some of the showy "drill"? and can we not see that practice is continued in carefully thought out application in their avocations in after life?

The Paddington Town Council will be asked by its health committee at the next meeting to sanction a proposal for making open windows compulsory in tenement houses. This is rather a bold proposal, and so is that giving the sanitary inspectors the right to enter houses to see that the regulations are observed, that the floors of bedrooms are swept once a day, and their windows opened wide for at least two hours. The regulations, moreover, are to apply only to the poorest class of dwellings. The aversion to fresh air is, unfortunately, shared by some well-to-do people, who might object to similar visitations of officials, and it is quite possible their immunity will be jealously regarded by tenement-house dwellers. Possibly the more effectual way would be to insist on the simple expedient by means of which any sash-window may be made always to remain open an inch or two, and to encourage the general adoption of other rational means of ventilation.

The acquisition by Mr. Arthur Lee of Coombe Hill, Bucks, and his provision for putting it at a future date under the control of the National Trust for Places of Historic Interest, is most timely and thoughtful. The village at the foot of the hill, though yet hardly spoiled, is likely to be, and but for Mr. Lee the steep hillside might soon have been cut out into "eligible villa sites," and the pleasant climb to the enjoyable prospect visible at the summit no longer possible. Thanks to Mr. Lee, the view is safe for all time. Of all philanthropy, generosity like this seems to us most worth imitation, and we trust wealthy men will practise it more and more. The lasting preservation of an inspiring piece of natural scenery is, to our thinking, a nobler memorial of its donor than the legacy of the finest collection of pictures, or lucky finds of eighteenpenny Murillos and the like.

Very properly the Cleveland Chapter of the American Institute of Architects, the Cleveland Engineering Society, and the Builders' Exchange joined in an investigation of the collapse of a four-story reinforced concrete building which was being erected for the Henke Furniture Company, of that city. The collapse was a disastrous one, accompanied by the death of four persons and the injury of seven others. The commission paid nine visits to the ruins, held seventeen public sessions at which eighty-six witnesses were examined, besides twenty-eight private sessions. The commission held that the initial failure was due to the premature removal of forms and supports in the third story, and found that the architectural supervision was deficient, that the concrete used was of poor quality and not properly placed, while the owner and the city had a share in the responsibility for failure to watch the work and enforce the ordinances. The conclusion of the committee was that the collapse gave no reason to condemn the use of concrete in combination with steel provided the concrete was composed of proper materials, accurately measured, and thoroughly mixed; the steel sufficiently strong and properly placed; the work installed by competent contractors and workmen; and the specifications, drawings, and construction properly executed under the direction of competent designers and inspectors. A very rational conclusion, and one that architects would do well to bear seriously in mind here, remembering that the delegation of their responsibilities to specialists will not absolve them in the case of similar "accidents."

A Bill authorising the Governor to appoint a State Board of Architects has been passed by the lower branch of the Utah Legislature. Under the provisions of the measure all architects seeking to engage in the practice of their profession in the State must pass an examination to be prescribed by the Board. A feature of the Bill is that it does not prohibit persons who do not pass the examination from practising, but stipulates that they must not accept work without informing their clients that they have not been licensed.

Not much has been heard of the proceedings of the Departmental Committtee which has been considering the present condition and future development of the South Kensington Science Museum and the Geological Museum in Jermyn street; but their report testifies to the serious gaps in these collections, and is rather disconcerting. There appears to be no adequate exhibit of apparatus or specimens in illustration of the present condition of chemistry or physics. The initial and some subsequent stages in the progress of mechanical engineering are illustrated amply, but the series ends, like others, prematurely. "Actual offers to present further objects of no less interest in the progress of invention cannot be accepted until further space is available." Electrical and marine engineering, mining and metallurgy, civil engineering, industrial science—all are similarly placed. The Committee's scheme is bold. It requires the establishment of a new museum, in which all branches of physical sciences, pure and applied, and the scientific and economic work of the Geological Survey shall be adequately illustrated in close proximity to the other great museums and, as usual, at South Kensington. There is no doubt the building is badly wanted; but its situation is a matter for further consideration.

Let us hope picture-buyers next week will be less thrifty than the old farmer of Centre

Bridges [illegible] Edward W Redfeld, the Architectural Painter, told a good story to the [illegible] Art Club. A well Known Architect [illegible] it seems [illegible] George Byrne, had a stroll on the Farmers [illegible] The farmer hailed the artist and [illegible] "Don't [illegible] [illegible] [illegible]

Building Intelligence.

EDINBURGH.—Designs have been prepared by Mr. W. T. Oldrieve, the principal architect of his Majesty's Board of Works for Scotland, and sanctioned by the Treasury, for an important extension of the Royal Scottish Museum, Chambers-street, Edinburgh, which will provide greatly needed space for the proper display of the ever-increasing specimens. The establishment of the Museum dates from 1854; but the first section of the present building, which occupied the original site, was opened in 1866, the second portion in 1875, and the west wing in 1888. The contemplated extensions are all on the south side of the present building towards Lothian-street. The general idea of the extended plan is to provide upon an axis running at right angles to the present great hall, lying east and west, another large hall running south. This new hall is intended to be 130ft. in length by 50ft. in width, and of the entire height of the building. At the rear of this central hall, and taking on the plan the form of the shortened arms of a cross, the design shows on the ground floor a series of halls, in all about 155ft. by 48ft., and divided from each other by columns and open arcades. In addition, the plan provides for a hall on the west side of those cross halls, about 90ft. by 48ft. On the east side of the central hall it is intended to have a staircase and lift leading to the upper floors, on which the accommodation will be a repetition of that on the ground floor. The part of the scheme now sanctioned includes the new great hall with an area of 6,200 superficial feet, and at the end on the ground floor on its east side a hall 50ft. square, with 2,500 superficial feet of space. Opening off the east side of the new central hall will be the service stair and lift, a consulting-room, and a workroom. On its east side will be a hall also 50ft. square, and further east, and adjoining West College-street, there will be a lecture-hall 40ft. square, and a small preparatory room adjoining. In the angle of Lothian-street and West College-street an entrance-hall will be constructed, chiefly for the use of students. On the first floor this extension will be repeated. On the west side of the new central hall it is proposed to construct a new administration department three stories in height.

NEWCASTLE-ON-TYNE.—The foundation-stone of the Edward VII. School of Art, in connection with Armstrong College, was laid on Tuesday. The school will be three stories in height, and will, together with a college gateway, be of red sand-faced brick, with architectural figures worked in stone. The roof will be covered with red tiles, to match the present buildings. There will be between thirty and forty rooms and studios, and a museum. A feature of the new buildings will be a college gateway, which will span College road, leading from Barras Bridge to the Leazes. It will be 70ft. in height, and consist of four stories, with a double arched carriageway to give access to the college buildings. In the basement of the school there will be rooms for the crafts, including metal-work, enamel-work, lithography and etching, cabinet-work, woodwork, stone-carving, and plaster-modelling. On the ground floor the entrance will be approached by a broad flight of steps, which will open on to an entrance hall. On the left will be the museum. There will also be rooms on this floor for elementary work, together with a library for the use of advanced students and apartments for the governing committee. The school is being erected at an outlay of about £20,000, from plans prepared by Mr. W. H. Knowles, F.S.A., Newcastle, who was the architect for the last extension, including the Sir Lowthian Bell Tower, facing the Leazes, and the King's Hall of the college, and the contractor is Mr. Alexander Pringle, of Newcastle.

Mr. Lewis Mitchell, of Bolton has been appointed water engineer to the Aberdeen Town Council at a salary of £500 per annum.

PROFESSIONAL AND TRADE SOCIETIES.

THE GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY.—The fifteenth annual report on the work of the session now closed says the society have always been fortunate in their choice of presidents, and to the long list of successes must be added the name of Mr. John Bowman, who has occupied the chair for the session with credit to himself and honour to the society. The membership of the society reaches the satisfactory figure of 127—including three life members—this being an increase of nine on last session's numbers; fifteen new members were admitted, and six resigned. Eleven ordinary meetings were held during the session, nine of the subjects being taken up by members, while for the remaining two the society was indebted to Mr. W. A. Kemp, C.E., and Mr. Jas. M'Kissack.

GUILD OF ARCHITECTS' ASSISTANTS.—At a meeting held at Prince Henry's Room, Fleet-street, E.C., on April 10, Mr. T. H. B. Scott in the chair, the hon. secretary reported that two further suggestions of the Guild to the Registration Bill Committees of the R.I.B.A. and the Society of Architects had been duly acknowledged by those bodies. They are as follows:—A clause to legalise a scale of salaries for Assistants subject to approval of qualifications by registration or other agreed authority, and that the general provisions of the Bill should offer greater security to the pupil by surveillance of his progress, on request, and ease of appeal to the Registration or other agreed authority by his parents or guardians when necessity demands; and also, that the present position of the assistant in relation to open competitions be retained. These, combined with the two previous proposals of the Guild—(1) Registered practitioners to employ only registered men as Assistants, (2) Restriction of the number of pupils and unpaid Assistants in the office of a registered practitioner—represented the first concerted attempt to put forward the claims of the Asistant to the two premier architectural societies. A discussion followed.

Mr. Edward Leonard, inspector of the Local Government Board, held an inquiry at the Westminster Guildhall on the 20th inst. as to the application of the Middlesex County Council for consent to borrow sums amounting to £85,128 for the erection of a new Guildhall on the site of the present building at Westminster, from plans by Messrs. Gibson, Skipworth, and Gordon. Mr. W. Regester, chairman of the Middlesex County Council, stated that the earlier part of the present building was erected in the 18th century, and an enlargement was made in 1892. Several schemes had been adopted by the council and abandoned. The present rebuilding scheme was now agreed on. It was found that it would be almost as costly and less advantageous to adapt the present building as to have a new Guildhall. He believed that the proposed building was absolutely necessary for the purpose of the quarter sessions and administrative work of the county. Mr. Fawley cross-examined on behalf of the Harringay Burgesses' Association for the purpose of showing that all that would be necessary would be to adapt the present building at a very much smaller cost than the scheme now adopted would require. Mr. Herbert Nield, M.P., Deputy Chairman of the Quarter Sessions, said the enlargement was urgently necessary. Westminster was the best possible site for the Guildhall, because one half of the county was approached from Waterloo and the rest from Paddington, King's-cross, and Liverpool-street. Mr. H. Heldmann, chairman of the finance committee, said that the new building would provide for a number of years ahead. The council believed that the site was so valuable, being, in fact, one of the best in London, that the expenditure now contemplated could be reimbursed by the sale of it.

Our Illustrations.

COVENTRY MUNICIPAL BUILDINGS AND HALL.

We give to-day illustrations of the three designs to which, as we stated last week, the premiums offered were awarded by Mr. E. Guy Dawber in this competition: (1) Messrs. Garrat, Simister, Buckland, and Farmer, Norwich Union Chambers, Congreave-street, Birmingham; (2) Messrs. William E. Couch and H. T. Benjamin Barnard, 82, Victoria-street, Westminster, London, S.W.; (3) Mr. Herbert J. Rowse, A.R.I.B.A., Great Crosby, Liverpool. Our illustrations include the elevations and principal plans of all three designs. A review of the competition will be found on page 585.

Engineering Notes.

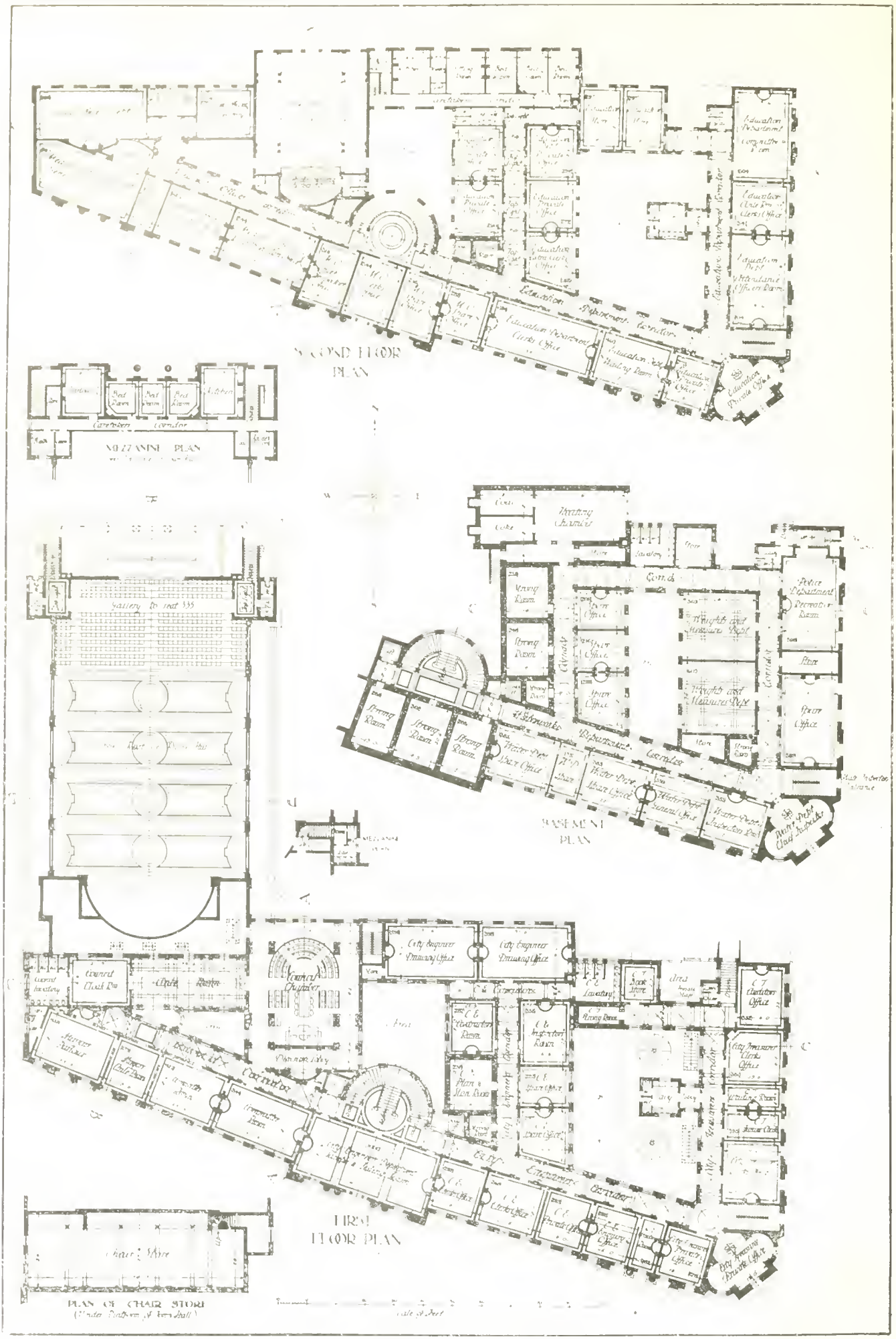
APPROACHES TO ST. PAUL'S BRIDGE.—The City Engineer, Mr. Frank Sumner, in a report on the subject of the proposed new bridge, states that the approach begins at Cannon-street, about fifteen yards west of Old Change, and rises from this point to Queen Victoria-street at a gradient of 1 in 40, and falls from Queen Victoria-street to the river at 1 in 40, the bridge across the river being level. The southern approach is to have a gradient of 1 in 40, terminating at Southwark-street, and absorbing Great Guildford-street. Knightrider-street, under the proposed bridge, will be closed to vehicular traffic, and a subway 10ft. wide and about 80ft. in length provided for pedestrian traffic. Old Change, between Knightrider-street and Cannon-street is to be closed, it being entirely within the new approach. With regard to Upper Thames-street, it is proposed to leave the level unaltered and to bridge the same by an arch 35ft. span and 20ft. high. In Lambeth Hill also the level will be unaltered, and it will be crossed by an arch 24ft. span, and 20ft. high. The level in Queen Victoria-street will also be unaltered, the span of the arch being 70ft. and the height over 19ft.—Mr. Leonard Stokes, P.R.I.B.A., has made a statement to a *Times* representative in criticism of the Corporation case for the proposed bridge over the Thames. Mr. Stokes said no official alternative scheme has been formulated to that put forward by the Corporation. The Institute has merely urged the Corporation to take expert advice upon an important architectural work, which may involve the making or the marring of London. Mr. Stokes thinks no architect, or any person qualified to express an opinion on the subject, thinks that any project to build the bridge opposite the south transept of the Cathedral is architecturally inferior to the plan of the Corporation, and he maintains that the adoption of the Corporation scheme will not relieve, but will add to, the congestion of traffic on the other bridges.

The Cranbrook Rural District Council have received the resignation of offices of surveyor and sanitary inspector from Mr. C. Payne, who is emigrating to Canada.

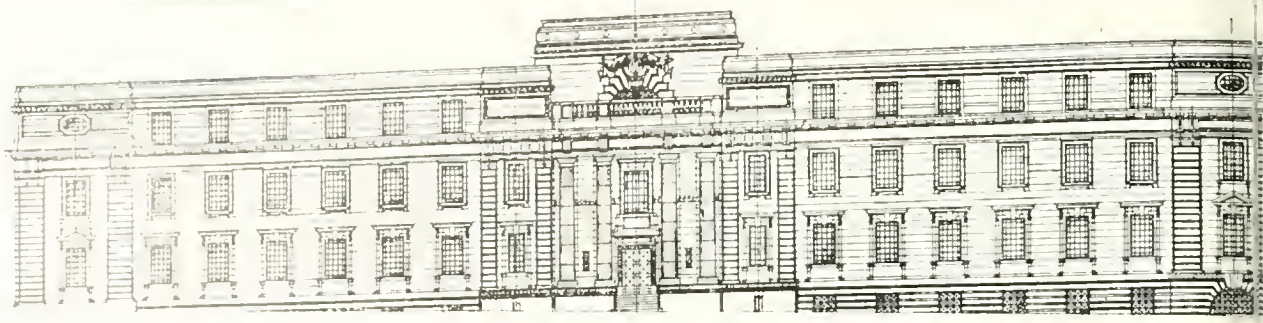
At Wrexham a Roman Catholic church built at a cost of £2,400 has been opened by the Bishop of Menavia. Mr. Gilbertson, of Liverpool, was the hon. architect, and Mr. W. E. Samuel, of Wrexham, was the contractor.

The third season's archæological excavations at the great Wiltshire "temple" of Avebury, six miles from Marlborough, which are being undertaken by a committee of the British Association, with a view of endeavouring to ascertain its approximate date, were begun on Monday. The direction of the field work is again in the hands of Mr. H. St. George Gray.

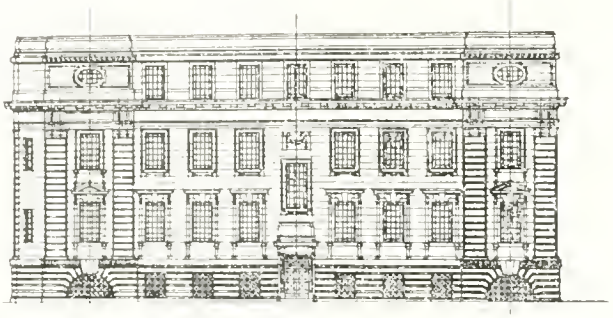
The first section of a new church erected in Manston-road, Heavitree, to accommodate the rapidly-growing district known as Polsloe Park, was dedicated on Thursday in last week by the Bishop of Exeter. The edifice has been erected by Messrs. Lapthorn and Co., Plymouth, from designs by Messrs. E. H. Harbottle and Son, Exeter. The cost of the entire scheme will be £5,000; but the chancel and the west end of nave have yet to be erected.



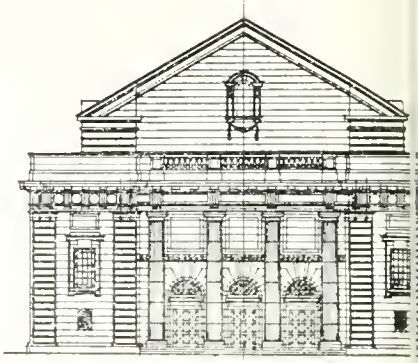
COVENTRY MUNICIPAL BUILDINGS AND HALL. SECOND PREMIATED DESIGN.
Messrs. William E. Cooch and H. T. Benjamin Barnard, Architects.



ELEVATION TO EARL ST



ELEVATION TO SAINT MARY ST



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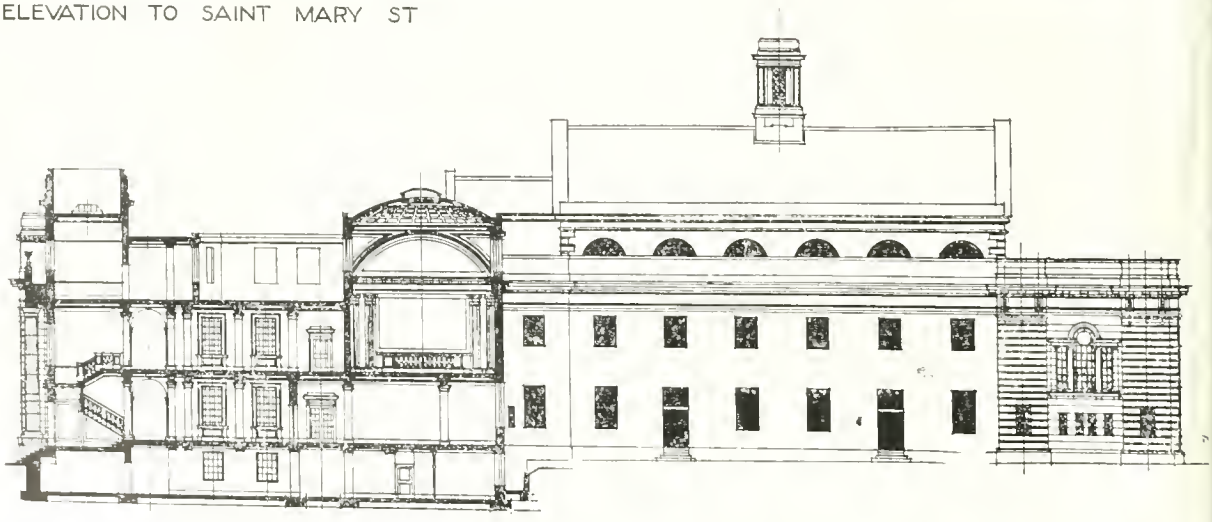

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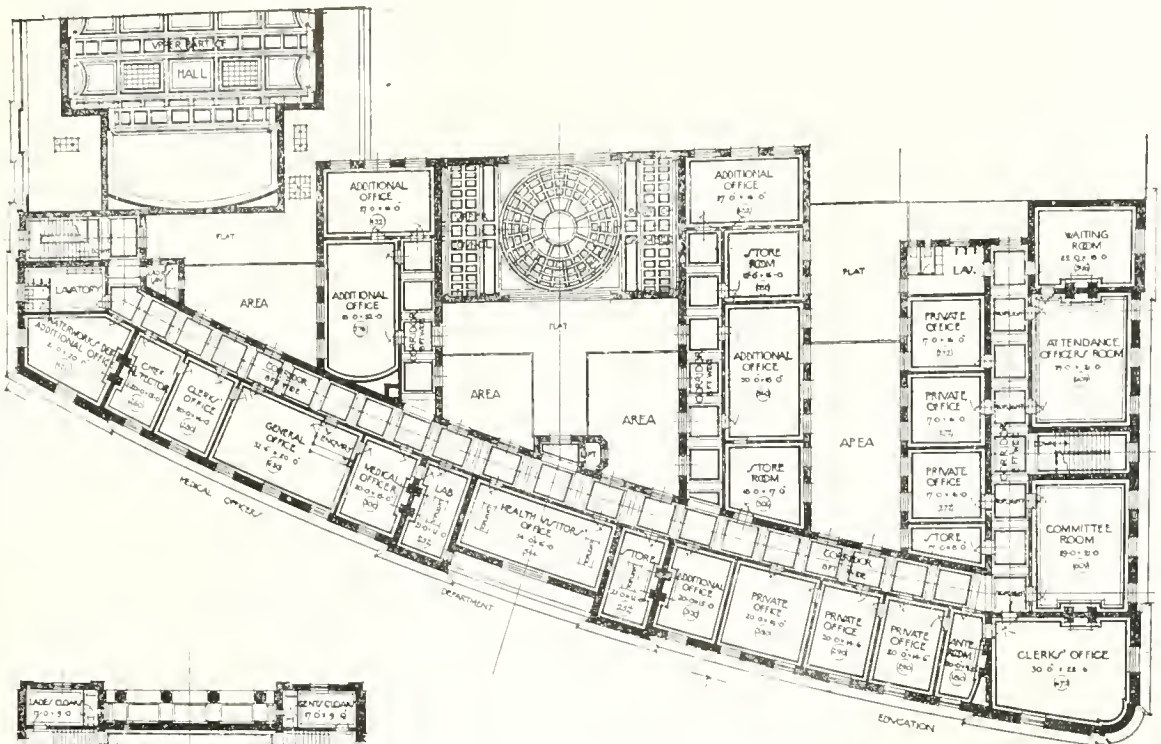
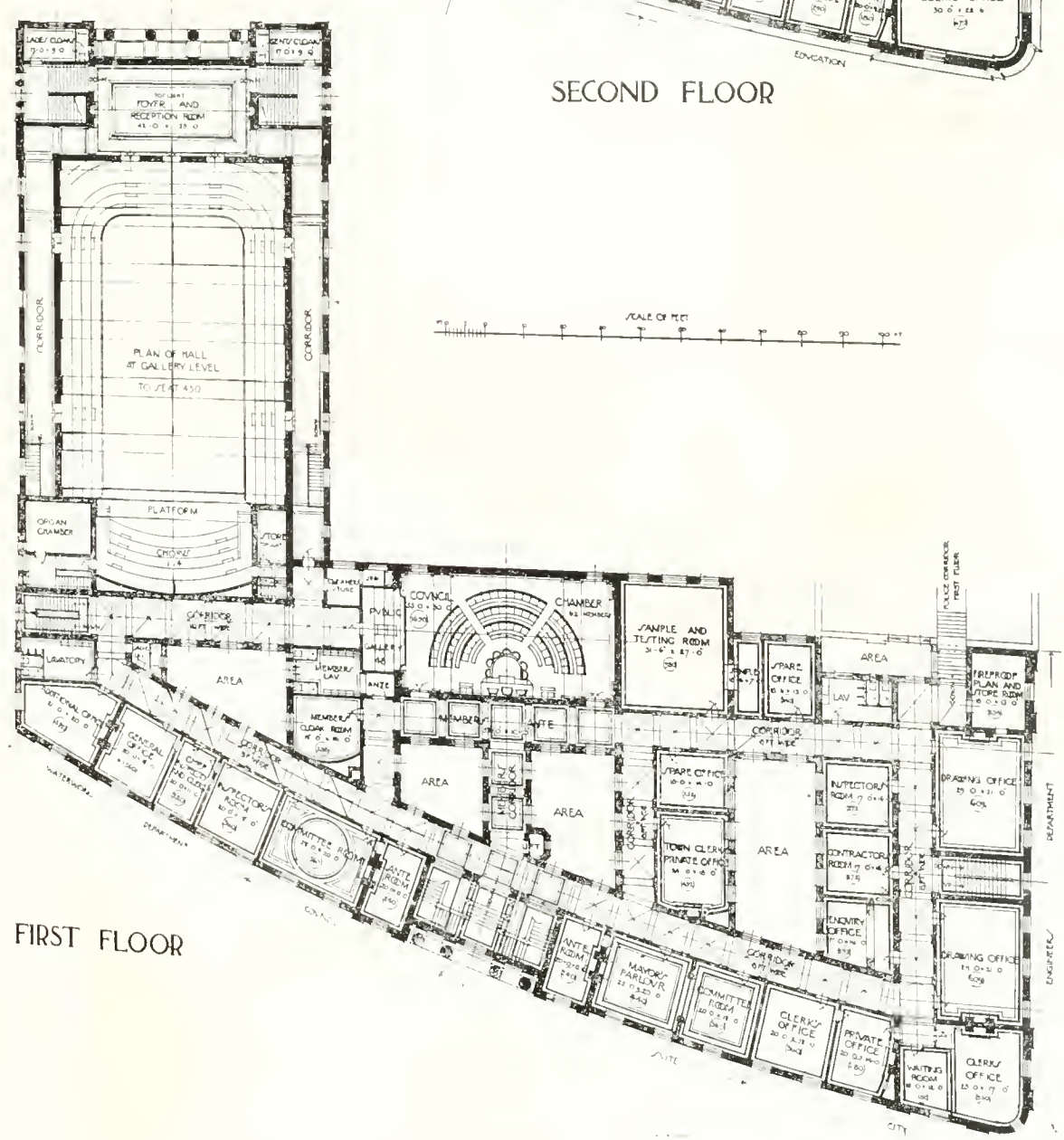
ELEVATION TO HAY LANE

COVENTRY MUNICIPAL BUILDINGS AND HALL. T



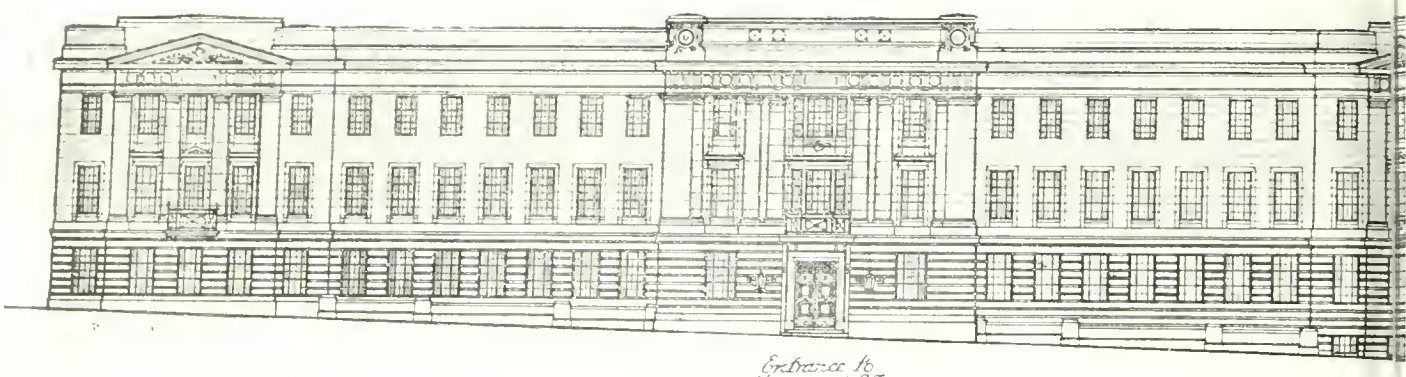
SECOND FLOOR



FIRST FLOOR

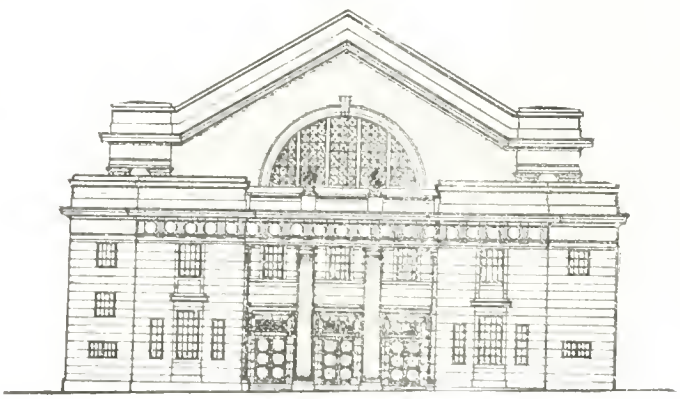
RD PREMIATED DESIGN. HERBERT J. ROWSE, Architect.

Scale of Feet



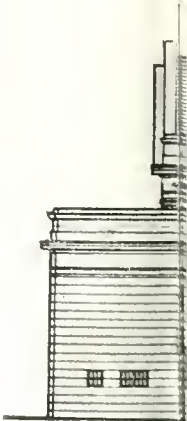
Entrance to Municipal Offices

ELEVATION TO EARL STREET



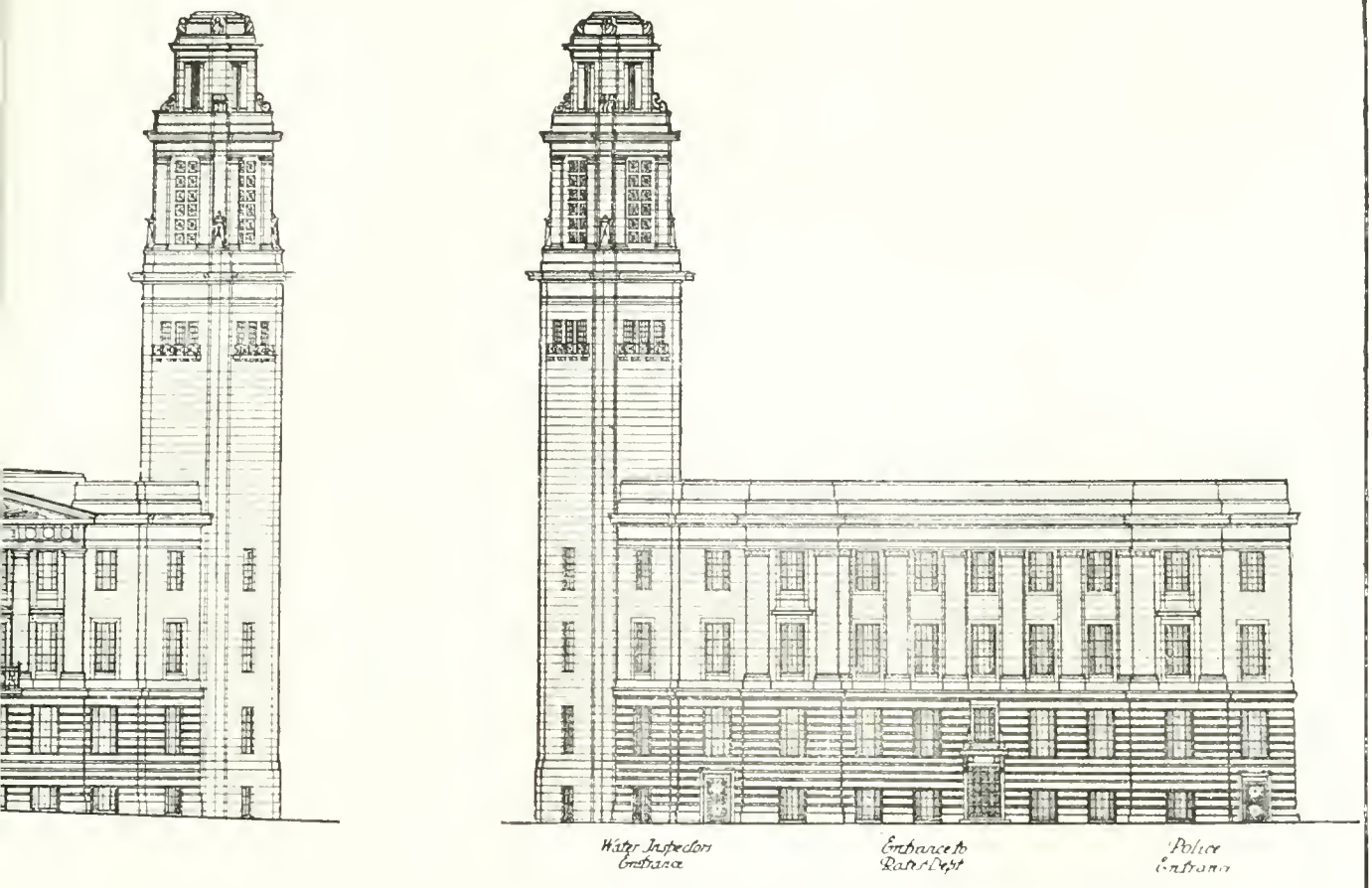
Entrance to Town Hall

ELEVATION TO BAYLEY LANE

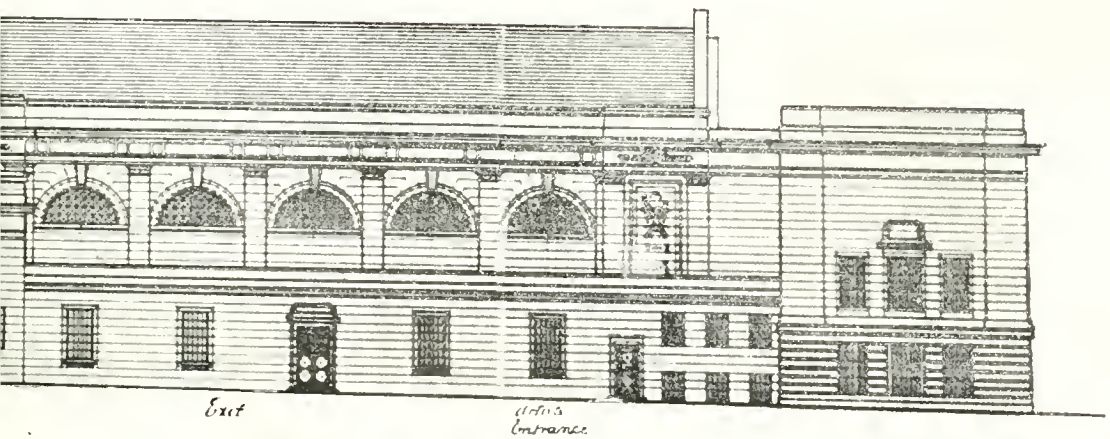


COVENTRY MUNICIPAL BUILDINGS AN

Messrs. WILLIAM E. COUCH and H.



ELEVATION TO SAINT MARY STREET



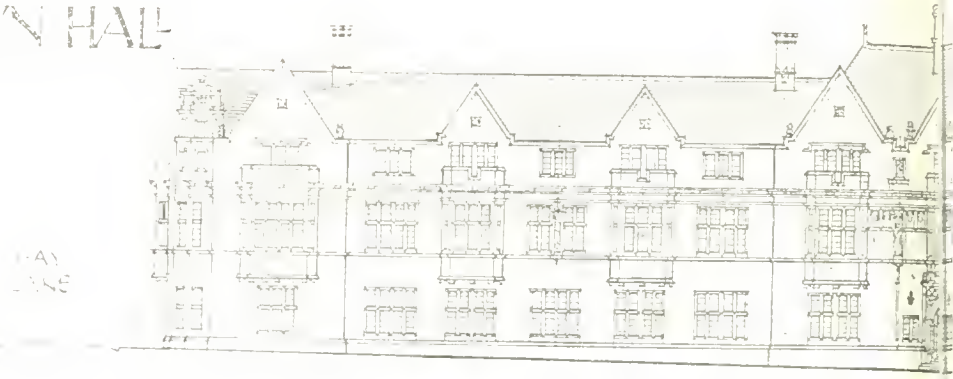
ELEVATION TO HAY LANE

HALL. SECOND PREMIATED DESIGN.

BENJAMIN BARNARD, Architects.

City of Coventry

MUNICIPAL BUILDINGS
PROPOSED TOWN HALL



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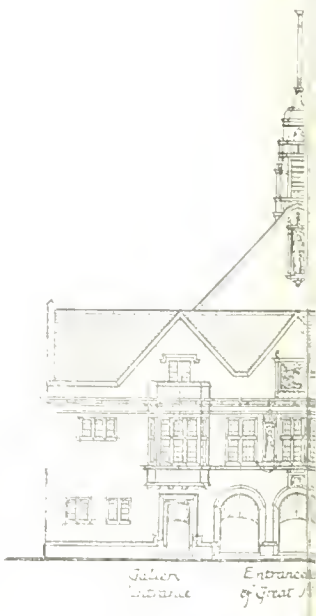

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COVENTRY MUNICIPAL BUILDINGS AN

Messrs. GARRAT, SIMISTER, BU

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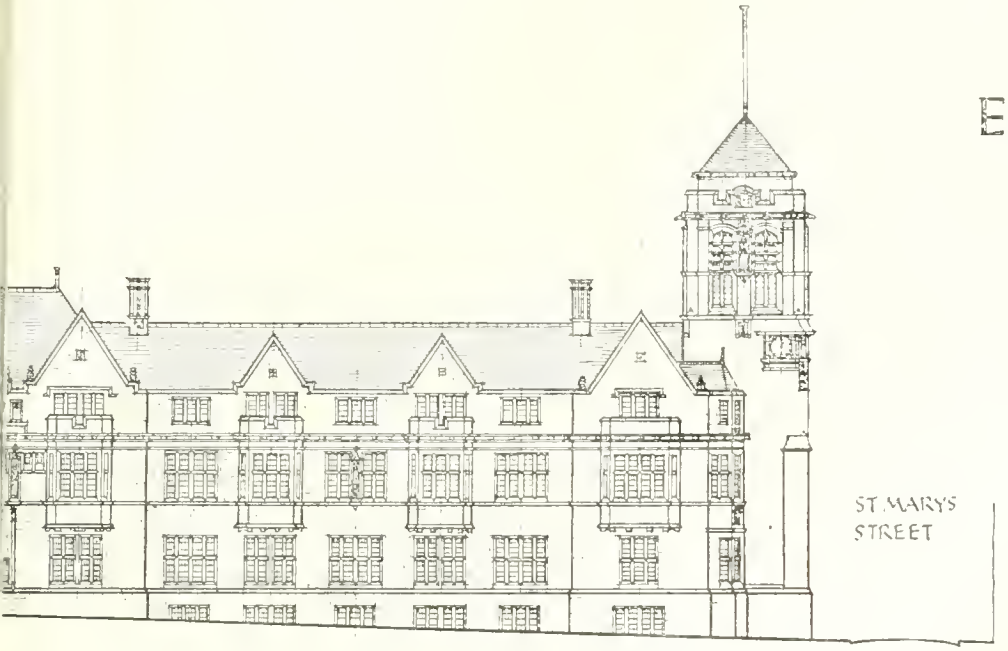

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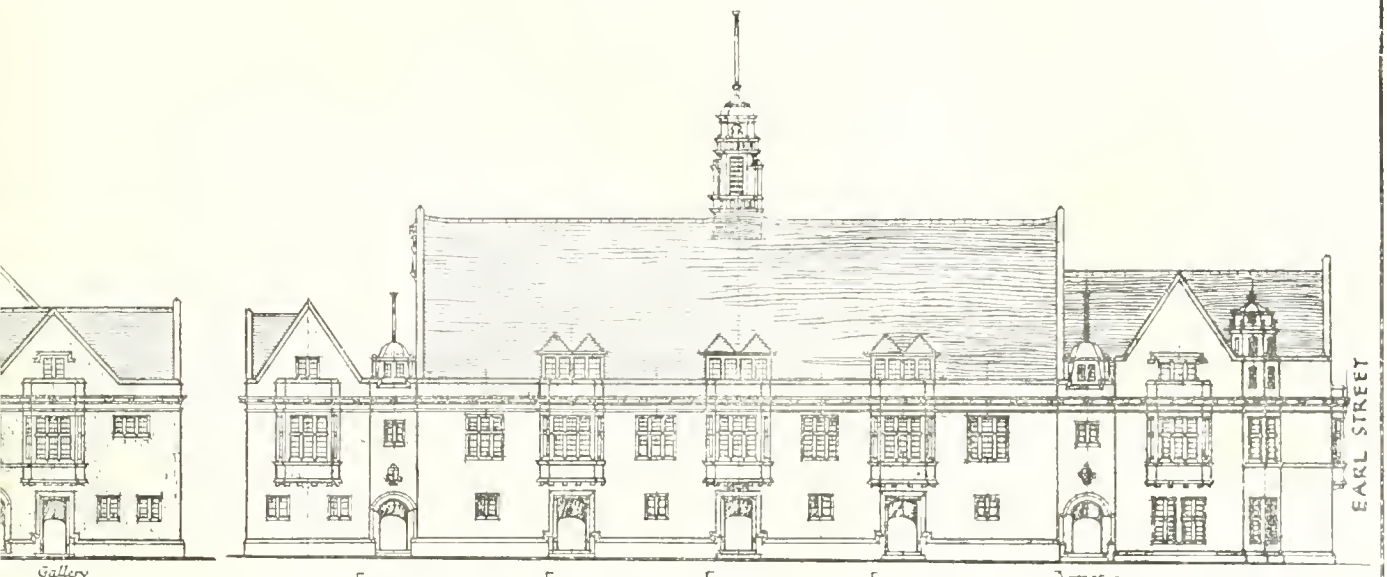
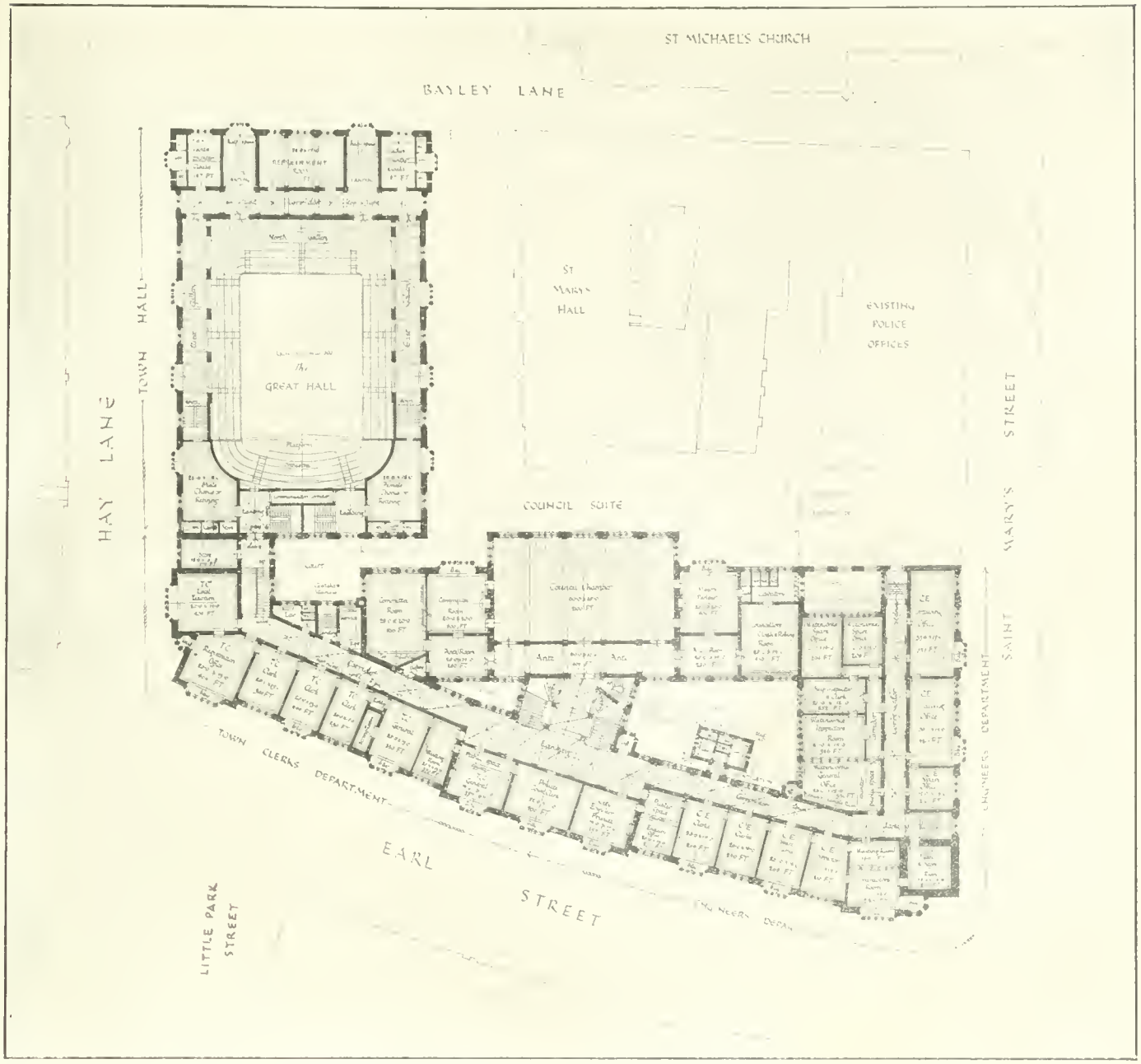
Offices



BAYLEY LANE *The* ELEVATION *to* HAY LANE

HALL. FIRST PREMIATED DESIGN.

LAND. and FARMER. Architects.



COVENTRY MUNICIPAL BUILDINGS AND HALL. FIRST PREMIATED DESIGN.
Messrs. Garrat, Simister, Buckland, and Farmer, Architects.

OBITUARY.

We regret to record the death of Mr. Alexander Koch, well known as the editor of "Academy Architecture," which has reached its thirty-eighth half-yearly volume. The deceased was in his sixty fourth year, and was a native of Zurich, where he practised as an architect previous to his settlement in London, his last residence being at Hampstead, where he died on Sunday last, after a long illness.

Mr. Thomas Armstrong, C.B., who was from 1881 to 1898 Director for Art in the old Department of Science and Art, died after four hours' illness at Abbot's Langley on Saturday, aged seventy-eight. Mr. Armstrong, who was the son of the late Mr. Thomas Armstrong, of Fallowfield, Manchester, went to Paris in 1853 to study art, where he formed friendships with Du Maurier, Poynter, and Whistler. He exhibited at the Royal Academy from 1865 to 1877, and at the Grosvenor Gallery from 1878 to 1881, when he was appointed to the post of Director of Art, a position which placed him, for practical purposes, at the head of the art schools of the country. He was also responsible for the selection of pictures in the South Kensington Museum. He executed a series of panels for the dining room in Bank Hall, Chapel-en-le-Frith, Derbyshire, in 1872.

Mr. Louis H. Jahn, the well-known pottery artist, died at Hanley, Staffordshire, on Thursday night at the age of seventy-two. He was a native of Oberweisbach, Thuringia, and, with several other Continental artists, joined the Minton firm at Stoke-on-Trent half a century ago. He became art director at Messrs. Brownfield's, china manufacturers, and designed and carried out the production of the celebrated Brownfield vase—a china globe, 15ft. high, representing the earth, and decorated to illustrate the four seasons. Two railway trucks were required to convey it to London for show at the International Exhibition at the Crystal Palace in 1869. Nine years later it was smashed on its way to the Paris Exposition, but was repaired by Mr. Jahn, only to be lost when it was brought back again to the Potteries in the fire which destroyed the Brownfield Works. Mr. Jahn subsequently acted as art director for Mintons. Since his retirement he had filled the position of curator of the Hanley Museum.

The salary of Mr. W. R. Plews, highways surveyor to the Sedgefield Rural District Council, has been increased to £200 per annum.

CHIPS.

It is proposed to take measures for restoring the parish church of Graveney, Kent, in accordance with plans and a report by Mr. W. D. Caroe, F.S.A., who estimates the cost of repairs to the walls, tower, and roof at £1,400 irrespective of internal improvements.

A beginning has been made with the construction of a sea wall for the protection from the sea of the Government Explosives Works at Crombie on the Forth. The wall is to be of ferro-concrete, and will be over a mile in length. The builders to whom the contract has been sublet are Stuarts' Granolithic Company, Edinburgh.

The Engineering Standards Committee have appointed a representative sectional committee to deal with the question of standardising vitrified ware pipes, as was decided to be desirable at a conference of manufacturers and users held in January. The chairman of the sectional committee is Mr. Maurice Fitzmaurice, C.M.G., engineer-in-chief to the London County Council.

At a meeting of the Eastbourne Rural District Council on Saturday, a contract with Mr. Herbert Holloway, of Wolverhampton, for the construction of sewerage works at Pevensey Bay at a cost of £9,116 3s. 8d. was ordered to be sealed, by seven votes to three. The demand for improved sanitation in the district has arisen mainly in consequence of the erection of a number of houses at Pevensey Bay.

THE ARCHITECTURAL ASSOCIATION

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[illegible] Associate Members

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Rossellino and the Rucellai Palace at Florence by Alberti. We shall note three novel treatments at least connected with Alberti's name, the originality of which, based upon Classical knowledge, would indicate their source in the mind of a scholar such as Alberti rather than from the ideals of the sculptor, Bernardo Rossellino. The carrying out executively as architect of the work would probably be the work of the latter, and ascription to him ensue. These three new motives are: First, the employment upon a façade of superimposed orders, as in Roman work; second, recourse to Roman examples for a pedimental treatment for a gable end; and, thirdly, the use of the order of a triumphal arch for an internal arcade. These three methods are employed successively at the Rucellai Palace, where the now traditional Florentine method of a great cornice, of the proportion of a Mediæval machicolated parapet, is employed to crown the undivided height of the elevation, is abandoned, and the Roman tier of three superimposed orders delicately applied with regular and delicate rustications. A new idea of the purpose of applied architectural features to impart interest to a composition is first attempted here since Mediæval methods ceased. It is obviously the idea of a close student of ancient Roman ideas and buildings. The return in this example to the decorative application of the Orders to the front of a building preceding the work of practical architects like Bramante and San Gallo by a dilettante student reveals itself characteristically as the imposition of a revolutionary factor in design by a powerful mind. The second treatment which we identify with Alberti is that of a pedimental treatment, for the gable elevation has especial interest in its first employment at Rimini. From the triumphal arch, erected to honour Augustus, which still remains at the beginning of the Flaminian Way, Alberti derived the direct motive for the façade of the Cathedral Church of St. Francis, which he clothed in a complete Roman garb. The ideal is manifestly the re-creation of the forms of the Imperial past; the treatment of the flanks with arched recesses for external sarcophagi is as pedantic as those beneath the caryatid vestry porticoes of St. Pancras Church in the Euston-road. The entire detachment of idea and originality of style manifested by Alberti here sets him again apart from all the traditional methods, his idea springing directly from the Roman monument of the town. The attached order, the wider arches, the roundels, the continuous base, the detached imposts to the enclosed arches are faithful to their archetype; while the gracefulness of the proportions, and the ease with which the order attaches itself to the front, are instances of sound architectural judgment. The superimposition of a second order tentatively completes the composition. The side elevation has great simplicity and power. The entire freshness of such design in the middle of the 15th century must be borne in mind; there was nothing up to this point comparable for breadth and dignity with this composition. The interior of the church is a curiously fascinating medley, illustrating, perhaps, how the mind that has become dependent on antique precedents fails in adaptability to peculiar conditions. The façades of two churches of importance also remain to illustrate the application of the pediment motive by Alberti, namely, Sta Maria Novella at Florence, and Sant Andrea at Mantua. Though very different from one another, as from Rimini, the elements of the arrangement are similar. The struggle with the aisle roofs below the clerestory have caused the introduction of the curved truss-like wings at Sta Maria Novella, the façade of which was erected by Alberti's friends, the Rucellai, in 1170. There is no great departure here from the usual type as seen at St. Miniato; but gently the whole Mediæval scheme is brought into Classical character by an element of harmonious proportion introduced by the applied orders; the absence of such designed proportions is obvious in the mere arrangement in the earlier system of marble panellings. But the façade of Sant Andrea at Mantua presents another Classical scheme. An enclosed portico is erected in front of the great body of the church, and treated by a combination of Florentine and Roman motives. If the result appears somewhat commonplace to us, it could not have been so when it stood as the pioneer of the method afterwards hackneyed by Palladio. The interior of this great church at Mantua affords us the typical example of the third Classic motive which Alberti introduced into Renaissance architecture by employing the arch enclosed by an order for the internal arcades. Alberti's plan is masterly in its simplicity, and the key obviously is the pair of pilasters to each arch, which space out the bays and give strength and simplicity to the lines of the plan. There is a naturalness about the supports of the dome at the crossing produced by this system that is quite masterly. The internal elevation of the nave is entirely simple in scheme, though it is covered with the over-rich ornament of the epoch. The simplification of the treatment around the apse is equally natural and facile. The simply-coffered vault brought right down on to the main cornice is very fine in effect. It proved convincing enough, for St. Peter's is this and little more, except greatly increased scale. Donato Bramante da Urbino, or Donato Lazzari called Bramante (Bramante means desiring), was born, according to Geymuller, in a small house outside Fermignano, near Urbino, the birth town of Raphael, in 1444, exactly forty years after Alberti. There are no reliable particulars of his early life; but we know the famous ducal palace at Urbino, the architect of which, Luciano da Lovrana, evidently exercised a considerable influence over his style, as possibly did Alberti also, before whose death, when Bramante was twenty-eight, he had worked under Andrea Mantegna at Mantua while St. Andrea was building. For the ensuing quarter of a century Bramante practised at Milan, gaining reputation by the erection of the peculiarly-planned church of San Satiro, consisting of a transept and a nave, with a chancel built in perspective upon a flat wall—a curious exercise of talent in that newly-discovered and much-practised and valued art. Bramante practised perspective nobly, providing careful designs for the architectural backgrounds of his accomplished young friend and fellow townsman, Raphael Sanzio's frescoes in the Vatican later on, when honour and distinguished patronage was not lacking. The queer chancel of San Satiro is a tour de force, and, one might almost confess, worth the effort. The principal achievement, however, is the octagonal sacristy with a polygonal cupola. This building is small and complete, and illustrates some interesting developments of domical design. It evidences, however, that Bramante had studied well the work of his contemporaries, the great Giuliano da San Gallo and his garrulous confrere, Simone Pollajuolo, at Florence, and had sought to improve upon their treatment of the pilasters of the internal angles of the octagonal. The building has a beautifully-modelled frieze by Caradossa of terracotta. Geymüller has recounted with great industry of research the various works at Milan which can be imputed to Bramante during his long residence of about twenty-eight years in the city. The remarkable front of the church of Abbiate Grasso, near Milan, is an inspiring experimental design of great boldness; it seems to have an element of pure adventure about it, and to be taking obvious risks successfully. It illustrates Bramante's earnest and constant adoption of Alberti's Romanism of the superimposed orders, and the great arched recess remained in his mind as a motive to be again experimented with when the opportunity offered. Sta Maria delle Grazie, the picturesque terracotta melange of whose exterior is so well known to us, is a brisk development of Bramante's power of drawing beautifully delicate details. There is probability in the conclusion that the upper parts were not executed by Bramante. There are interesting evidences of Bramante's hand in Como Cathedral; a comparison of his south door with Rodari's northern one very instructively reveals the work of a broader mind and a stronger sense of design. Though it was not until the fall of Ludovico Sforza, called the Moor, the Duke of Milan, in 1500, that Bramante settled in Rome, it seems that he was there in 1495, and Vasari mentions a commission to paint the arms of the Borgia Pope, Alexander VI., now destroyed, over the holy door of the Lateran Church before the beginning of the holy year 1500. Geymuller states that he was first engaged upon a commission for the Cardinal Riario in building the magnificent palace known now as the Cancellaria. This great palace is entirely designed in the scholarly manner of Alberti, with an air of Florentine dignity and refinement that one feels instinctively to be gentlemanly. In 1502 he was engaged upon the cloister of San Pietro in Montorio, a small sort of rival to the greater basilica not far off. Here he planned with fine imagination a great circular cloister surrounding a small circular temple over the sacred central spot. This temple alone was built, but even in its solitariness is a work of singular grace and charm. The purity of the forms and delicate adjustment of the proportions make this simple exercise in peristylar design almost as fascinating as a Greek temple. It appears so natural in its absolute completeness, and one marvels that such simple and relatively small works have not achieved similar success again and again; but this, indeed, has not been so. The evidence of a new and careful scholarship in this work is important to note in a man well advanced into middle life. The difference in building materials between Florence, Milan, and Rome should not be forgotten as influencing the respective schools of architecture. Bramante had worked in brickwork in Lombardy all his life, and the travertine and peperino stone were unfamiliar to him. The cloister of Sta Maria della Pace, at Rome, was added by Bramante to the church erected by his contemporary, Baccio Pontelli, who had died in 1500. This design is one of singular simplicity and grace. It is almost nervously restrained in the employment of detail; but what is used is not finicky or over-refined. When Pope Julius II. (Della Rovere) succeeded after the short reign of Pius III. (Piccolomini), Bramante was in high reputation and large practice. Vasari describes the project formed in the mind of the Pontiff for extending the buildings of the Vatican Palace, erected by Innocent VIII., to connect with the Belvedere Villa in the gardens, forming a quadrangular theatre, and enclosing a valley. Julius wished to have two loggias, one on each side of the valley, to pass to the Belvedere, ascending from the valley by a flight of steps. Bramante, who, as Vasari says, "had great judgment and a most ingenious fancy in such matters," devised an arrangement of superimposed orders represented by pilasters, which solved the levels progressively, beginning with the Doric for the part at the lowest level, then a second range of the Ionic, which became continuous from the first floor of the Palace to the ground floor of the Belvedere. A loggia of 400 paces long was thus obtained. The great niche above the Roman bronze Pine cone, which formerly stood in the atrium of old St. Peter's, is one of the magnificences of which architecture may boast; not only grand, but stimulatingly useful, and suggestive as a practical design, solving by appropriating to architectural purposes the differences of the levels. The death of Julius interrupted the work, and that of the architect occurred before he had completed more than one of the connections with the palace. The winding colonnaded staircases by Bramante are important and interesting, and seem to be the originals of the subsequent developments at the Barberini Palace by Bernini in the next century. We cannot now take up the story of Bramante's connection with St. Peter's; that is a chapter entirely by itself, and covered absolutely by Geymuller's great book. It would not be possible to display more consummate art or a more perfect judgment than were evinced by Bramante in this work. Bramante, who died on March 11, 1514, designated Raphael as his successor in the architectural direction of the works at St. Peter's. He had been his townsman at Urbino, and his intimate pupil and friend; there seems to be proof lacking as to a closer relationship.

[illegible] staff [illegible] great [illegible] James [illegible] San Gallo the younger, who [illegible] the [illegible] at St. Peter's [illegible] the [illegible] upon [illegible] [illegible] Corporation [illegible] [illegible] [illegible]

LEGAL INTELLIGENCE.

IN RE H. E. RAMSEY, ARCHITECT. A first meeting of creditors has been held under the receiving order made against Mr. Herbert Edward Ramsey, architect and surveyor, of Snow-hill, Holborn, E.C., and East Cliff Estates, Herne Bay, Kent. The Assistant Official Receiver, Mr. Walter Boyle, reported that the debtor had stated that he formerly carried on business in partnership in London and at Peckham and Herne Bay. The partnership was dissolved in 1900, and in 1903 he recommenced business at Herne Bay. He had since built a number of houses there, chiefly on the East Cliff Estates, and he valued his ownership in land and houses at Herne Bay at £60,000. The properties, however, were all subject to mortgages. The debtor estimated his unsecured liabilities at £9,000, and his assets consisted mainly of an equity of redemption in freehold land and houses, and in a wreck lying off the coast of Alderney. The failure was attributed to loss incurred in connection with salvage operations off the coast of Alderney, depreciation in the value of freehold properties, and liability on accommodation bills for which he received no consideration. The creditors, by a statutory majority, resolved that an application should be made for an adjudication in bankruptcy, and appointed Mr. Harry Wilson, incorporated accountant, as trustee of the estate, with a committee of inspection.

AN ABERDEEN GRANITE COMPANY IN LIQUIDATION.—A special meeting of the shareholders of Alexander Macdonald and Co., Ltd., granite merchants, Aberdeen, was held yesterday in the Imperial Hotel (Sir Alexander Lyon, chairman, presiding), when the resolution passed at the last meeting, that the company go into voluntary liquidation, was unanimously approved. Mr. George M'Bain, C.A., Sir Alexander Lyon, and Mr. James Mearns (warehouseman) were appointed the liquidators. The chairman said, as that was the last meeting of the shareholders of the company, it was with very great regret that he said good-bye to them all. The company had long had an honourable name in the city of Aberdeen, and he trusted it would yet be possible, by some scheme of reconstruction, to carry on the business on a modified scale, so that the name of Alexander Macdonald and Co. might be retained in connection with one of the industries of the city. The business will be carried on as usual until a considerable number of contracts on hand have been completed. There are seventy men employed at the works.

WREXHAM BUILDER'S FAILURE.—With only £20 2s. 6d. assets, against £2,063 8s. 5d. expected to rank for dividend, Joseph Walton, of Gerald-street, Wrexham, builder and contractor, presented himself for public examination on Tuesday at Wrexham Bankruptcy Court, before Mr. Registrar A. C. Preston. Attributing his insolvency to "taking work at too low a price," the debtor, in answer to the Official Receiver (Mr. Ll. Hugh Jones), said he was formerly engaged in building work on different private estates in Yorkshire, Montgomeryshire, and elsewhere. He commenced on his own account in Wrexham with a capital of £400, including £250 in debts owing to him, which were subsequently paid. He kept no separate account of the building of any of the houses while he was in business. Asked as to his method of estimating, debtor said he took out his quantities according to the size of the building; but to a certain extent the jobs were "cubed," and the price per cubic foot was rather under fourpence. He could not say what the prime cost of any of the contracts would be, and he had no materials from which it could be ascertained. The debtor said he first became aware of his insolvency last November. Examined as to his books, the debtor said he only kept a cash-book; but it was possible he might be able to prepare a cash account from May, 1909, to December, 1910, with the aid of this book and all the invoices. An account covering the period mentioned was accordingly ordered by the Registrar, and the further examination was adjourned until the June court.

MEASURES BROS., LTD.'S, FORMER MANAGING DIRECTOR SUMMONED.—ACCUSATION OF FALSE BALANCE-SHEET.—At Bow-street Police-court, yesterday (Thursday), before Mr. Marsham, Robert Herbert Measures, formerly managing director of Measures Brothers, Limited, the well-known firm of engineers and iron merchants, of Southwark-street and Croydon, appeared to an adjourned summons charging him with having made, circulated, and published a profit-and-loss account and balance-sheet for the year ended December 31, 1906, which account he knew to be false in a material particular, with intent thereby to deceive the members and shareholders of the said company, and to induce divers persons to become shareholders therein. The previous hearings of the case were fully reported in our issues of March 31 and the 14th inst., pp. 470 and 545. Mr. W. H. Leycester and Mr. A. F. Rowe conducted the case on behalf of the Director of Public Prosecutions. Mr. C. F. Gill, K.C., and Mr. J. R. Randolph appeared for the defendant. Mr. Walter Frampton and Mr. Gray Phillips held watching briefs for interested parties. Mr. Frederick John Breeze, estimating clerk to Messrs. Measures Brothers, Ltd., for the past thirty-two years, said he had had nothing to do with stocktaking for more than fifteen years. Some of the figures entered in the stock-book were dictated by the defendant. If there were serious and numerous mistakes, they should have been discovered while they were working; but it did not follow that it was so.—Cross-examined: The firm employed seventy clerks and about three hundred workmen. The defendant, who was seventy-two years old, was of humble origin. Six years ago defendant had a breakdown in health, and until that time worked exceedingly hard, often beginning work at six in the morning. While stocktaking was in progress defendant took part in ordering fresh supplies and dealing with the larger and more important estimates.—Mr. Herbert James Thomas Measures, formerly a director of Measures Brothers, Ltd., produced a list of actual expenses involved in the delivery of English and foreign goods to Measures Brothers' depots. This list was originally made by witness with Mr. Richard Thomas Measures, another former director. At the end of 1907, when defendant left the firm, a shortage of between 400 and 600 tons was discovered in the stock. Mr. Alfred John Deanberg, a director of Measures Brothers, produced a list of extra prices for special sections prepared for the shareholders' committee of inspection.—The case was adjourned till Thursday, May 11, bail being allowed as before.

The water committee of the Aberdeen Town Council have appointed Mr. Lewis Mitchell (40), water engineer, Bolton, as water engineer—a new post under the corporation. The salary is £500 per annum.

At Falmouth, on the 19th inst., Princess Alexander of Teck opened the Princess Pavilion at the Gyllyngdune Gardens, and laid the foundation of the new operating-theatre at the hospital in Melville-road.

Mr. G. P. Knowles, A.M.I.C.E., F.S.I., etc., of Victoria-street, is one of the members of the Imperial Education Conference, which is sitting at the Foreign Office this week, upon engineering and higher technical education.

Joseph Lower, 63, a retired builder and a prominent member of the Wandsworth Board of Guardians, dropped dead outside his house in Sugden-road, Clapham Common, on Friday, through chronic heart-disease, according to evidence at Monday's inquest at Battersea.

Mr. W. A. Rollason, for the past ten years head-master of the Truro School of Art, and hon. secretary to the Cornwall Art Union, died on the 16th inst., aged 48 years. He was, previously to taking up the Truro appointment, an assistant at the Birmingham School of Art.

Miss Gladys Gertrude, eldest daughter of Mr. Howard Chatfeild Clarke, F.R.I.B.A., F.S.I., of Kensington Gardens-square, W., was married on Saturday last, at St. Matthew's Church, Bayswater, to Mr. W. L. L. Roberts, eldest son of Mr. William Roberts, of Clifton, Bristol.

The Road Board have granted £2,500 towards the improvement of the Borrowdale-road, the first portion of the famous Buttermere Round over Honister. The Cumberland County Council will contribute £1,666, and the Cockermouth Rural District Council £3,323, the total cost being about £8,000.

The King Edward Memorial Committee for Sheffield have decided to erect a statue at a cost not exceeding £3,500. It was also decided that the offer of his Grace the Duke of Norfolk of a site for the cripples' home, which is part of the memorial scheme, should be accepted. The subscriptions now received amount to nearly £20,000.

On the Feast of the Annunciation, Viscount Gladstone, the Governor-General of the Union of South Africa, laid the corner-stone of the new nave and aisles of Grahamstown Cathedral. It occupies the site of a building finished in 1829 and called St. George's Church. The tower and spire, designed by Sir Gilbert Scott, were finished in 1879; the choir, with the Chapter-house and vestries, was consecrated on All Saints' Day, 1890. The present aim is to complete the cathedral by building a nave with south and north aisles and morning chapel.

Our Office Table.

The Royal Institute of British Architects has issued a useful and complete record, extending over 800 pages, of the Town-Planning Conference, held last year from October 10 to October 15. It comprises full reports of the various meetings, visits, and excursions, together with valuable reproductions of illustrations from the exhibition. Those who responded to the invitation of the Institute to share the big task it set itself, and so ably brought to a finish, may be congratulated on the publication of this very excellent volume of "Transactions." All who are interested in town planning are assured they will find it the most helpful contribution to real information thereon that has ever been gathered together.

Dr. Wace, Dean of Canterbury, writes pointing out that although £44,000 has been spent upon the reparation of Canterbury Cathedral during the last fifteen years, it is imperatively necessary to expend a further sum of £12,000 upon absolutely essential works of conservation. The great central tower was completed three years ago, and the north-west tower is nearly finished; the south-west tower, the nave pinnacles, and a few odds and ends have now to be taken in hand. The pinnacles of the south-west tower are "grievously decayed," and must be carefully repaired without delay if they are to be saved. Of the £44,000 that has already been expended, about one-tenth has been personally contributed by the Dean and Chapter, and it is now asked that the Church of England shall find the £12,000 that is still required.

The fifty-sixth annual exhibition of the Royal Photographic Society will this year be held in a fresh venue, Prince's Skating Club, Knightsbridge, easily accessible by tube or motor-'bus. An attractive feature will be a loan collection of photographs by H.M. Queen Alexandra, and there will be a large display of architectural, landscape, and natural history photographs executed by various processes. The exhibition opens with a reception and private view at 8.30 p.m. on Monday week, May 8, and remains open from Tuesday, May 9, until Wednesday, May 31, daily from 11 a.m. to 8 p.m., and afterwards for lectures until 10 p.m. The lectures will include:—"A Wayfarer in Rural Japan," Tuesday, May 9, by Harold E. Young; "A Loon in London," Saturday, May 13, by W. L. F. Wastell; "Lordly Lincoln," Thursday, May 18, by E. W. Harvey Piper; "Rottenburg and its Festival Play," Friday, May 26, by James Shaw; and "History in Caricature and Satire," by A. H. Blake, M.A.

Professor Dorpfeld, of the German Institute in Athens, states that the temple just discovered at Garitza, in Corfu, was 160ft. in length by 80ft. in breadth. On each of the smaller sides were six Doric columns. The sculptures on the western pediment of the temple were disposed as follows: In the centre was the monster Gorgon representing the powers of evil. On her right was a pursuing deity representing the powers of good. No fragment of the pediment to the right of this deity has yet been found. To the left of the Gorgon was a horse, probably with a mounted rider. To the left of the horse was a monster lion watching the fight. Behind the lion was a seated goddess, at whom a spear was being hurled. Behind the goddess was an altar, and in the corner of the pediment a fallen warrior. The temple, the professor thinks, was probably destroyed by an earthquake. The King of the Hellenes has informed the Emperor William that he and his Government have decided to concede to his Majesty all rights of excavation in connection with the remains at Garitza. Everything found is to remain in the island.

Messrs. A. Alban H. Scott and Percival M. Fraser have issued a useful "Specification of Reinforced Concrete, with General and Preliminary Clauses" (London: Witherby and Co., 3s. 6d.), based on much work carried out and many years' experience. Without

[illegible] Captain [illegible] Murray [illegible] Murray [illegible] Murray

LATEST PRICES.

IRON.

Steel Joists, Belgian and German (ex steamer, London)	Per ton	£5	12	6	to	£5	17 6
Steel Joists, English		6	10	0	,,	6	15 0
Wrought-Iron Girder Plates		7	0	0	,,	7	5 0
Steel Girder Plates		7	2	6	,,	8	2 6
Bar Iron, good Staffs		6	5	0	,,	6	10 0
Do., Lowmoor, Flat, Round, or Square		20	0	0	,,	20	0 0
Do., Welsh		6	15	0	,,	6	17 0
Boiler Plates, Iron— South Staffs		8	0	0	,,	8	15 0
Best Snedshill		9	0	0	,,	9	10 0

Angles 10s., Tees 20s. per ton extra.

Builders' Hoop Iron, for bonding, &c., £8 15s. to £9.

Builders' Hoop Iron, galvanised, £14 to £15 10s. per ton

Galvanised Corrugated Sheet Iron—

	No. 18 to 20.	No. 22 to 24.
6ft. to 8ft. long, inclusive gauge	Per ton. £13 0 0	Per ton. £13 10 0
Best ditto	13 0 0	14 0 0

Wire Nails (Points de Paris)—

3 to 7	8	9	10	11	12	13	14	15	B.W.G.
6/3	8/9	9/3	9/9	10/3	11/-	11 9	12 6	13 6	per cwt.

Per ton.

Cast-Iron Columns	£8	10	0	to	£8	10 0
Cast-Iron Stanchions	8	10	0	,,	8	10 0
Rolled-Iron Fencing Wire	8	5	0	,,	8	10 0
Rolled-Steel Fencing Wire	8	5	0	,,	8	10 0
,, ,, Galvanised	7	15	0	,,	8	6 0
Cast-Iron Sash Weights	5	0	0	,,	5	5 0
Cut Floor Brads	9	15	0	,,	—	
Corrugated Iron, 24 gauge	16	0	0	,,	—	

Galvanised Wire Strand, 7 ply,

14 B.W.G.	14	5	0	,,	—

B.B. Drawn Telegraph Wire, Galvanised—

0 to 8	9	10	11	12	B.W.G.
£10 5 0	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.

Cast-Iron Socket Pipes—

3in. diameter	£6	2	6	to	£6	7 0
4in. to 6in.	6	0	0	,,	6	5 0
7in. to 24in. (all sizes)	5	7	6	,,	6	0 0

[Coated with composition, 5s. 0d. per ton extra; turned and bored joints, 6s. 0d. per ton extra.]

Pig Iron—	Per ton.
Cold Blast, Lilleshall	110s. 0d. to 117s. 6d.
Hot Blast, ditto	70s. 0d. ,, 76s. 0d.

Wrought-Iron Tubes and Fittings—Discount off Standard Lista f.o.b. (plus 2½ per cent.) :—

Gas-Tubes	75 p.c.
Water-Tubes	72½ ,,
Steam-Tubes	67½ ,,
Galvanised Gas-Tubes	85 ,,
Galvanised Water-Tubes	62½ ,,
Galvanised Steam-Tubes	57½ ,,

OTHER METALS.

Spelter, Silesian	Per ton	£23	17	6	to	£24	2 6
Lead Water Pipe, Town		16	15	0	,,	—	
,, ,, ,, Country		17	10	0	,,	—	
Lead Barrel Pipe, Town		17	15	0	,,	—	
,, ,, ,, Country		18	10	0	,,	—	
Lead Pipe, Tinned inside, Town		18	15	0	,,	—	
,, ,, ,, ,, Country		19	10	0	,,	—	
Lead Pipe, Tinned inside and outside Town		21	5	0	,,	—	
,, ,, ,, ,, Country		22	0	0	,,	—	
Composition Gas-Pipe, Town		19	15	0	,,	—	
,, ,, Country.		20	10	0	,,	—	
Lead Soil-pipe (up to 4½in.) Town		19	15	0	,,	—	
,, ,, ,, Country		20	10	0	,,	—	

[Over 4½in. £1 per ton extra.]

Lead Shot, in 28lb. bags		24	15	0	,,	—	
Copper Sheets, sheathing & rods		69	0	0	,,	69	10 0
Copper, British Cake and Ingot		57	5	0	,,	57	15 0
Tin, Straits		194	10	0	,,	195	0 0
Do., English Ingots		192	10	0	,,	193	0 0
Do., Australian		193	10	0	,,	194	0 0
Do., Bars		193	10	0	,,	194	0 0
Pig Lead, in 1cwt. pigs		14	2	6	,,	—	
Sheet Lead, Town		16	5	0	,,	—	
,, ,, Country		17	0	0	,,	—	
Genuine White Lead		21	0	0	,,	—	
Refined Red Lead		19	0	0	,,	—	
Sheet Zinc		32	5	0	,,	—	
Old Lead, against account		11	18	9	,,	—	
Tin	per cwt.	11	0	0	,,	—	
Cut Nails (per cwl. basis, ordinary brand)		0	10	8	,,	—	

TIMBER.

CONSTRUCTIONAL.

Per St. Petersburg Standard (100—12ft. by 1½in. by 1 in.)

Yellow Pine Deals, Quebec, 1st quality		£34	0	0	to	£42	0 0
,, ,, ,, 2nd ,,		24	0	0	,,	26	0 0
,, ,, ,, 3rd ,,		16	10	0	,,	18	0 0
Spruce Deals: St. Johns		8	0	0	,,	11	0 0
,, ,, Miramichi		7	6	0	,,	8	10 0
,, Boards: Swag		7	0	0	,,	8	0 0
Red Deals: Archangel 1st quality		20	10	0	,,	21	10 0
,, ,, ,, 2nd ,,		15	0	0	,,	17	0 0
,, ,, ,, 3rd ,,		11	0	0	,,	12	0 0
,, ,, St. Petersburg— 1st quality		18	0	0	,,	17	0 0
,, ,, ,, 2nd ,,		13	0	0	,,	14	10 0
,, ,, Wyburg & Uleaborg		10	0	0	,,	12	0 0
,, ,, Gefle, Gothenburg, and Stockholm		10	0	0	,,	17	0 0
White Deals: Crown		10	0	0	,,	12	0 0
,, ,, Seconds		9	10	0	,,	10	0 0
Flooring: White and Planed— 1st and 2nd quality mixed		9	0	0	,,	9	5 0
1st, 2nd, and 3rd quality mixed		8	5	0	,,	8	10 0
Red Planed, 1st quality		11	5	0	,,	11	10 0
Pitch Pine: Prime Deals and Boards		17	0	0	,,	20	0 0
Lignum Vitæ		5	10	0	,,	12	0 0
	Per foot super, as 1in.						
Yellow Pine Logs (waney board)		0	2	9	,,	0	4 3
Pitch Pine Logs		0	1	8	,,	0	1 10
Birch: Quebec Logs		0	2	0	,,	0	2 6
Oak: Austrian Wainscot		0	7	0	,,	0	8 0
Mahogany: Gaboon		0	6	1½	,,	0	6 2½

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (50c.ft.)		£20	0	0	to	£21	10 0
,, Java ,, ,,		15	0	0	,,	18	0 0
	Per cubic foot.						
Oak Planks: U.S.A., imported		0	1	9	to	0	2 6
,, Boards ,, ,, Prm.		0	2	4	,,	0	2 9
,, ,, ,, Mdm.		0	1	10	,,	0	2 2
Sequoia (Californian Redwood)		0	3	0	,,	0	3 6
Birch: Quebec logs		0	1	8	,,	0	2 2
,, ,, sawn planks		0	1	0	,,	0	1 2
Oak: Austrian Wainscot		0	8	0	,,	0	7 0
Walnut: Prime boards & planks		0	6	0	,,	0	6 0
,, Mdm. ,, ,,		0	3	4	,,	0	3 6
Greenheart: Hewn logs		0	3	8	,,	0	4 8
Cedar: Cigar box		0	3	6	,,	0	4 8
Satin Walnut: Imp. sawn boards, prime		0	2	3	,,	0	2 8
Orham: Imp. sawn boards, prime		0	1	10	,,	0	2 2
Mahogany: St. Domingo, Cuba, and Honduras	Per foot of lin.	0	0	5½	to	0	0 8
,, African, Assinee, &c.		0	0	4½	,,	0	0 9
,, Lagos and Benin		0	0	3½	,,	0	0 4½
,, Sekondi and Cape Lopez		0	0	2½	,,	0	0 3½
,, Gaboon		0	0	1½	,,	0	0 0
Satinwood: West Indian		0	0	10	,,	0	2 2
Rosewood	Per ton	7	0	0	,,	12	0 0
Lignum Vitæ	,,	4	0	0	,,	11	10 8

STONE.*

Red Mansfield, in blocks	per foot cube	£0	2	4		
Darley Dale, ditto	,, ...	0	2	3		
Red Corschill, ditto	,, ...	0	2	2		
Closeburn Red Freestone, ditto	,, ...	0	2	0		
Ancaster, ditto	,, ...	0	1	10		
Greenshill, ditto	,, ...	0	1	10		
Chilmark, ditto (in truck at Nine Elms)	,, ...	0	1	9		
Beer, ditto	,, ...	0	1	6		
Hard York, ditto	,, ...	0	2	10		
Ditto ditto 6in. sawn both sides, landings, random sizes	per foot sup.	0	2	8		
Ditto ditto 3in. slab sawn two sides, random sizes	,, ...	0	1			

* All F.O.R. London.

Bath Stone, delivered on rail at quarry stations	per foot cube	0	1	0		
Delivered on road waggons, Paddington Depot	,, ...	0	1	8½		
Ditto ditto, Nine Elms Depot	,, ...	0	1	8½		
Beer Stone, delivered on rail at Seaton Station	,, ...	0	1	0		
Ditto, delivered at Nine Elms Station	,, ...	0	1	6		

Portland Stone, in random blocks of 20ft. averags :—

	Brown Whit Bed.			White Base Bed.		
Delivered to railway depot at the quarry ... per foot cube	£0	1	5½ ...	£0	1	7½
Delivered on road waggons at Paddington Depot ... Ditto, Nine Elms Depot ... Ditto, Pimlico Wharf ... ,, ...	0	2	1 ...	0	2	2½

SLATES.

	In.	In.	£	s.	d.	
Blue Portmadoc	20 × 10	...12	12	6	per 1000 of 1200 at r.stn.	
,, ,,	18 × 8	.. 6	12	6	,,	,, ,,
Blue Bangor	20 × 10	...13	2	6	,,	,, ,,
,, ,,	20 × 12	...13	17	6	,,	,, ,,
First quality	20 × 10	...13	0	0	,,	,, ,,
,, ,,	20 × 12	..13	15	0	,,	,, ,,
,, ,,	16 × 8	.. 7	5	0	,,	,, ,,
Eureka unfading green	20 × 10	...15	17	6	,,	,,
,, ,,	20 × 12	...18	7	8	,,	,, ,,
,, ,,	18 × 10	...13	5	0	,,	,, ,,
,, ,,	18 × 8	...10	6	0	,,	,, ,,
Permanent green	20 × 10	...11	12	6	,,	,, ,,
,, ,,	18 × 10	.. 9	12	6	,,	,, ,,
,, ,,	16 × 8	.. 6	12	6	,,	,, ,,

BRICKS.

(All prices net.)

Hard Stocks	£1	6	6	per 1,000 alongside, in river
Rough Stocks and Grizzles	1	6	0	,, ,, ,,
Picked Stocks for Facings	2	10	0	,, delivered ,, at railway station.
Flettons	1	8	0	,, ,, ,,
Pressed Wire Cuts	1	18	0	,, ,, ,,
Red Wire Cuts	1	14	0	,, ,, ,,
Best Fareham Red	3	12	0	,, ,, ,,
Best Red Pressed Ruabon Facing	5	0	0	,, ,, ,,
Best Blue Pressed Staffordshire	3	15	0	,, ,, ,,
Ditto Bullnose	4	0	0	,, ,, ,,
Best Stourbridge Fire Bricks	3	14	0	,, ,, ,,
2½″ Best Red Accrington Plastic Facing Bricks	4	10	6	,, Net, delivered in full truck loads in London.

Per 1,000

3½″ Accrington Best Red Plastic Facing Bricks	£2	10	0	
3½″ Ditto Second Best Plastic ditto	2	2	6	
Ditto Ordinary Second Bricks	1	11	3	
Ditto Plastic Engineering Bricks	1	17	6	
Sewer Arch Brick, not more than 3½″ at thickest part	2	0	0	
3½″ Chimney Bricks fit for outside work	2	6	0	
3½″ Ditto Ditto through and through	2	0	0	
3½″ Beaded, Ovolo and Bevel Jambs; Octagons; 2½″ and 3″ radius Bullnoses; Stock patterns	3	7	6	
Accrington Air Bricks, 9″ × 2 course deep, each	0	0	6	
Ditto Ditto 9″ × 1 course, each	0	0	3	

Accrington Camber Arches :—

3 course deep, 4½″ soffit, per foot opening					...	0	1 3
4	ditto	4½″	ditto	ditto	ditto	...	0	1 8
5	ditto	4½″	ditto	ditto	ditto	...	0	2 1
6	ditto	4½″	ditto	ditto	ditto	...	0	2 6
3	ditto	9″	ditto	ditto	ditto	...	0	2 1
4	ditto	9″	ditto	ditto	ditto	...	0	2 11
5	ditto	9″	ditto	ditto	ditto	...	0	3 9
6	ditto	9″	ditto	ditto	ditto	...	0	4 6

Net, free on rail or free on boat at works.

GLAZED BRICKS.*

HARD GLAZES. (PER 1,000.)

White, Ivory, and Salt Glazed. Best.	Seconds.	Buff and Cream.	Other Colours.	Second Colours.
Stretchers— £10 17 6	£9 7 6	£12 7 6	£16 7 6	£10 17 8
Headers— 10 7 6	8 17 6	11 17 6	15 17 6	10 7 8
Quoins, Bullnose, and 4½in. Flats— 13 17 6	12 17 6	16 7 6	19 17 8	14 7 6
Double Stretchers— 16 7 6	14 17 6	19 7 6	22 17 6	16 7 8
Double Headers— 13 7 6	11 17 8	16 7 6	19 17 8	13 7 8
One side and two ends, square— 17 7 6	15 17 6	20 7 6	24 17 8	17 7 8
Two sides and one end, square— 18 7 6	16 17 6	21 7 6	25 7 6	18 7 8
Splays and Squints— 15 17 6	14 7 6	20 7 6	23 7 8	15 17 6
Plinth and Hollow Bricks. Stretchers and Headers— 5d. each	4d. each	6d. each	6d. each	5d. each
Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres— 5d. each	4d. each	6d. each	6d. each	5d. each
Rounded Internal Angles— 4d. each	3d. each	5d. each	5d. each	4d. each

MOULDED BRICKS.

Stretchers and Headers— 8d. each	8d. each	8d. each	6d. each	8d. each
Internal and External Angles— 1/2 each	1/2 each	1/2 each	1/2 each	1/2 each
Cill Bullnose, Stretchers and Headers— 5d. each	4d. each	6d. each	6d. each	5d. each

	Per 1,000
Majolica or Soft Glazed Stretchers and Headers	£21 17 6
,, ,, ,, Quoins and Bullnose	26 17 8
Compass bricks, circular and arch bricks of single radius £6 per 1,000 over above list for their respective kinds and colours	Not exceeding 9in. × 4½in. × 2½in.
Camber arch brick, any kind or colour, 1s. 2d. each	

Stretchers cut for Closers and Nicked Double Headers, £1 per 1,000 extra.

* These prices are carriage paid in full truck loads to London stations.

	s.	d.	
Thames and Pit Sand	7	0	per yard, delivered.
Thames Ballast	5	8	,, ,,
Best Portland Cement	28	0	per ton, ,,
Best Ground Blue Lias Lime	19	0	,, ,,

Exclusive of charge for sacks.

Grey Stone Lime	11s. 6d. per yard, delivered
Stourbridge Fireclay in sacks	27s. 0d. per ton at rly. stn.

TILES.

	s.	d.		Delivered
Plain red roofing tiles	42	0	per 1000	at rly. stn.
Hip and Valley tiles	3	7	per doz.	,, ,,
Broseley tiles	60	0	per 1000	,, ,,
Ornamental tiles	52	8	,,	,, ,,
Hip and Valley tiles	4	0	per doz.	,, ,,
Ruabon red, brown, or brindled do. (Edwards)	57	8	per 1000	,, ,,
Ornamental do.	60	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	0	,,	,, ,,
Selected "Perfecta" roofing tiles :—Plain tiles (Peake's)	46	0	per 1000	,, ,,
Ornamental do.	48	6	,,	,, ,,
Hip tiles	3	10½	per doz.	,, ,,
Valley tiles	3	4½	,,	,, ,,
"Rosemary" brand plain tiles	48	0	per 1000	,, ,,
Ornamental tiles	60	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	8	,,	,, ,,
Staffordshire (Hanley) Reds or Brindled tiles	42	6	per 1000	,, ,,
Hand-made sand-faced	45	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,
"Hartshill" braud plain tiles, sand-faced	50	0	per 1000	,, ,,
Pressed	47	6	,,	,, ,,
Ornamental do.	50	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,

OILS.

Rapeseed, English pale, per tun		£28	15	0	to	£29	5 0
Do., brown	,, ...	26	15	0	,,	27	6 0
Cottonseed, refined	,, ...	29	0	0	,,	30	0 0
Olive, Spanish	,, ...	39	10	0	,,	40	0 0
Seal, pale	,, ...	21	0	0	,,	21	10 0
Cocoanut, Cochin	,, ...	46	0	0	,,	46	10 0
Do., Ceylon	,, ...	42	10	0	,,	43	0 0
Do., Mauritius	,, ...	42	10	0	,,	43	0 0
Palm, Lagos	,, ...	32	6	0	,,	33	5 0
Do., Nut Kernel	,, ...	35	0	0	,,	35	10 0
Oleine	,, ...	17	6	0	,,	19	6 0
Sperm	,, ...	30	0	0	,,	31	0 0
Lubricating U.S.	per gal.	0	7	0	,,	0	8 0
Petroleum, refined	,,	0	0	8½	,,	0	0 6½
Tar, Stockholm	per barrel	1	8	0	,,	1	10 6
Do., Archangel	,,	0	19	6	,,	1	0 0
Linseed Oil	per gal.	0	4	1	,,	—	
Baltic Oil	,,	0	4	4	,,	—	
Turpentine	,,	0	5	7	,,	—	
Putty (Genuine Linseed Oil)	per cwt.	0	11	0	,,	—	
,, Pure Linseed Oil, "Stority" Brand	,,	0	10	0	,,	—	

GLASS (IN CRATES).

	15oz.	21oz.	26oz.	32oz.
English Sheet Glass : Fourths	1¾d.	2¾d.	3¾d.	4¾d.
Thirds	2¾d.	3¾d.	4d.	5d.
Fluted Sheet	2¾d.	3¾d.	6d.	6¾d.
Hartley's English Rolled Plate :	⅛in. 2¼d.	3/16in. 2¾d.	¼in. 3d.	
Figured, Rolled, and Repoussine :		White. 3¼d.	Tinted. 5d.	

LIST OF COMPETITIONS OPEN.

Sofia, Bulgaria—State at I Mat...	£280, £120, £80, £4	Kreis-Permanenz-Ausschuss, Sofia, Bulgaria	April 30
Swansea—Castle-street I... (Assoc. S. S. Reay, F.R.I.B.A.)	£50	The Town Clerk, Guildhall, Swansea	May 5
Devizes—Additions to ... Hospital	£10 10s.	E. Thorp, Hon. Secretary, Devizes	,, 10
Barstow, Guildford—... Labourers' Cotts.		H. P. Smallpeice, Clerk, 138, High-street, Guildford	,, 26
Aspatria—Sewerage Scheme		F. Richardson, Clerk, Aspatria, Cumberland	June 10
Athens—Court of Justice ... £1[illegible]	£400, £320	Comm. Intel. Branch, Board of Trade, 73, Basinghall-street, E.C.	Aug. 8
Glasgow—Alexander Thomson Travelling Studentship	£60, £20	C. J. Maclean, Secretary, 115, St. Vincent-street, Glasgow	Dec. 29
Portessie, Buckie—Wesleyan Chapel		The Rev. J. Haslam, Wesleyan Manse, Portessie, N.B.	No date

LIST OF TENDERS OPEN.

BUILDINGS.

Cleadale Hulme—Police Station		H. Beswick, F.R.I.B.A., County Architect, Newgate-st., Chester	April 28
Stockton Heath—Police Station		H. Beswick, F.R.I.B.A., Architect, Newgate-street, Chester	,, 28
Carlisle—Disinfecting Chambers at Fever Hospital		J. W. Benwell, Architect, 28, Lowther-street, Carlisle	,, 28
Aberdeen—House and Shop	T. Day	D. J. Lougher, Architect, Bank Chambers, Pontypool	,, 29
Ynysmudw, Pontardawe—New Church		J. C. Rees, Architect, Parade Chambers, Neath	,, 29
Ushaw Moor—P.M. Church and School		J. W. F. Phillipson, Architect, 8, Grainger-street, Newcastle-on-T.	,, 29
Kirnemuir—Drill Hall	Forfar Territorial Force Association	D. Waterston, Architect, Glamis	,, 29
Goole—Four Shops in Pasture-road		Chambers and Son, Architects, Goole	,, 29
Buckie—Bakehouse, 36, East Church-street	Mrs. Bruce	J. Jamieson, Architect, Elgin	,, 29
Mutford—School (120 places)	Suffolk Education Committee	J. Webb, Surveyor, County Hall, Ipswich	May 1
Seaford—Refuse Destructor and Chimney	Urban District Council	Pollard and Tingle, Engineers, 31, Old Queen-street, Westminster	,, 1
Richmond, Surrey—New Drill Hall	Surrey Territorial Force Association	Robinson and Roods, Sons., 8, New-court, Carey-street, W.C.	,, 1
Merthyr Tydfil—Sixteen Houses at Brecon-road	Brecon-road Building Club	O. P. Bevan, Architect, "Express" Chambers, Merthyr Tydfil	,, 1
Ebbw Vale—Twenty-eight Semi-Detached Villas	Badminton Grove Building Club	W. Harris, Architect, Bank Chambers, Bargoed	,, 1
Morley—Additions to Tingley Cottage	H. A. Bradley	T. A. Buttery, L.R.I.B.A., Queen-street, Morley	,, 1
Staincross—Parsonage		R. and W. Dixon, Architects, 5, Eastgate, Barnsley	,, 1
Maryport—Picture Palace, Senhouse-street	Graves Bros.	Oliver and Dodgshun, FF.R.I.B.A., Architects, Carlisle	,, 1
Kirkliston—Additions to Public School	School Board	W. M. Scott, Architect, Linlithgow	,, 1
Heathfield—New Classroom at Vine Cross School	East Sussex Education Committee	F. J. Wood, County Surveyor, County Hall, Lewes	,, 1
Derby—Slaughter-house at Refuse Destructor	Corporation	J. Ward, M.I.C.E., Boro' Surveyor, Babington-lane, Derby	,, 1
Alvie—Manse	Scotland United Free Church	A. Cattanach, Architect, Kincraig	,, 1
Crumlin—Goods Shed	Great Western Railway Co.	A. E. Bolter, Secretary, Paddington Station, W.	,, 2
Blaydon-on-Tyne—Station Buildings	North-Eastern Railway Co.	William Bell, Architect, Central Station, Newcastle-on-Tyne	,, 2
Slough—Bakery	Co-Operative Society, Ltd.	W. T. Whalley, Managing Secretary, High-street, Slough	,, 2
Lincoln's Inn-fields, W.C.—Additions &c., to Casual Wards	Strand Guardians	A. A. Kekwick, M.S.A., Architect, 12, Norfolk-street, Strand	,, 2
Milnsbridge—Additions to Showrooms	Longwood Gas Co.	Lunn and Kaye, Architects, Milnsbridge, Huddersfield	,, 2
Tollesbunt d'Arcy—Six Cottages	Maldon Rural District Council	W. Almond, Surveyor, Market-hill, Maldon	,, 2
Cambridge—Shelter at Cattle Market	Town Council	The Borough Engineer, Guildhall, Cambridge	,, 2
Stockton-on-Tees—Additions to Workhouse	Guardians	J. Rodham, 16, Finkle-street, Stockton-on-Tees	,, 2

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Closets. Sinks.

Drain and Soil Pipes & Fittings

R.W. Goods.

General Castings.

Electric Light & Gas Fittings.

Wall Papers.

Leaded Light Windows.

BUILDINGS—*continued.*

Llancaiach—New Station	Great Western Railway Co.	A. E. Bolter, Secretary, Paddington Station, W.	May	2
Ebbw Vale—Waunlwyd and Victoria Institute	Committee	F. J. Veall, Architect, 6, Arcade Chambers, High-street, Cardiff	,,	2
Crosshills—Rebuilding Joinery Works	W. Smith and Co.	J. Hartley, Architect, Skipton	,,	2
Bradford—Rebuilding Queen Hotel, Listerhills-road	Corporation	The City Architect, Town Hall, Bradford	,,	2
Rhymney—Repairing Royal Hotel	A. Buchan and Co.	T. Roderick, Architect, Ashbrook House, Aberdare	,,	3
Eltham—New Post office	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,,	3
Bargoed—Repairing Old Mill Hotel	A. Buchan and Co.	T. Roderick, Architect, Ashbrook House, Aberdare	,,	3
Selby—Post-office and Shop	Colonel Hawdon	Thorp and Turner, Architects, Goole	,,	3
Pontlottyn—Repairing Railway Inn	A. Buchan and Co.	T. Roderick, Architect, Ashbrook House, Aberdare	,,	3
Nuneaton—Alterations to Cottage		F. C. Cook, Borough Surveyor, Nuneaton	,,	3
Wallsall—Bathroom at Hospital		Bailey and McConnal, FF.R.I.B.A., Kingscourt, Walsall	,,	3
Falkirk—New Block at Camelon Hospital	Stirling County Council	A. and W. Black, Architects, Falkirk	,,	3
Alton—Additions to Eggars Grammar School	Governors	M. G. Pechell, Architect, 7, John-street, Bedford-row, W.C.	,,	3
Saltash—Farmhouse	E. W. Rashleigh	J. Sansom, F.R.I.B.A., Liskeard	,,	4
Wandsworth—Committee Room at Workhouse, Swaffield-rd.	Guardians	F. W. Piper, Clerk, St. John's-hill, Wandsworth, S.W.	,,	4
Medomsley Edge—Two Houses	T. Hunter	T. H. Murray, Architect, Consett	,,	4
Glasgow—Villas	Corporation	A. W. Myles, Town Clerk, City Chambers, Glasgow	,,	4
Edmundbyers—Villa	J. Bell	T. H. Marray, Architect, Consett	,,	4
Higham, Barnsley—Additions to School	Managers	R. and W. Dixon, Architects, 5, Eastgate, Barnsley	,,	5
Cosby—School	Leicestershire Education Committee	The Architect, 33, Bowling-green-street, Leicester	,,	5
Craigyrros—School (1,200 places)	Rhondda Urban District Council	J. Rees, Architect, Hillside Cottage, Pentre	,,	5
Gawber—Six Houses		R. and W. Dixon, Architects, 5, Eastgate, Barnsley	,,	5
Pentre—Lodge, Treslaw Cemetery	Rhondda Urban District Council	W. J. Jones, Engineer, Council Offices, Pentre	,,	5
Halifax—Converting Lodge into Detached Villa		Madley Hall and Sons, Architects, 1, Harrison-road, Halifax	,,	5
Silloth—Five Houses		J. R. Thomson, 13, Esk-street, Silloth	,,	6
Merthyr Tydfil—Stables, Quarry-row	J. James	O. P. Bevan, Architect, Express Chambers, Merthyr Tydfil	,,	6
Wimbledon—Alterations to Isolation Hospital, Gap-road	Corporation	The Borough Engineer, Town Hall, Wimbledon	,,	6
Pontyberem—Alterations at Caersalem Cong. Chapel		W. B. Rees, Architect, 3, Dumfries-place, Cardiff	,,	8
Southampton—Out-patients' Department	Hospital Committee	T. A. Fisher Hall, Secretary, Southampton	,,	8
Morley—Villa, Victoria-road	C. Scarf	T. A. Buttery, L.R.I.B.A., Queen-street, Morley	,,	8
Nantybwch—Forty-eight Houses	Ashgrove Building Club	W. Harris, Architect, Bank Chambers, Bargoed	,,	9
Chadsmoor—Primitive Methodist Church	Trustees	Jeffries and Shipley, Architects, 24, Bridge-street, Walsall	,,	9
Horwich—Infants' School (400 places)	Lancashire Education Committee	H. Littler, Architect, 16, Ribblesdale-place, Preston	,,	10
Edmonton, N.—Escape Stairs at Workhouse Nurses' Home	Guardians	J. C. S. Mummery, Architect, 13, Fitzroy-square, W.	,,	10
Tonypandy—Rebuilding Pandy Inn	Rhondda Valley Breweries Co., Ltd.	R. S. Griffiths, M.S.A., Tonypandy	,,	10
Goole—Additions to Workhouse Hospital	Guardians	Thorp and Turner, Architects, Carlisle-street, Goole	,,	10
Barking—Electricity Works Extension	Urban District Council	C. F. Dawson, Surveyor, Public Offices, Barking	,,	10
Annan—Boiler-house at Infectious Diseases Hospital		D. A. Knox, Clerk, Annan	,,	11
West Bromwich—Manual Instruction Rooms at School	Education Committee	A. Long, Architect, West Bromwich	,,	12
Mile End, Colchester—Detached Buildings at Second Asylum	Visiting Committee	W. P. Gepp, Clerk, New-street, Chelmsford	,,	12
West Bromwich—Class Rooms	Education Committee	A. Long, Architect, West Bromwich	,,	12
Maidstone—County Offices	Kent County Council	The County Architect, 86, Week-street, Maidstone	,,	15
Wenford Bridge—China Clay Kiln and Tanks	North Cornwall China Clay Co.	W. H. Patchell, M.I.C.E., Caxton House, Westminster, S.W.	,,	15
Maidstone—Alterations to Sessions House	Kent County Council	The County Architect, 86, Week-street, Maidstone	,,	15
Ebbw Vale—Twenty-nine Workmen's Dwellings, Old Gantre	Beaufort Building Club	W. Harris, Architect, Bank Chambers, Bargoed	,,	16
Caerleon—County Training College	Monmouthshire Education Com.	Swash & Son, FF.R.I.B.A., Midland Bk. Chmbrs., Newport, Mon.	,,	16
Droylsden—School, Fairfield-road (810 places)	Lancashire Education Committee	H. Littler, Architect, 16, Ribblesdale-place, Preston	,,	17
Leiston, Suffolk—Thirty-Two Houses, Valley-road	Urban District Council	J. A. Schenermann, Architect, Northgate-street, Ipswich	,,	17
King's Lynn—Additions to High School for Girls		H. J. Green, Architect, Paradise-parade, King's Lynn	,,	17
Pudsey—Three Pairs Semi-detached Houses		Jowett Kendall and Sons, Architects, Pudsey	,,	30
Jersey—Parish Hall at St. John's		C. G. Bowles, M.S.A., Architect, Halkett-place, Jersey	,,	31
Dundee—Bowl House, Lochee Park	Town Council	J. Thomson, City Engineer, 91, Commercial-street, Dundee	No date	
Oswaldtwistle—Branch Shop and Cottage	Co-operative Society, Ltd.	G. Riley, Architect, Albert-street, Oswaldtwistle	do.	
Bradford—Extension of Vicuna Works, Lasterdyke	Waring and Co.	T. H. Gimbls, Architect, 9, Bond-street, Bradford	do.	
Lossiemouth—Rebuilding the Brander Arms	Harbour Co.	R. B. Pratt, A.R.I.B.A., 110, High-street, Elgin	do.	
Belfast—Church		E. Lingen Barker, Architect, 21, Princes-square, W.	do.	
Dundee—Alterations at Albert Institute	Town Council	J. Thomson, City Engineer, 91, Commercial-street, Dundee	do.	
Bourne—House		R. Agnew, Architect, Bourne, Lincs	do.	
Llanelly—Alterations to Park Church		J. Davies and Son, M.S.A., Colwell House, Llanelly	do.	
Cross Keys—Primitive Methodist School, Gladstone-street		H. Harper, Architect, Market-place, Nottingham	do.	

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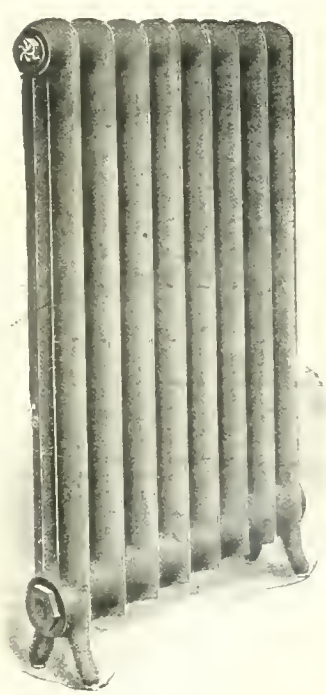

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BUILDINGS

[illegible]	[illegible] Corporation's District Office, Felixstowe	No date
[illegible]	F. H. Lingen Barker, Archt., 21, Princes-square, Hyde Park, W.	do.
[illegible]	E. B. Pratt, A.R.I.B.A., 110, High-street, Elgin	do.
[illegible]	J. Thomson, City Engineer, 91, Commercial-street, Dundee	do.
[illegible]	C. W. Lister, Architect, The Parade, Eskeard	do.
[illegible]	The Surveyor's Office, West-street, Bourne	do.
[illegible]	G. F. Bowman, Architect, 5, Greek-street, Leeds	do.
[illegible]	Bryden and Walton, Architects, 3, George-street, Buxton	do.
[illegible]	Nantes and Sanctuary, Bridport	do.
[illegible]	P. N. Brundell, Architect, Princes-street, Doncaster	do.
[illegible]	J. Slack, Architect, Bank-street, Carlisle	do.
[illegible]	F. R. Eltringham, Architect, Throckley, Newburn-on-Tyne	do.
[illegible]	Harding and Thomas, Bryn Cottage, Gotrerawel, Killay, Glam.	do.
[illegible]	E. Martindale, Architect, 11, Lowther-street, Whitehaven	do.
[illegible]	The Olympia Motor Mart Co., 1, Addison Bridge-place, W.	do.
[illegible]	J. Thomas, Penygroes, Llandebie	do.
[illegible]	Settle and Brundrit, Architects, Ulverstone	do.
[illegible]	W. A. Mackinnell, Architect, Maxwelltown, Dumfries	do.
[illegible]	G. E. T. Laurance, A.R.I.B.A., 22, Buckingham-street, W.C.	do.
[illegible]	G. E. T. Laurance, A.R.I.B.A., 22, Buckingham-street, W.C.	do.

ELECTRICAL PLANT.

Urban District Council	G. R. Spurr, Electricity Works, Walthamstow	April 28
Urban District Council	The Electrical Engineer, Laburnum-road, Aldershot	May 2
St. Mary's, Islington, Guardians	E. Davey, Clerk, St. John's-road, Upper Holloway, N.	,, 3
H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,,
Corporation	S. J. Watson, M.I.E.E., Electricity Works, Bury, Lancs.	,,
Urban District Council	A. H. Shaw, M.I.E.E., Ley-street, Ilford	,,
[illegible]	The Deputy Postmaster-General, Brisbane	,, 14
[illegible]	The Deputy Postmaster-General, Melbourne	,, 16
Corporation	J. H. Cawthra, Borough Electrical Engineer, South Shields	,, 24
[illegible]	The Commonwealth Office, 72, Victoria-street, S.W.	,, 31
[illegible]	The Commonwealth Office, 72, Victoria-street, S.W.	,, 31
Deputy Postmaster-General	The High Commissioner for Commonwealth, 72, Victoria-st., S.W.	July 27

ENGINEERING.

[illegible] Gas Mains, Pumps	Corporation	A. Hendry, Town Clerk, Denny, N.B. April 28
[illegible] Aircraft Plant	Urban District Council	V. H. Station, Clerk, Sheerness ,, 29
[illegible] Pumping Plant	Urban District Council	E. Gill, Engineer, Council Offices, Mirfield ,, 29
[illegible] Waterworks	Urban District Council	Taylor, Wallin, & Taylor, Engs., Cathedral Bldgs., Newcastle-on-T. ,, 29
[illegible] Reservoir	Lune Urban District Council	C. Martin, Surveyor, Port View, East Looe May 1
[illegible] Gas Extensions to Asylum and Cemetery	Urban District Council	T. W. Tinlady, Gasworks, Bakewell ,, 1
Hartlepool Sea Wall	Port and Harbour Commissioners	J. D. Howkins, M.I.C.E., Engineer, Town Hall, Hartlepool ,, 1
[illegible] R.C. Reservoir Works	Municipal Authorities	F. E. Tily, Municipal Clerk, Penticton, British Columbia ,,
[illegible] Steel Bridge Superstructure	Caledonian Railway Co.	The Company's Engineer, Buchanan-street Station, Glasgow ,, 1
[illegible] Waterworks	Faringdon Rural District Council	H. Glynn Warne, Engineer, London-street, Faringdon ,,
Ayton [illegible] Reinforced Bridge Abutment	Ross and Cromarty County County	J. Fraser, C.E., Inverness ,,
Batter [illegible] Skewarch Bridge in the Main Road	Flintshire County Council	S. Evans, F.S.I., County Surveyor, County Offices, Mold ,,
[illegible] Sea-Wall on West Beach	Urban District Council	D. J. Bowe, Surveyor, Town Hall, Clacton-on-Sea ,,
Wolverhampton Heating Apparatus at Burgey-st. School	Education Committee	The Secretary, Education Offices, Town Hall, Wolverhampton ,,
[illegible] Waterworks	Urban District Council	Willcox, Raikes, and Reed, Engs., 63, Temple-row, Birmingham ,,
Aberdare Heating Glynhafod Mixed Schools	Urban District Council	N. G. Lewis, Architect, Abertillery ,,
Carrick-on-Shannon Reinforced Concrete Bridge	Leitrim and Roscommon C.C.	C. Dolan, Secretary, Courthouse, Carrick-on-Shannon ,,
Mortlake Boiler and Softening Plant	Barnes Urban District Council	C. S. Davidson, Engineer, Electricity Works, Mortlake, S.W. ,,
[illegible] Heating Plant in New Cathedral	Ministry of Public Works	Bureau des Finances de la Préfecture, Sofia ,, 1

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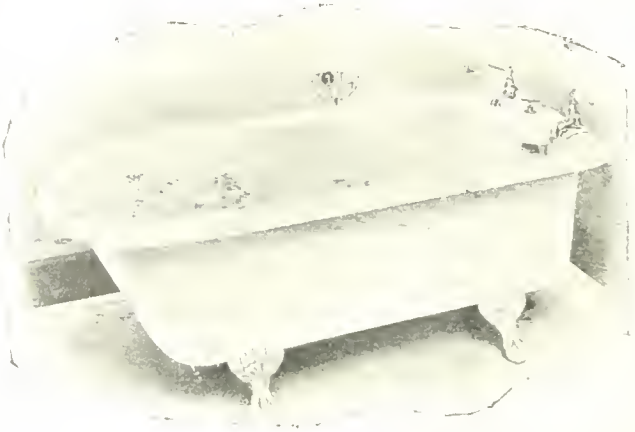

May 5, 1911. Volume C.—No. 2939.

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House, Strand, W.C.

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The Law Union and Rock Insurance Company's New Offices, Chancery-lane. Mr. Arthur C. Blomfield, M.A., F.R.I.B.A., Architect.

Selected Design, Hartley University College, Southampton. Messrs. Clyde Young and East, Architects.

Interior of an Imported Damascus Room. Drawn from the original by Mr. J. D. Bayne.

GARDEN CITIES AND CITY GARDENERS.

The "city gardener" must be a brave man, to begin with, for he is starting in a business to which, as a rule, he was never trained. The "jobbing gardener" is his servant, with a little more technical knowledge than his master, and perhaps not half so many ideas of his own. His main purpose is not to get off, but for ever to keep on, the beaten track; so that at first both he and his "superior," like children in an infant-school, are copying the other children, learning the same formal rules, and going through the same mechanical exercises. They plant the same flowers at the same times of the year, and neither could say why, except that it is the fashion. But when they have lived in the same suburb for a few years they see what suits the soil, and what weather will help or hurt the novelties on which the more enterprising of them may desire to venture. The jobbing gardener sometimes lightens the hours of toil by making, out of some old stable or tool-house, a sort of prophet's chamber, where, if he is a politician, he reads the daily papers till a great part of the day has passed, or if his heart is set on higher matters, by studying his favourite preacher's latest discourse, or it may be by putting together a few words of his own on similar subjects. "All work and no play, Makes Jack a dull boy," and that sort of boy the jobbing gardener, from his youth up, has heartily resolved that he will never be.

"The city gardener" most likely was reared amongst all the advantages, and all the disadvantages, which a town has to offer to children. The jobbing gardener was taught in youth to wage war with cats, who scratched up his mustard and cress; with blackbirds, who carried off his cherries; and more excusably, with sparrows, who nipped off his primrose and polyanthus flowers before they were open, and his orange-coloured crocuses, before they have had time to weary everybody's eye with their characteristically suburban brightness. The master gardener, it may be, hardly knows a blackbird from a jackdaw. He belongs to the noble order of Podsnap. Birds and beasts are nothing to him, unless he could find the way to sell them at a profit. All through his life he had been taught to rise at seven, to breakfast at eight, and to start punctually for the City at so many minutes before nine; and whoever does not do these things is to him a clown, a barbarian, an uncivilised person. But somehow or other, perhaps late in life, an awakening has come to him. It has dawned on him that there is such a thing as Nature—before he dies he would like to have, not, perhaps, a naturalist's knowledge of it, but at least the bowing acquaintance with it which comes without learning to the roughest village boy, though it is hidden from the wise and prudent prize-winners of the Education Department. He has heard of garden cities. When he was a boy it was proposed to build offices and banks and warehouses with flat roofs, and then grow peaches and apricots in pots on the top of them. But though he has looked for it, he has never seen the day when Cheapside supplied any considerable amount of produce to Covent Garden. The fruit does not seem to have "set." Perhaps hive-bees are too scarce in the square mile around St. Paul's. Perhaps the City of London is too great to be "a garden city." But garden cities five, ten, or more miles beyond its borders offer themselves, and at last he learns from his suburb and trees how life in one of them would be. He has been tempted on, perhaps, by reading of all the beautiful things that can be grown, and the wonderful things that can be tasted, when once you have fairly done with yellow fogs, smoke, taxi-cabs, and motor-omnibuses. He bids them all a long farewell, and flies "Tomorrow to fresh woods and pastures new."

The born Londoner's idea of the country is sometimes a little like that of Blake the poet, who, guilelessly escorting his wife round the garden in an absence of costume which (unless in Tropical countries) has hardly been in fashion since the Flood, apologised to his startled neighbours by remarking, "It is only Adam and Eve, you know." The "City gardener" that is to be, does not err in that direction, nor does his wife. They simply think that "country people don't notice!" They could hardly be farther from the truth. Compared with country people, the Londoner notices nothing. He is so accustomed to the unexpected and the new, that if he saw two moons in the sky at once, or seven stars in a row, so that if they were birds, Baron Munchausen could repeat his old performance, and string them all at once on the ramrod, the London man would only ask, "Whose advertisement is this?" and not look twice. To the countryman, however, an oddity is an oddity, and an eccentricity very likely a sin; and so the would-be "City gardener," when he arrives, had better refrain from all departures from custom until the local bumpkins have agreed that "the man doth fear God, though it seem not in him, by some large jests that he will make."

When the City man settles where he is to go, he generally settles at the same time what he means to grow. If he is married, he will most likely have to grow some of the things that are in fashion that year: sweet peas, hardy perennials, Cape bulbs, or roses; plants that need a clay soil, a peaty soil, a sandy soil, a chalky soil, or a limestone gravel. Perhaps he has unknowingly chosen a chalky soil when he wanted a clayey one, or a subsoil of limestone when he wanted one of peat. If he is a stolid Englishman, and can afford it, he will perhaps pass the rest of his days in a fight with Nature—a long and costly business at best. But a fight with Nature as to whether your garden shall grow roses or azaleas is better than a fight with your son whether he shall be a scientific man (which perhaps he wants to be) or an artistic one (which, it may be, you want him to be). Such accidents as these are no accidents. Perhaps it is not in the boy to be just what would please his father; let him, and let your garden, produce the best that is possible for each of them, and subordinate your personal ambitions a little to the possibilities of the case. The first colonists at Bournemouth seem to have gone there resolved that, whatever happened, they would grow roses, and thousands of pounds must have been spent there since on growing roses where Nature never meant roses to grow. The peaty, sandy soil would suit many of the finest and rarest lilies admirably, but hardly any inhabitant of Bournemouth seems to want them; everybody is sending far away for cartloads of clay to grow roses in, and when the roses are planted in it, they linger on for a year or two and die. Then is the time for the "City gardener"—"Si on n'a pas ce qu'on aime, il faut aimer ce qu'on a." If he cannot succeed with roses, he may perhaps do wonders with rhododendrons and azaleas and Himalayan lilies. Instead of worrying about past defeats, let him deal with new worlds, and conquer them.

So far as to the *garden*. It remains to say something about the *City*, which in this curious compound word is not very satisfactory joined with it. The idea seems to be that of a town which, by the multiplicity of gardens, somehow avoids being townlike. Most towns, except walled ones, were in that stage once. They have grown out of that character by degrees, as the garden cities of to-day, if they prosper, are likely to do in time. A town once prosperous and now declining may be very interesting and picturesque. The old walls, once strong and now in decay, are beautiful to look at, if not pleasant to live amongst—"Remnants of things that have passed away. Fragments of stone, reared by creatures of clay." But the mid-m

[illegible] society bids fair to have no history. It is a temporary thing at best, and after a very few lifetimes it will be the ruin of a ruin. The Fire of London lasted for two centuries and more a smouldering existence could no longer be fed on combustible materials; or else what we are and see of old timber houses might tempt us to dream of garden cities of wood. But brick and [illegible] stand [illegible] artistically [illegible] for [illegible] garden [illegible] the noble dog [illegible] [illegible] and [illegible] Wyatt [illegible] [illegible] Lee in a [illegible] [illegible] but [illegible] and to [illegible] own village Ramsis of Nineveh [illegible] Egyptian [illegible] where [illegible] Amen [illegible] Amenoth Abou the [illegible] [illegible] like the three tribes [illegible] back again over Jordan, they [illegible] [illegible] herding of the flocks and [illegible] happy memories of things [illegible] and happy dreams of things that [illegible]. Perhaps there is no such town [illegible] or "garden city" anywhere to be discovered, and perhaps in our days [illegible] pass the writ of mandamus to build one.

ARCHITECTURE AT THE ROYAL ACADEMY. II.

We noticed several of the larger official and commercial buildings shown at the Royal Academy last week, but lack of space precluded mention of some other works of this class and foremost among these is

MR. ARTHUR BLOMFIELD'S

water-colour study of the new offices in course of erection for the Law Union and Rock Insurance Company on the site of Old Serjeant's Inn, Chancery lane (1487), hung on the line and shown by the drawing reproduced among our plates to-day, giving also the two chief plans with the descriptive text. The return façade towards the southern end of the Record Office afforded a well-utilised opportunity for the display of its architect's characteristic skill in the combination of a monumental building and the provision of a well-lighted public office of considerable extent facing northwards, the half-entrance to the insurance offices being set angle-wise, two other doorways affecting the general suites of rooms entered from Chancery lane lower down towards Fleet street.

The North and South Wales Bank, Wrexham (1496) of which Messrs. Woodhall and Eccles, of Liverpool, are the architects, is conceived in a somewhat flamboyant Burgundian style, richly carried out. Messrs. Arthur and Henry H. Hill send a capital elevational drawing of the Head Office of the Munster and Leinster Bank at Cork (1499), which would do credit to any country town, with its bold Ionic colonnade enclosed by solidly-handled end pavilions, terminated by [illegible] bronze groups of conventional sculpture. Sir William Emerson shows a drawing of his competitive scheme (1491) for the Institution of Civil Engineers, Great George street, S.W., and Mr. A. Berrington sends a revised elevation of his Royal Academy prize design, 1910, for a loggia in a public garden, by contributing a detail (1498). Messrs. Horace Field and Simmons deserve commendation for the tasteful refinement displayed by their row of Houses in Devonshire street (1539), capably dealing with an extended façade composed of everyday residences which comply with by-law restrictions and observe the limitations dictated by moderated expenditure, using ordinary materials unassumingly. We likewise note appreciatingly a block of business premises in the Poultry, Nottingham (1561), for which Messrs. Sutton and Gregory are responsible. The Railway stations at Pinner and Harrow, for the L. and N.W. Company, by Mr. Gerald C. Horsley (1582), evince an endeavour to improve upon the engineer's and also in vogue on most railways. The Deep Sea Fishermen's Institute at Newlyn, Cornwall (1638), is in stone and is picturesquely rendered by Mr. Edward Warren as a waterside group, with a wooden balcony and big bay corbelled out from the wall above high-water mark.

It would be difficult exactly to describe the scheme prepared for the Jamaica Government's New Treasury, Post Offices, Law Courts, and street improvements, Kingston, submitted by Sir Charles Nicholson and Mr. H. C. Corlette (1689); but perhaps the drawing may account for this difficulty. Perhaps in execution, and considering the materials available, and the climate, the proposal might work out all right, just as the reputation of the authors would lead us to expect; but they do try one's faith by queer draughtsmanship, which in this case found favour, and insured a prominent place on the line.

We have not mentioned the group of ecclesiastical designs to which the main wall of the gallery is largely devoted, giving variety to this general assembly of contemporary architectural enterprise. We may draw attention to two particularly excellent water colours showing the Church of the Holy Spirit, Clapham Common, as delineated by Mr. Charles Gascoyne for the architect, Mr. H. P. Burke Downing (1595 and 1622). This building is quite ordinary in size and intention; but it exhibits grace and breadth both inside and out, avoiding any meretricious ornamentation, and depending on proportion for its admirable effect. Mr. Cecil G. Hare is responsible for the Restoration of Ashley Church, Staffs (1613), with its bold rood-screen and parclose screens, shown by a spirited and clever coloured sketch in sympathy with well-designed ecclesiastical detail; but we scarcely know which is old and which new. The German-like Gothic displayed by the twin-towered church of St. Ignatius, Stamford Hill, with a pile of college premises, makes a most prominent exhibit by Messrs. B. Williamson and J. H. B. Foss (1616), who have introduced flying buttresses over the side aisles, so perhaps the interior is to be groined. The same architects show St. Patrick's Church, Orpington, next to the last, while Mr. Temple Moore exhibits a crisply-executed pencil sketch of a small new Church at Skirbeck, Boston (1621), which has a boarded filling to the chancel arch richly decorated with a rood, and surrounding angels, quite distinct from the screen below, and unique in its way. Another Church (1590) of modest dimensions, but with freshness displayed in the treatment, is that dedicated to St. Tarcisius, at Camberley, by Messrs. H. R. and B. A. Poulter who likewise show a timber-built interior of St. Andrew's, Frimley (1630), with wooden square posts and arched principals forming the nave and aisles, the choir being divided off by a very solid-looking stone arch. The completion of J. D. Sedding's Church of St. Augustine's, Highgate (1628), as proposed by Mr. J. Harold Gibbons, has a turreted tower with ramped big buttresses cleverly devised, though somehow rather overdone, to the detriment of breadth, while the wooden lantern hardly seems to justify all this superfluity of masonry. The new Chapel for the North Eastern County School, Barnard Castle (1602), designed by Mr. William D. Caröe, is depicted by a large and possibly somewhat hard washed picture very carefully detailed, showing arched walling thickened out above the windows, the eastern window, in addition, having toy-like buttresses between the lights, the effect of this being further diversified by the square opening in the gable fitted with louvre boarding, possibly for the ventilation of the sanctuary, which is not common. The same architect is more successfully represented by the boldly-towered Church of St. Ninian, Douglas, Isle of Man (1609), also hung on the line. This drawing appeared in the Building News for December 30 last year. It is broadly handled in a simpler manner, which is to be preferred, and looks adapted to an exposed situation. Mr. Herbert G. Ibberson imparts an individuality to the Baptist Meeting-house at Chorley Wood (1615). The hardly-drawn outline interior submitted by Mr. Charles E. Ponting (1623) of a new Church of St. Mary, Dorchester, fails to do his work justice; but the building merits place much more than some, represented by showy water-colours, which have found favour at Burlington House this year, regardless of the undoubted fact that the subjects themselves, judged as architectural examples, are both indifferent and unsatisfactory as permanent records of contemporary art, which the Royal Academy is presumed to foster. The new Reredos at James Brooks's noble church for Hornsey Parish, by Mr. Hubert C. Corlette (1626), is big, and somewhat in keeping with so capacious a sanctuary, though it is very unlike Brooks's severe dignity. This altar piece compares very favourably, however, with what has been done to St. John's, Holland-road, since its architect died. Mr. Corlette crowns his composition with a groined tester, formed by a culminating cornice of much richness. The Majesty occupies a central niche, and groups of four large and twelve small statues occur in the side niches, ranged panel-wise. Two recessed sculptures over the retable are devoted to representations of the Magdalen meeting our Lord, on the Epistle side, and the Adoration of the Magi in the Manger, and the Virgin and Child, on the Gospel side of the Holy Table. The background of the reredos is shown in blue; but the drawing is not a very eminent performance. A quite small Reredos, replete in modern fancy, of no little ability, is shown by Messrs. Bromet and Thorman (1586), for Otley Parish Church, and though we note the cleverness displayed, we doubt the effect of such a piece of work in an old dignified church. Perhaps the church in question warrants the essay; we do not know.

Messrs. John Gibbons and Son deserve notice for their Reredos and Sanctuary Scheme at St. Chad's, Far Headingley, Leeds (1587), and the proposed Church at Wotton, Gloucester, by Messrs. Davis and Trew (1589), likewise merits recognition, though space precludes further comment, and we are not sure if this study shows the chosen design or not. The flèche for South Church, New York, designed by Mr. William Haywood (1591), recalls the drawings of William Burges in his big book of measured details. Such exhibits are scarce nowadays at the Royal Academy. The style adopted is very unlike the Early French which Burges loved; but the flamboyant fancy of Mr. Haywood's flèche is suitable and refined, while the whole structure looks coherent, judged as we can by an isolated set of working drawings apart from the building on to which it is to be set. St. James's Church, Accrington (1601), by Mr. R. H. Cunliffe.

is a large Tudor-like building, with flying buttresses, and a western tower placed north of the Perpendicular front, and set off with massively-proportioned angle-way buttresses, a feature being made of the baptistery, which, like the south porch, has canted sides with cusped windows. Another church by the same architect, dedicated to St. Andrew, built at Accrington, figures in a smaller drawing of the like character lower down on the same wall (1627). Messrs. Kelly and Dickie adopt the Italian type of wood pedimented façade for St. Saviour's Church at Lewisham, which hardly looks destined to appear at home in that smirky locality. The composition of such oversailing pediments seems to need vertical sunshine and brilliant environment not familiar in S.E. London. The School Chapel, Perth, West Australia (1594), by Mr. Walter Tapper, is a happy instance of modernised ecclesiastical conceptions adapted to the contemporary needs of Colonial realities in our workaday world, and this is a criticism worth more than all the tabulated recognition of sketchy bits of quaint design culled from old samples. The Church of the Second Congregation, by Mr. Walter Planck, at Belfast (1631), is another modern-looking building, for which much might be said, and we see that Messrs. Healing and Overbury competed for St. Catharine's Church at Wotton (1633), before mentioned under 1589.

There are several examples of domestic work not hitherto noted, and we may conclude by a few brief references to some of the more notable, such as Mr. E. Guy Dawber's Eyford Park, Gloucestershire (1698), which might have been shown on the line, as it deserved. The pen perspective of the Garden Front, with its balustraded terrace and summerhouse, is unpretentious and good, displaying a plain Classic house of refined taste. The same architect has two bird's-eye views of a picturesque house in Surrey better placed (1661), but the water-colour of "Burdocks," Fairford, at the other end of the room (1545), with an extensive garden scheme, is hung out of range of easy examination, and however good the draughtsman's work may be at close sight, at a distance it is ineffective. The same remark is applicable to Messrs. Lanchester and Rickard's sole exhibit (1544), almost out of sight at the end of the gallery, showing their scheme for the National Museum of Wales. Mr. A. N. Prentice is building an exceedingly nice-looking English type of house at Stenigot Manor, Lincolnshire (1674), fronted by a pier-set forecourt with iron railings and gates done in good style. Many may miss the drawing, as we did at first, so far has it "gone up aloft." The same architect shows (1665) his Royal College of Physicians and Surgeons' new buildings in Queen-square, now being erected, and which we illustrated so well last year when he most deservedly won the competition. East Weald, Hampstead, by Messrs. H. V. Ashley and W. Newman, also appeared in our pages last summer. It is a richly-detailed residence in Bishop's-avenue, with some clever parts not observable when the drawing nears the sky, as it does here (1676). Mr. Dixon Spain sends a square-set Georgian residence, with a good entrance, and wood cornice, called Hovenden House, at Fleet, Lincolnshire (1643), which we shall illustrate shortly. We likewise have a note of approval for Mr. Charlie Castelow's capital Country House at Well, Yorks. We miss Mr Walter Brierly this year in this Yorkshire connection. Mr. Melville S. Ward is restorating the moated house of Rushbrooke Hall, Suffolk (1699), and his deviations appear to be chiefly within doors. Mr. L. R. Mc Guthrie has a spirited exhibit in Townhill Park, Southampton, a house with gardens (1679), and we must praise the Model of Castleton Park (1712), shown by Messrs. D. Blow and F. Billerey, representing a Classic house with four pavilions of good proportions, and excellent in detail. Mr. W. Henry White shows some of his interesting Town Houses in the West End, such as 12, Queen Anne-street (1656), and 89, Harley-street (1488), while Mr. R. Gardener Hammond, who works on similar lines, shows No. 44, Charles-street, Mayfair (1523). "Bunch Cottage," Haslemere, by Messrs. Read and MacDonald (1528), is a capital country home, with pretty gables, and a bay which pleases us. Mr. Geoffry Lucas is represented by a House at Esher (1537), and Mr. Sydney Tugwell shows alterations to Norman Court, Salisbury. Two small country places, by Messrs. Unsworth, Son, and Triggs, gain a good deal by pretty water-colours by an accomplished artist (1546 and 1555), the subjects being a pair of Houses in Sussex and Kent. Webbington Court, by Mr. E. J. May (1574), has some spirited interiors, a little too fanciful, though the drawing-room is quiet and reposeful in design following a less unusual manner. Mr. Ryan Tenison shows some additions to Radley College, Berks (1538), in a picturesque type of work, and Mr. Norman Evill has some quaint Stables and a House at Silchester (1557); but why the Hanging Committee should have devoted any space to the florid big water-colour (1704) of "A Pair of Small Houses," done in weather-boarding and flimsy woodwork painted, we do not in the least understand. Mr. Percival Pite's Cathedral at Namizembe, Uganda, is a vast vaulted church, with two side chapels, one African and one English. The whole thing is clever and odd, with a cupola over the crossing of countless columns and many arcades.

THE SOCIETY OF ARCHITECTS' DINNER.

The twenty-seventh annual dinner of the Society of Architects was given in the Venetian Room, Holborn Restaurant, on Thursday evening in last week, when special interest was imparted to the occasion by the announcement made relating to Statutory Registration and the impending absorption of the Society by the Royal Institute of British Architects. Each speech being, as it was reiterated during the evening, a swan-song, the notes were in many cases prolonged and repeated to a wearisome degree. The President, Mr. George E. Bond, J.P., of Rochester, presided, and was supported by over two hundred members and guests, the company including Messrs. Leonard Stokes, P.R.I.B.A., L. A. Atherley Jones, K.C., M.P., G. E. Hohler, K.C., M.P., Edward White, Chairman L.C.C., Major H. P. Taverner Dickens, Master of the Tylers' Company, Horatio Porter, M.A., A.R.I.B.A., Mayor of Holborn, Alderman Randall, Mayor of Chatham, Sir George Riddell, A. A. Hudson, K.C., Judge Rentoul, K.C., A. W. S. Cross, V.P.R.I.B.A., Edwin T. Hall, F.R.I.B.A., Henry T. Hare, Hon. Sec. R.I.B.A., George Hubbard, F.S.A., J. S. Gibson, F.R.I.B.A., Arthur Keen, F.R.I.B.A., P. A. A., E. C. P. Monson, F.R.I.B.A., E. J. Sadgrove, F.R.I.B.A., Ian MacAlister, Sec. R.I.B.A., D. G. Driver, Secretary A.A., G. Bird Godson, President of the Master Builders' Association, J. S. Holliday, President of the Institute of Builders, Leslie Vigers, President of the Surveyors' Institution, W. J. Hardcastle, President of the District Surveyors' Institution, Percy B. Tubbs, F.R.I.B.A., G. A. T. Middleton, A.R.I.B.A., Col. F. Seymour Leslie, Hon. Sec. of the Society, Ellis Marsland, Henry Adams, E. J. Kibblewhite, R. Cromwell Edwards, G. Soudon Bridgman, E. J. May, and W. W. Thomas, E. J. Hamilton, and A. E. Pridmore, past presidents.

The loyal toasts having been honoured, that of the "Houses of Parliament" was given in humorous terms by His Honour Judge Rentoul, and was acknowledged by Mr. Atherley Jones, M.P. Mr. Arthur Keen, President of the Architectural Association, proposed the toast of "The Society of Architects." He alluded to its position as the only architectural body which had made Registration its chief aim—an object with which, he remarked incidentally, he was not in sympathy—and referred to the developments which led to the representatives of the two bodies agreeing upon the principles of a Registration Bill, the natural sequence to which was the absorption of the younger society by the elder. In thus relinquishing its work of Registration, the Society had maintained the policy which it had always followed, and had redeemed its promise that if the Royal Institute would definitely pledge itself to Registration and produce a Bill with principles to which the Society could agree, the latter would stand aside and heartily support the Royal Institute. This action on the part of the two architectural bodies was the first important step towards the consolidation of the entire profession, of which Registration would be the outward sign, and while it might be a matter of regret to some that the Society should cease to exist as a separate body, yet in the interests of the profession and the attainment of its object this was inevitable, and all would agree that the Society had thoroughly justified its existence, and though its work for Registration was ended, the same work would now be carried on by the Royal Institute.

The President, in reply to the toast, referred at considerable length to the growth of the Society in numbers and influence, and of its work for more than a quarter of a century in educating the general body of the profession in the appreciation of the benefits which would accrue to themselves and the public from the passing of an Act for the statutory Registration and education of architects. There was now for the first time a reasonable prospect of an agreement among all sections of the profession as to the form in which the Bill shall be presented to Parliament. The Society had at all times consistently expressed the opinion that it was the duty of the Royal Institute to take up this question, and now they had done so the Society would loyally support them. So soon as the principles of a Registration Bill had been agreed upon by the Councils of the two institutions, the raison d'être of the Society's separate existence disappeared, and in its place there was the grand ideal of a united profession under one powerful representative Institute which would give the land the lead in this great movement. Having referred to the injury which was done to the public by the employment of unqualified practitioners in architecture, the President expressed a view that the only remedy was compulsory examination, and indicated the lines upon which he thought this ought to be carried out. He stated the grounds upon which they claimed the unanimous vote of the profession and a general public support for the Bill, admitting the difficulty of the task which was still before them in educating the public to a just appreciation of its own responsibilities and interests in the question, particularly in the employment of architects, in seeing that only those who were fully qualified, as tested by examination, were intrusted with works of importance. The President, in conclusion, referred to the sadness connected with the dissolution of old associations, which would be felt by all who, like himself, had been a member of the Society for very many years, and who had for a considerable part of that time been closely associated with its management. He referred to the harmonious relations which at all times had existed between the Council and the general body of members, and looked forward with perfect faith to the result of the new arrangements, feeling confident that though they would die as a Society, they would come to life again within the parent Institute with full scope for their personal activities and energies, and thus continue to do good and useful work in the cause of Registration.

SO-CALLED CHURCH RESTORATION

[illegible] Church Restoration" was the [illegible] illustrated with lantern [illegible] Frederick Dalrymple Singh gave [illegible] promoted by the Suffolk [illegible] Archæology, at the Masonic [illegible] Bury St. Edmunds on Wednesday in [illegible] The Marquis of Bristol presided. [illegible] Frederick remarked that it was two [illegible] he had read a paper before the [illegible] of the Institute, but he could not [illegible] touched on [illegible] in his [illegible] paper, "one might judge from the [illegible] old Suffolk churches that had [illegible] and wantonly restored since [illegible] were all parsons and Church [illegible] did not want all their churches [illegible] to look like the plans out of a [illegible] book. They would each hunch to [illegible] individuality; to show how it had [illegible] through this vicissitude or that, and [illegible] had triumphantly emerged first from [illegible] comparatively mild purifying by the [illegible] Protestant reformers, then the much [illegible] iconoclasm of William Dowsing and [illegible] workers, and finally the neglect of the [illegible] eighteenth century—a neglect, be it understood, not one half so destructive as the so-[illegible] restoration of to-day. He did not [illegible] that 15, or even 10 years ago, the [illegible] of Bury St. Edmund's would have [illegible] a hue and cry over the removal of the [illegible] Adam's urns which still adorned [illegible] mantelshelf. Nor that anyone would have [illegible] suggested whether Brandon Bridge [illegible] should be destroyed or that the local [illegible] have the right of razing such a [illegible] to the ground, or the reverse. [illegible] half timber houses [illegible] owners of the [illegible] Bury St. Edmund's. All [illegible] Restoration [illegible] Pitt [illegible] and [illegible] of the restoration [illegible] to be carried [illegible] especially [illegible] [illegible] [illegible]

CURRENTE CALAMO.

We suppose those who remember the zest with which some of us, when nearly thirty years younger, set to work to redecorate our outer man on the rational lines laid down by Mr. J. Alfred Gotch in his paper read before the Architectural Association on "Art in Costume," reported and illustrated in our issues of May 26 and June 2, 1882, will have read with sympathetic interest the notices of the death last Sunday, at the age of sixty-seven, of Viscountess Harberton, whose daring campaign against Victorian fashions for women scandalised some of our weaker sisters of the period. Neither sex, unfortunately, have benefited much so far by the aspirations of the pioneers of the 'eighties. The bonnet-maker has "paused," as Mr. Gotch bade her; but it is only to "think" of higher prices for hats. Women still wear artificial neckties; and "tubes," as Bernard Shaw calls them, round our necks and wrists.

The "Harem skirt," perhaps, is hardly the highest accessory to the dignity of a short, stout lady; and paterfamilias, who "has done himself well," looks a bit bulgy in a "regular seaman's jersey" and no waistcoat. Rail as we may at our wives and sisters, who cling—sometimes very much so, and sometimes, as in the days of the crinoline, not at all—to skirts, we found no architect in knickerbockers at the Society's dinner last Friday, or without "rudimentary organs" to his coat. We doubt if any one of us who had sought entrance to the dining-room without our dress coat and "cloth funnels," would not have been sent down to the buffet as remorselessly as Lady Harberton was invited to the bar-parlour by the Surrey landlady whose views were subsequently sustained to the hilt by a British jury.

The unfortunate truth is that many men are still as much snobs as in the days when Mr. Gotch said we got into our best clothes "when we wish to make an impression," and the rest are still too much afraid of Mrs. Grundy and her husband to dress as we please. Why this is so it is hard to say. We suppose the coat of veneer was thicker in the 18th century as far as the habits and manners of society went. And yet, go down to the Embankment, and contrast the statues of Robert Raikes, the founder of Sunday-schools, and Sir Wilfrid Lawson, the well-known apostle of teetotalism, which stand not many yards apart in front of the Hotel Cecil. The garb of the first is plain, but becoming, and in every way convenient for hard wear; while in richer material it might be worn on any occasion. That of the second is ugly and commonplace, and suggestive of shoddy throughout. And yet, we suppose, not one of us, even if we succeeded in getting a tailor to fit us with a suit like that of Raikes, would dare to walk down Fleet-street in it?

The twenty-seventh—and in all probability the last—annual dinner of the Society of Architects last Friday at the Holborn Restaurant was the most numerously attended of any during the Society's existence, and in many respects an enjoyable gathering. The toast list, perhaps, might have been better arranged. One always appreciates Judge Rentoul's reminiscences of East Down, and his little joke about having met some of us at the Old Bailey; and the more measured mirth of Mr. Atherley Jones follows as refreshingly as the cigarette with the sorbet. But, truth to tell, we could have waited later this year for those accustomed good things, or put up with their briefer duration; for we all really wanted to hear Mr. Leonard Stokes, and should gladly have listened longer when his chance at last came.

Short as his speech was, it was admirably clear, cogent, and cordial; and probably some who preceded him wished heartily that they had learned when young to pack their speeches in small parcels. By the way, what changes mark the lapse of twenty-seven years! Of something like the half-hundred who met us in Tavistock-street in 1884 to found the Society, G. A. T. Middleton and Ellis Marsland were the only two, we think, who foregathered to endorse the "Bond of Union" last Friday. Among the earliest of those that came after, it was pleasant once again to sit next that hale veteran, George Soudon Bridgman, of Paignton, looking scarcely a day older, and to enjoy the energy which had brought his younger fellow West of England man, Mr. W. H. May, the President of the Devon and Exeter Society of Architects, two hundred and fifty miles to represent one of the most vigorous provincial societies.

Commenting on our remarks last week that the Institute was "cradled in revolt," a correspondent reminds us that much the same might be said of the Royal Academy itself. More than one attempt to found a society for the encouragement of the fine arts ended in failure, and it was not till a Picture Show at the Foundling Hospital in 1758 attracted some support that the Incorporated Society of British Artists was formed. From that society in 1768 many prominent members seceded to found the Royal Academy. The new Academy held its first exhibition in Pall Mall, whence it removed to the rooms which George III. provided in Somerset House. There it remained until 1837, when it was granted a portion of the newly-erected National Gallery. Thence it migrated to its present quarters in 1869, having obtained the site at a peppercorn rent.

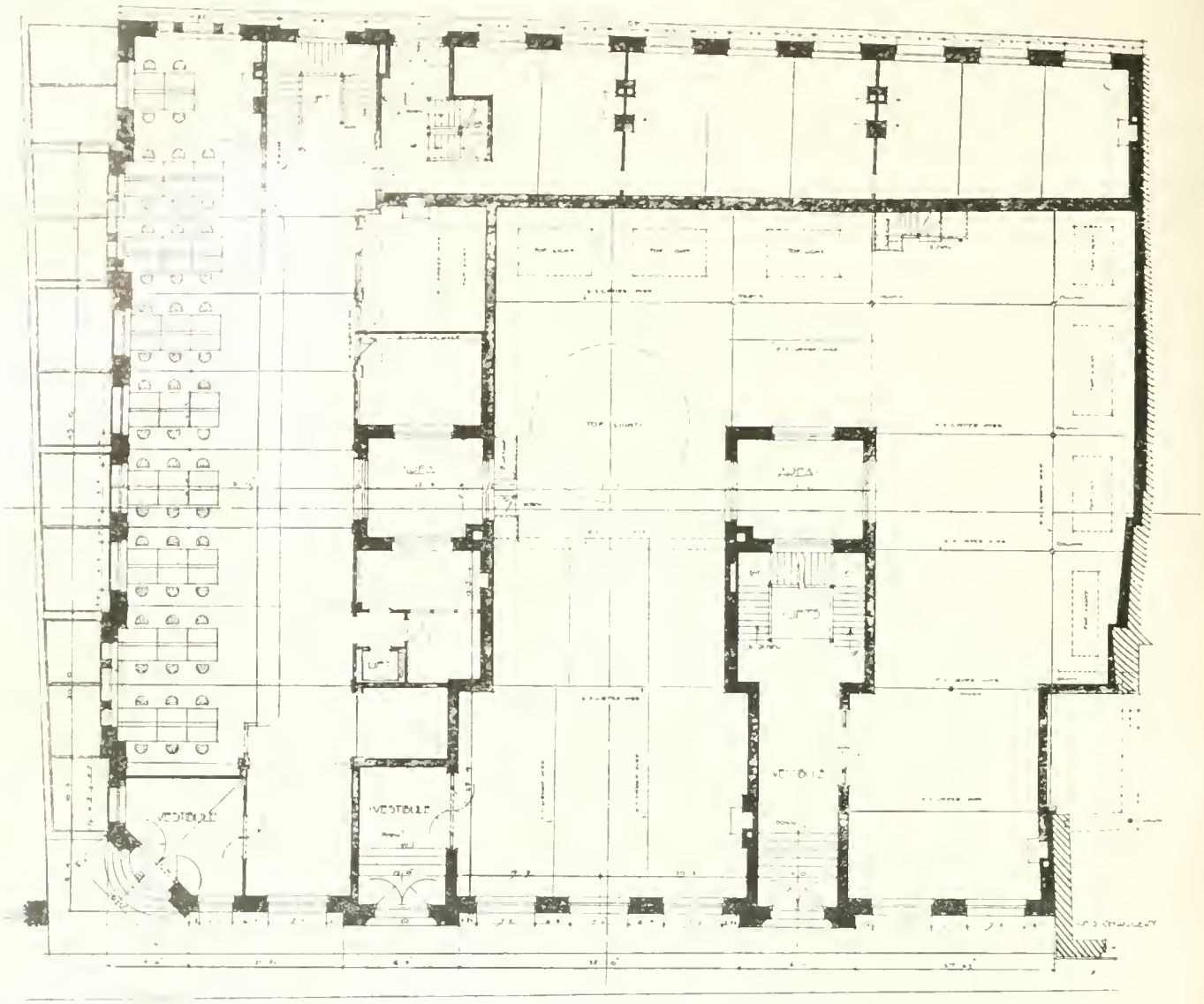
Whether, to-day, the Royal Academy fulfils all the needs of our brethren of the brush and chisel, it is not our purpose, and perhaps not our province, to discuss. That it does little for architecture few will question. Probably, before long, now that the Royal Institute of British Architects has become in every way the recognised representative of architecture, and is more and more known to be such by the public, it will fall to its lot to organise yearly a really adequate and attractive exhibition of the works of its members. It is evident that many of the best architects are ceasing to send to the Academy, and little wonder. That has become mainly a big picture exhibition—one among several, at which architecture, in more or less Cinderella-like fashion, is not very graciously tolerated, but, for the most part, altogether ignored by those whose self-glorification is the dominant feature of the Society function which precedes the annual picture show.

Mr. Joynson Hicks's amendment in Committee on the Copyright Bill, to omit architecture from the scope of the measure, was defeated yesterday week by 10 votes to 15. The discussion was not a very fruitful one. The supporters of the clauses took highly moral and very proper views of our rights, but not one condescended to impart the much desired information how they are to be defined and enforced when the Bill becomes law. We fear sadly that Mr. Butcher will prove right, who pointed out that proof of originality and artistic design will be extremely difficult and very costly, and that the Bill, as it stands, simply presents architects with lawsuits.

Some of the opponents, at any rate, manifested originality of ideas that ought to insure perpetual copyright of their speeches. Mr. George Harwood has discovered that the Bill "strikes at an axiom of social life"—that once a thing is built, it is perfectly open to anyone to copy it; and Mr. Lansbury opined that we owe more to the past than our own generation, and having once been paid for designing and constructing a building, we ought to be satisfied. Garden City originality is Mr. Lansbury's architectural ideal, and he hopes such designs will be copied throughout the country. Not all of them, we trust, even if the Copyright Bill falls through!

There seems some hope of wiping one of London's worst slums out of existence. Off Bermondsey-street lies Bell-court, which the police describe as the worst spot in the district. It contains twenty three-storied houses, on each ground floor being one living room, a kitchen, and a scullery, and on each of the two upper stories one room. Here, huddled together, sleep twenty-two people in one house, and in another eighteen. "The occupants," says Dr. Brown, the medical officer, "are of the lowest class of casual labourers, and many are without visible means of occupation. They row and fight until three or four o'clock in the morning, and the court seems to be the only refuge for the dregs of the neighbourhood, and as long as it is allowed to exist will, we fear, be little better, since its structure lends itself to such a use. Some action should be taken at once, for the continuance of such a place is a menace to the neighbourhood." The houses, it is alleged, are let to a man at 6s. 6d. a week, who sublets them, charging 5s. a week for a furnished room and 3s. 6d. for an unfurnished room. The council are requested by the public health committee to issue an order prohibiting the use of the houses for human habitation.

Mr. James Mapes Dodge, an American mechanical engineer, has been telling an audience how to save money by spending it, pretty much on the lines laid down by his fellow-countryman, Mr. Gilbreth, in his book on "Motion Study," which we mentioned last week. Mr. Dodge found that in one of his machine shops the men were frequently leaving their work to get drinking-water. A careful calculation showed a loss of 33dol. a week in time thus wasted. Mr. Dodge thereupon hired a boy at 5dol. a week to carry water round the works, and immediately saved the remaining 28dol. Another economy was effected by employing labourers, at comparatively low wages, to help the machinists get ready for their work. The result of shrewd readjustments of this type is that in certain factories the employers are paying the men thirty per cent. higher wages than before and are yet doubling their output.



NEW OFFICES, LAW UNION AND ROCK INSURANCE CO.: GROUND-FLOOR PLAN.

THE LAW UNION AND ROCK INSURANCE COMPANY NEW OFFICES

(WITH ILLUSTRATIONS.)

We reproduce the architect's Royal Academy drawing, hung on the line, of this new block of buildings now being erected on the east side of Chancery lane, on the site of Old Serjeant's Inn, and which will be occupied in part by the company, the southern portion of the building being let out to tenants. The elevations to Chancery lane and on the north facing the Record Office, are in Aberdeen granite up to the first floor level, above which they are in Portland stone, the elevation facing Clifford's Inn being entirely in the latter material. All the internal walls facing the lighting areas will be in white glazed bricks. The buildings generally consist of a sub basement, which will contain the heating apparatus, switch room, and well; a basement containing a few offices to let, and a large number of strong rooms and lavatories; a ground floor, which will provide for the general office of the company, and two other large offices suitable for a bank or large institution. Above this there will be five floors, partly occupied by the company and partly by tenants. The building generally will be equipped with the latest form of lighting, heating, and sanitary appliances. The general contractors for the work are Messrs. Howell J. Williams, Ltd. The architect for the building is Mr. Arthur C. Blomfield, M.A., F.R.I.B.A.

A new upper standard school for Okehampton has been opened by Lord Clifford. It seats 120 children and has cost, exclusive of site, £3,797.

THE PROTECTION OF WATER SUPPLIES *

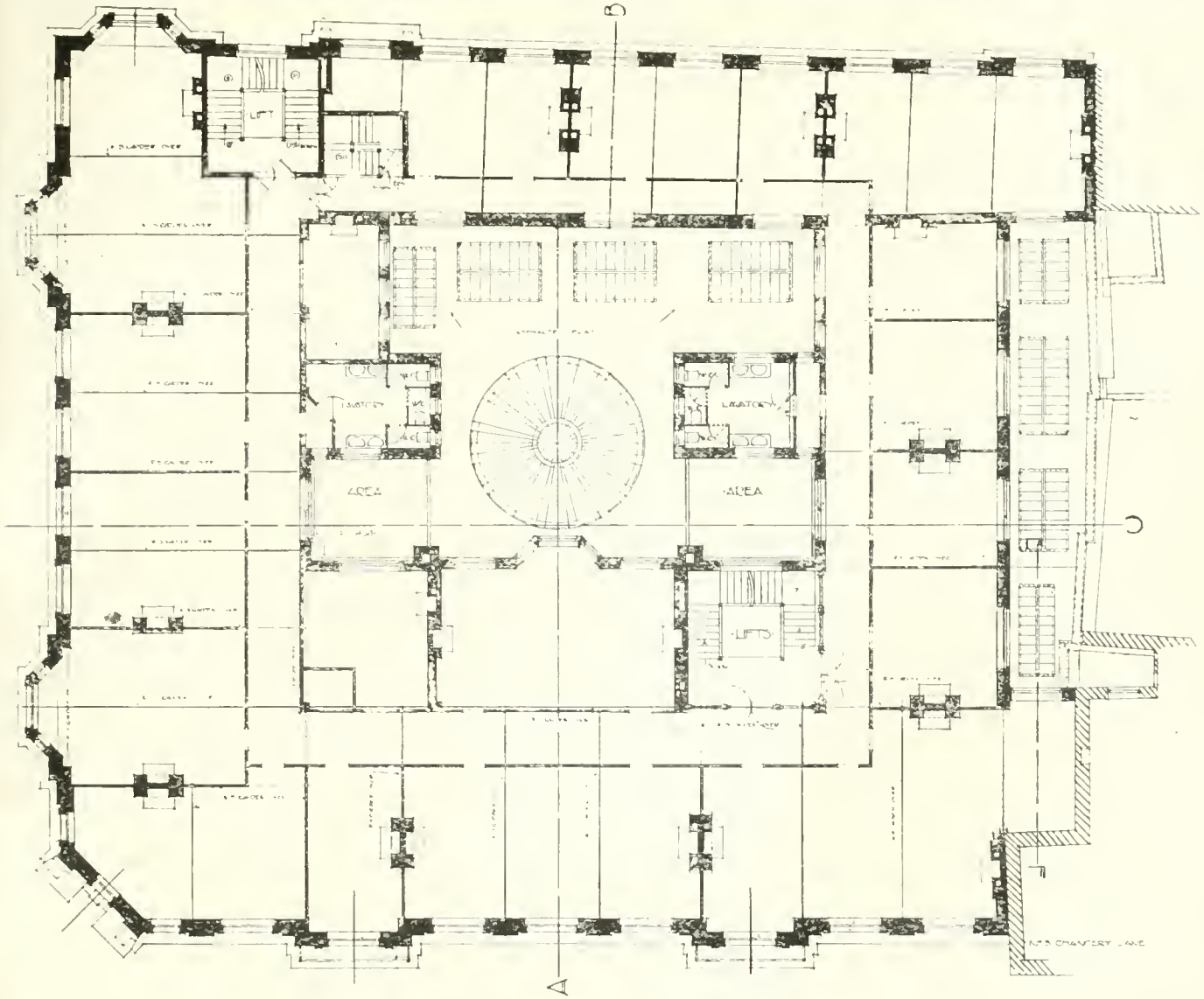
By H. C. H. Shenton (Vice President).

The paper dealt with the difficulties of deciding on standards of purity for water and of danger from pollution. Dr. Somerville's and Dr. Thresh's warnings as to the harmfulness of certain organisms other than those usually taken into account were quoted, and Dr. Russell McLean's warnings against the harmfulness of coli, Dr. Sims Woodhead's statement as to the impurity of chalk waters, Dr. McWeeney's coli standard, Dr. Rideal's comments on the coli standard, Dr. Houston's object in the purification of the London water supplies, and Mr. Dibdin's statement with regard to coli were discussed.

The author stated that animal pollution was sometimes considered harmless, without any apparent justification, and Mr. Downs's conclusions as to the harmlessness of farmyard pollution were given as an instance. Mr. Revell's opinion as to the relative unimportance of chemical and bacteriological tests for water was discussed, and the possible harmfulness of an absolutely sterile water was illustrated by Sir John Moore's statement at Dublin as to the nutritive value of certain bacteria in water, and by an instance of illness supposed to have been caused by the consumption of distilled water.

The pollution of supplies had been demonstrated recently by a great many authorities, including Mr. Baldwin Latham, who had drawn attention once again to the fact that typhoid germs could exist in the ground, a fact which had been proved by Dr. Robinson's experiments, which were confirmed by Dr. Sidney Martin, of the Local Government Board. The author stated that Dr. J. W. Miller's paper on the "Dangerous Pollution of Rivers" was confirmed by the serious warning of the Joint Committee of both Houses of Parliament on the Water Supplies Protection Bill. Statistics published by the New York State Department of Health proved that cities which had improved their water supplies during a period of ten years showed a typhoid death-rate considerably diminished, whilst those which had not improved their water-supplies during the same period showed no change in the typhoid death-rate. In the author's opinion, standards could not be adopted that would insure safety from all possible dangers, including unknown causes; but standards could be adopted that would exclude such germs as were known to be harmful. For the rest, a risk must be accepted or ignored till the existence of anything harmful in the water was proved or disproved by the scientist. Such standards should be rigidly enforced. If the scientist would fix such a standard, the engineer would make water conform to it. The author also stated that the fact that waters could be purified did not afford any excuse for permitting pollution to occur. All possible sources of pollution should be excluded, or purified so as to be harmless where exclusion was impossible. Engineers could do away with all sources of danger as required by constructing new and better works of various kinds, but these must be of a character superior to what was now generally accepted. To do away with the sources of pollution would prove less expensive in the end than the present

* Read before the Society of Engineers, May 1, 1911.



FIRST FLOOR PLAN

NEW OFFICES, LAW UNION AND ROCK INSURANCE CO.—Mr. Arthur C. Blomfield, M.A., F.R.I.B.A., Architect.—

acquiescence in the construction or use of leaking sewers, house connections, drains, cesspits, and the like in places where pollution of the underground water-supply was possible.

MESSRS. J. WHITEHEAD AND SONS', LTD., MARBLES AND GRANITE.

We would direct special attention to the reproductions of marbles and granite which appear on our cover, which, besides being excellent examples of colour printing, are wonderfully true to the originals.

The green marbles illustrated are suitable generally for interior decorations. Where large sizes are required, Nos. 127, 174, and 185 are the most saleable. No. 4 is from the Isle of Iona, Scotland, some blocks being extremely rich in colour. The other coloured and veined marbles shown are very decorative when opened out as panelling, etc.

The granites are all polishing varieties, suitable for exterior constructional work.

Messrs. J. Whitehead and Sons, Ltd., are prepared to quote for any quantities, and the experience and reputation of the firm are such that any architect may safely leave himself in their hands.

The death is announced of Mr. L. Cowgill, who held the post of architect and engineer to the Shipley D.C. Twenty years ago Mr. Cowgill served under the old Shipley Local Board as assistant in the surveyor's department, being afterwards appointed sanitary inspector, and, later, as architect and engineer.

MESSRS. W. N. FROY AND SONS PREMISES, KING-STREET, HAMMERSMITH, W.

A BUILDERS' EMPORIUM.

Accidents often turn out to be blessings in disguise; but when, about eighteen months ago, the staff of Messrs. W. N. Froy and Sons arrived one morning to find the premises burnt almost to the ground, no one could have anticipated that the disaster was going to make way for such convenient and handsome premises and showrooms as have just been completed, and which cover a floor area of nearly 22,000sq.ft.

Started some sixty years ago, the business of Messrs. W. N. Froy and Sons has steadily grown until it now embraces departments in connection with every branch of the building trade, each of which has been carefully remodelled and brought thoroughly up to date, and restocked with a most comprehensive variety of goods suitable for all classes of property. The principal departments include one for chimneypieces, where are found a fine selection in hard and soft woods, also in marble, slate, and iron. In the grate department is an unlimited selection of interiors, dog grates, hob and other stoves in polished and antique brass and copper, tile chimneypieces and hearths, etc.; also an endless variety of kerbs.

The display of cooking ranges includes cooking apparatus suitable for hotels, clubs, or private use, with the well-known "Kitty" and "Castlenau" patterns. A large variety of heating stoves and various kinds of heating apparatus can also be inspected to advantage. Messrs. Froy's display of sanitary fittings is probably as fine as can be found anywhere, and includes a large and varied selection of shower, spray, and plunge baths, white and coloured marble lavatories, earthenware and fireclay lavatories, valve closets, combination closet suites, earthenware and fireclay closet suites (with water laid on), urinals, housemaids' pantry and kitchen sinks, slop sinks, towel airers, towel rails and all bathroom accessories, drain and soil pipes and connections.

The ironmongery section is as complete as possible, and the electric fittings are displayed to the best advantage, and all being wired, with current laid on, the actual effects of globes and shades may be seen. Gas-fittings are displayed in equally great variety, and a special department is devoted to a complete selection of all the latest designs in artistic wallpapers, Japanese leathers, mouldings, distempers, enamels, etc., etc., all decorative materials. It may be confidently stated everything can be obtained in these showrooms suitable for the furnishing either of a castle or a cottage.

Mr. E. C. Austen Leigh (chairman of the Eton Urban District Council, and formerly Lower Master of Eton College), having given a plot of land in the High-street, Eton, for the purpose of erecting a town-hall and institute, a sum is to be devoted from the Baldwin's Bridge Trust for the erection of the building. Mr. E. L. Warre, a son of the Provost of Eton, is the architect of the town-hall and institute.

THE BUILDING EXHIBITION AT OLYMPIA

CONCRETING MACHINERY

[illegible]

CACCIA

[illegible]

MESSRS. E. GAY AND CO.

[illegible]

THE G. WINGET CONCRETE MACHINERY CO., LTD.

[illegible]

MESSRS. MENGUE AND CO., LTD.

[illegible]

FULLER'S PATENT CANTILEVER SCAFFOLDING, LTD.

68 Lincoln's Inn Fields, W.C.) had on view their new system of cantilever scaffolding, which will commend itself to every builder. All ordinary brass and wedges are dispensed with. It saves fifty per cent. in labour, reduces cost of carriage and storage to a minimum, and is specially valuable for raised work and difficult positions.

MESSRS. HARTLEY AND SUGDEN, LTD.

Halifax, displayed specimens of their well-known hot water boilers, the merits of which are familiar to most readers. The 12 in. by 24in. Octumbia boiler, for the domestic purpose of heating and hot water supply by copper coil inserted in the water-ways of the wrought [illegible]

MESSRS. BURLET AND CO.

[illegible]

THE BRITISH CERESIT WATERPROOFING CO., LTD.

At Bay 23 in the Gallery, show "Ceresit," a permanent waterproofing material for damp courses and for waterproofing all structures of brick, stone or concrete. "Ceresit" is a cream white paste of about the consistency of butter. When added to water in the proportion of one to twelve, it dissolves immediately, turning the water to a milky white fluid. This used as is ordinary water in the mixing of cement or concrete makes the latter completely proof against the penetration of moisture or water, even under heavy pressure. It is sufficiently elastic to contract and expand under varying extremes of temperatures, thus avoiding all likelihood of damage through intense heat or frost. All this is effected without any increase in cost of labour. The water in which the "Ceresit" is placed mixes just as easily with cement as other water. There is no smell, and the only difference in the colour of the finished cement is that it is a very little lighter than when made in the ordinary way. The use of "Ceresit" for damp-proofing reduces the cost by half. It should only be used with the best quality Portland cement. Where new structures are to be built of concrete they may be made waterproof throughout, without the necessity for any extra coating, by using "Ceresit" in the water with which the concrete is mixed. This process requires, say, one part of "Ceresit" to fifteen to twenty parts of water; but it saves the cost of materials and labour necessary for the mortar coat, and does not require any additional labour in the concrete work.

THE LIVERPOOL ADHESIVE PASTE COMPANY

At Stand 177, Row H, this firm is giving demonstrations of a special paperhanger's paste, which contains no injurious chemicals and is ready for use. They are also showing in their stand a patent vegetable sizing powder, for which the following advantages are claimed. It is 50 per cent. cheaper than size, has no smell, will never putrefy, there is no waste, it is made in half a minute, and no fittings are required. The company also supplies a patent woodfiller and paint saver, which, with their other specialities can be thoroughly recommended.

JOHN DAVIDGE AND CO.

show their Georgian "No Smoke" down draught preventing chimney-pot and ventilator. It is claimed that in practice this pot prevents down draught, and will work anywhere and in any position. The pot prevents the flue becoming damp and can be kept without trouble. There is no clogging and there are no moving parts. They are made in standard stoneware and heavy galvanised iron in all colours.

THE "BUILDING NEWS" OFFICE

We may perhaps be pardoned for referring to the, but it has been by no means the least attractive stand in the Exhibition, and crowds have been attracted by the plates which have from time to time appeared in the BUILDING NEWS as well as by the designs submitted in our recent Advertisement Design Competition, the result of which we shall announce as soon as possible after the close of the Exhibition. At this office also the *English Warehouse* has made many new friends who have discovered for the first time how interesting a period it is.

The building of the new chancel, transepts and other [illegible] Mr. Osborne Bayley is the architect.

Building Intelligence.

NEWPORT, I.W.—The opening of the new Isolation Hospital, built for Newport, Ryde, and St. Helens, took place on Thursday in last week. The site, buildings, machinery, furniture, and equipment have cost practically £8,000. The hospital contains about 3¼ acres. There are two ward blocks in duplicate, each block having two wards, for males and females, with six beds in each. There are also two small private wards, one on either side of the entrance, so that each ward block contains fourteen beds. The buildings have been carried out by Mr. John Meader, jun., of Cowes, Mr. Saunders, of Carisbrooke, being the clerk of the works, and Mr. G. H. Rackett, of Newport, the foreman. The architect is Mr. S. R. Cocks, of Ryde.

COMPETITIONS.

COTTAGES FOR PORT SUNLIGHT.—Mr. W. H. Lever has given prizes of £20, £10, and £5 for designs for a group of seven cottages suitable to Port Sunlight. The prizes have been awarded to R. F. Dodd, W. E. Davies, and A. R. Sykes, second year students of the Liverpool School of Architecture.

DUNFERMLINE.—The competitive plans for the Women's Institute proposed to be erected by the Carnegie Dunfermline Trust have been adjudicated by Messrs. Sydney Mitchell and Wilson, architects, Edinburgh, and they have awarded the premiums as follows: 1, Messrs. John Melvin and Sons, Alloa, £20; 2, Mr. John Watson, F.R.I.B.A., Rutland street, Edinburgh, £15; 3, Mr. James Lindsay, A.R.I.B.A., West George-street, Glasgow, £10; and 4, Mr. Archibald Welsh, 253, High street, Kirkcaldy. A committee of the trustees have decided that Mr. Welsh's plan is the most suitable, and have adopted it. The new institution is estimated to cost £7,500, and it will be erected on a site in Pitheavlis. Messrs. Melvin and Son's design, placed first by the assessors for the Women's Institute, will not be carried out, as the trustees have accepted the design of Mr. Archibald Welsh, of Kirkcaldy.

MANCHESTER.—Two hundred and twenty-three designs have been received for the Manchester Art Gallery and Library, and from this unprecedented number of preliminary schemes Professor Reginald Blomfield, A.R.A., the assessor, has to make a choice of ten competitors for the final contest. The plans were due last Monday. The cost is fixed at £250,000. Each of the final competitors will receive 100 guineas towards the cost of preparing their plans. The preliminary drawings are in pencil, to the scale of 1/64th of an inch.

MONTEVIDEO.—The Government of Uruguay has decided to offer two premiums for a competition, one to go to the designer of the best scheme of urban planning for public buildings and thoroughfares, and another for a design for a Government building in Montevideo. A sum of £12,750 is to be devoted to the prizes and the expenses attendant upon the competition.

SOUTHAMPTON.—The competition for the Hartley University College, Southampton, has been settled, and we give the chosen plans to-day. The assessor, Mr. H. T. Hare, F.R.I.B.A., reported to the Council of the College his award, and his conclusions have been confirmed as follows: First, Messrs. Clyde Young and H. S. Fast, 6, Lancaster-place, Strand, London, W.C. Second, Mr. Edwin Cooper, F.R.I.B.A., 12, Gray's Inn-square, W.C. Third, Messrs. J. H. Hickton, F.R.I.B.A., and H. E. Farmer, F.R.I.B.A., Bridge-street, Walsall. The date of the exhibition of the designs has not yet been settled, we are told by Mr. D. Kiddle, the Registrar.

At the annual meeting of the executive of the Devon Bowling Association, held at Exeter on Thursday in last week, Mr. B. Priestley Shires, F.R.I.B.A., of Plymouth, who occupied the [illegible] was unanimously re-elected as president.

PROFESSIONAL AND TRADE SOCIETIES.

GLOUCESTERSHIRE ARCHITECTURAL ASSOCIATION.—Mr. Walter B. Wood (president) occupied the chair at a meeting of the Gloucestershire Architectural Association, held at the Northgate Mansions on Thursday, April 27, when a number of members attended to hear a lecture by Mr. Saxon Snell, F.R.I.B.A., entitled "Baths and Washhouses." Mr. Snell dealt exhaustively with the question of planning of public baths, and pointed out that in many cases insufficient attention was given to the choice of a site, an awkward site often resulting in costly planning. Although great improvements in planning baths had been made during the past twenty or thirty years, the lecturer thought that there was room for further improvement, but that in many respects the designer's hands were still tied by popular prejudice. This handicap, he hoped, would disappear in time. Mr. Snell mentioned that he had that day visited the Gloucester Public Baths, and remarked that they were among the most conveniently and economically planned baths he knew. At the close of his lecture, Mr. Snell exhibited and explained numerous plans of baths and washhouses carried out by himself and other architects, including plans of the Gloucester Baths (kindly lent by the architect, Mr. J. Fletcher Trew). An interesting discussion followed, in which Messrs. W. B. Wood, Fletcher Trew, W. Chatters, R. S. Phillips, and H. S. Davis took part. The meeting closed with a hearty vote of thanks to the lecturer. On Friday afternoon members visited the new Ladies' College baths at Cheltenham, by kind invitation of Mr. Saxon Snell, the architect.

INSTITUTION OF CIVIL ENGINEERS.—The council of this institution have made the following awards for papers read and discussed during the session 1910-1911:—Telford gold medals to Mr. W. J. Wilgus (New York) and Mr. J. Walker Smith (Edinburgh); a George Stephenson gold medal to Mr. Philip Dawson (London); Telford premiums to Messrs. G. W. Humphreys (London), H. K. G. Bamber (Greenhithe), A. E. Carey (London), William Dawson (Crewe), and C. S. R. Palmer (London); and the Trevithick premium to Mr. A. T. Blackall (Reading). At the annual general meeting of the institution, the result of the ballot for the election of officers was declared and included:—President, Dr. William Cawthorne Unwin (London); vice-presidents, Mr. R. Elliott-Cooper (London), Mr. Anthony G. Lyster (Liverpool), Mr. B. Hall Blyth (Edinburgh), and Mr. John Strain (Glasgow).

MANCHESTER SOCIETY OF ARCHITECTS.—The forty-seventh annual meeting of the Society of Architects was held on the 26th ult. The report of the council stated that the aggregate membership is 282, consisting of 108 Fellows, 117 Associates, and 57 Students, as against a membership of 268 a year ago, being an increase of fourteen. The deaths were recorded with regret of Mr. J. S. Hodgson, fellow, and Mr. J. F. Holden and O. B. Hill, associates. The attention of the council was drawn to a serious case of a tradesman openly offering by letter a commission to one of the members. The council sent the correspondence to the Royal Institute of British Architects, with a request that the tradesman should be prosecuted under the Prevention of Corruption Act 1906. The R.I.B.A. Council, however, came to the conclusion not to institute proceedings under the Act, but to draw the attention of the Institute members and the profession generally to the matter. The council of the society had sent a memorial to the Manchester Corporation, urging them not to consent to the proposal to pull down the old town hall in King-street, now used as the free reference library. They pointed out that the building, "from an architectural point of view, for simple dignity and refined and scholarly design, is a masterpiece probably unsurpassed in the city, and is a possession of which any town should be proud." At the request of the Manchester, Salford, and District Building Trades Employers' Association the council considered the necessity of including in all provided sums something to cover the services rendered by the general contractor where the work is done by a specialist and passed the following resolution: "That architects be advised to make it clear in bills of quantities that the contractor is to add his profit in provisional sums included in quantities." Report and accounts were approved and adopted, and the following officers and members of council were elected: President, Mr. Edgar Wood, F.R.I.B.A. Vice-presidents, Mr. John Brooke, F.R.I.B.A., and Professor S. H. Capper, M.A., A.R.I.B.A. Hon. secretary, Mr. Isaac Taylor, F.R.I.B.A. Assistant hon. sec., Mr. J. T. Halliday, A.R.I.B.A. Members of council: Messrs. A. E. Corbett, John Ely, W. C. Hardisty, F. E. L. Harris, Francis Jones, jun., P. D. Lodge, Paul Ogden, Claude Paterson, J. H. Sellers, Gerald Sanville, J. H. Woodhouse, and P. S. Worthington.

NEWCASTLE BRANCH, ESTATE AGENTS' INSTITUTE.—A meeting of members of the Newcastle and District Estate Agents' Association was held at the Central Exchange Hotel, Grey-street, Newcastle-on-Tyne, on Saturday, to consider the overtures made to the association by the Incorporated Estate Agents' Institute to found a branch of the institute for North-country estate agents. Mr. John Baty, this year's president of the association, occupied the chair, and, after discussion, it was unanimously agreed to accept the invitation of the Institute to found a branch. The members of the association will be accepted as members of the institute en bloc; the local association will be disbanded, and become the nucleus of the Northern branch of the institute.

THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.—A council meeting of the above body was held on Monday last at No. 31, South Frederick-street, Dublin. The president, Mr. A. E. Murray, R.H.A., F.R.I.B.A., was in the chair. There were also present: Messrs. W. Kaye-Parry, C. H. Ashworth, Lucius O'Callaghan, F. G. Hicks, H. Allberry, F. Hayes, C. P. Sheridan, R. C. Orpen, J. H. Webb, A. G. C. Millar, and C. A. Owen, hon. secretary. A further report from the examination committee was received and adopted, the members of the examining board were approved, the date of the first examination was fixed for November 20 and 21, and the hon. secretary was instructed to advertise particulars of the examination at once. Some correspondence was dealt with, including a letter from the Architectural Association of Ireland, in connection with the late scheme of amalgamation, and some suggestions from the Master Builders' Association as to the revised letter of invitation to tender. The council resolved to present, on behalf of the institute, an address of welcome to their Majesties King George V. and Queen Mary, on the occasion of their forthcoming visit to Ireland. It was decided that the R.I.B.A. Prize Drawings shall be on view in the lecture room of the Architectural Association, Frederick lane, from May 5 to 11.

ROADS IMPROVEMENT ASSOCIATION.—The annual general meeting of the Roads Improvement Association was held on Friday at Caxton House, Westminster, Mr. Robert Todd presiding. The annual report stated that a new and important field of activity had been opened to the association by the establishment of the Road Board to administer an Imperial Road Improvement Fund, and it was hoped that the Board would take up the question of the standardisation of road materials. The association had resolved to take steps to insure that the views of users of the highway were properly voiced in connection with the administration of the Imperial Fund. It was proposed to establish local committees, representative of the various forms of road traffic, in each of the administrative counties with the following objects, among others: (1) Become acquainted with the various schemes of road improvement under consideration within the county; (2) suggest and foster desirable improvements, not already under consideration by the authorities; (3) confer with the authorities in regard to the relative merits of the various road improvement schemes; and (4) investigate generally questions affecting the conditions of the roads in the district.

SCOTTISH BUILDING TRADES FEDERATION.—A meeting of the executive of the Scottish Building Trades Federation was held on Friday in the premises of the Edinburgh, Leith, and District Building Association, at 61, Lothian-road, Edinburgh. Mr. David Wilson, J.P., presided, and representatives were present from Aberdeen, Inverness, Kilmarnock, Edinburgh, and other centres. Reports on the state of the trade throughout the country showed that, generally speaking, there was a slight improvement. In Edinburgh and district particularly there were indications of a revival. The secretary and treasurer, Mr. Thomas Ferguson, reported that the funds of the Federation were in a sound condition.

CHIPS.

The establishment of a cavalry depot at Dunbar, to be recognised as the Scottish cavalry centre, has necessitated the erection of new barracks, and the War Office accepted on Wednesday the tender of Messrs. Cruickshanks and Sons, of Edinburgh, for the work, which is to be started at once. The buildings are to be ready for occupation early next year.

The Earl of St. Germans opened last week the new town-hall at St. Germans, Cornwall. The new hall is built chiefly of stone used in the old town-hall, now demolished, and from a local quarry, with brick facings and stone dressings. In addition to the main hall, 52ft. by 24ft., capable of holding over two hundred people, there are a billiard-room and a reading-room. The premises are heated by hot-water pipes.

We regret to hear of the bereavement sustained by Mr. F. J. Barnes, stone merchant, of Weymouth, in the death from appendicitis, at the early age of twenty years, of his second son, Mr. Gordon Angel Mackay Barnes, Lieutenant in the Dorset Territorials Garrison Artillery. Lieutenant Barnes was seized with illness while on a holiday visit to Manchester with his elder brother, and died after an operation had been performed.

Mr. Leonard Stokes, P.R.I.B.A., in a letter to the *Times*, explains that the reason why the Institute, although they had presented a petition against the Corporation's Bill for the construction of the St. Paul's Bridge, had not instructed counsel to appear on their behalf before the House of Commons Committee, was because the Institute is not in a position to enter upon a prolonged and costly Parliamentary battle against all the resources of the wealthy Corporation of London.

Mr. J. H. Tulloch, M.I.C.E., an Inspector of the Local Government Board, held an inquiry at Northwich on Friday in regard to the urban council's application to borrow £1,550 in connection with the purchase of a new site for public baths in Church-road. The clerk explained that the existing baths and site were part of a gift to the town in 1887 by the late Mr. Robert Verdin, M.P., but constant subsidence had for years been a source of trouble, and a heavy charge upon the rates. It had become so bad that the provision of new baths was imperative; for that which had been an ornamental building was now virtually a wreck. It was proposed to build new baths on the site of the old Grammar School. When the old baths had been taken down the site would merge into a public park.

At the quarterly meeting of the Ipswich Corporation, a report was received from the museum committee as to considerable repairs which are being carried out at the Elizabethan Mansion in Christchurch Park. The dry rot which attacked the so-called priest's chamber over the south porch was found to be spreading to the ornamental work of the minstrels' gallery, hence the entire room had to be dismantled, and the floor and ceiling removed. The old floor had now been replaced with a new floor of English oak, with new oak rafters which have been left open, and were thus a decided improvement to the south porch beneath, besides being a safeguard against a recurrence of the dry rot in that portion. The committee had decided to finish the repairs to the servants' hall, which had been commenced two years previously, and stopped for want of funds. The restoration of the oak panelling had now been completed, the modern deal doors had been removed, the panelling continued into the back hall, and a curious circular lantern window thereon had also been uncovered and restored.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to [illegible] of the paper, and with each reply a [illegible] must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that queries want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. J. E. Todd, 145, Victoria-road North, Southsea.

QUESTIONS.

[13037.] FACING STEPS.—I desire to use a mixture of emery and cementing material for the purpose of facing the heads of steps directly on to concrete or stone without the use of metal bars, and shall be greatly obliged if any of your readers can give me any information, as follows—viz.: Has such a mixture been used for this purpose, and, if so, with what results as to wear, etc.?—Emery.

[13038.] PERSPECTIVE.—Would some reader kindly show and describe an approximate simple method for setting up an architectural sketch perspective.—Astragal.

[13039.] CLEANING CHURCH OAK.—What is the best method of cleaning and keeping clean oak pulpit, lectern, etc.? They have considerable carving and pierced tracery, and have been fixed four or five years; were slightly fumed when new, but neither oiled nor varnished. Might the broad, flat top of the communion rail be washed with soap and water?—Verger.

REPLIES.

[13035.] KEEPING LEADWORK CLEAN.—"H. B.'s" requirement is unusual, as external leadwork which has become "weathered" is usually considered to harmonise better with other work. However, having treated it in accordance with my reply to Question No. 12997 (January 27 last), apply a coat of the best "flat" varnish. The effect produced will be the same as that of metal which has been lacquered. Cleaning will then only be required when the paintwork is done.—George Norman, 83, New Kent-road, S.E.

[13035.] KEEPING LEADWORK CLEAN.—From what I can remember of the answer to Question 12997, I believe it was advised to wash down the leadwork with sand and water, applied with a stiff brush. This method will, of course, remove the first coat of oxide which has formed on the surface of the leadwork, but will not keep it permanently "clean." In fact, the atmosphere and moisture will quickly oxidise the surface again, whatever is done in the way of cleaning, and I therefore think it a waste of time to attempt anything of that nature, and should advise that the lead be allowed to remain in its natural condition. I believe that a good deal of the beauty of our old leadwork would be lost if the surface which has formed were to be removed, and may I say, too, that I regret the ornamental work has been tinned over? One really might have used tin in the first place, and not lead.—S. Douglas Meadows, Town Hall, East Ham, E.

[13035.] KEEPING LEADWORK CLEAN.—Owing to the action of the atmosphere upon lead and tin, their surfaces soon become tarnished by the formation of the oxides, and so rendering the preservation of their metallic lustre almost impossible for any length of time by any of the ordinary cleansing or polishing agents, this being especially so in manufacturing towns. However, following the method of cleaning the leadwork as hitherto before stated by the writer, the best and only practical method of preserving the surfaces thus obtained for any considerable length of time will be by an application of silicate of soda. This prevents any further oxidation taking place by the formation of an invisible thin water and air proof film, which may be periodically cleansed with clean water upon the accumulation of foreign matter. Before applying the silicate of soda the surfaces to be treated should be perfectly dry and free from all greasy matter, and well polished with putty-powder, and then immediately painted, provided the weather is favourable. Careful workmanship is essential. The writer can quote of a heavy ornamental weather vane being treated in this way, and the preservation of the metallic lustre has been maintained for a considerable length of time, the glittering of the vane under the influence of the sun's rays being at all times perfect. By this treatment the desired effects will be obtained and also maintained.—Chas. A. Ingley, 52, Ivanhoe-road, Denmark Park, London.

[13036.] EFFLORESCENCE IN BRICKS.—In reply to "Rimefrost," from the information supplied, the efflorescence in this instance is undoubtedly due to the earth from which the bricks were made containing a large percentage of salts, which, in the burning, have been converted into sulphates. This efflorescence is produced by a process known as saltpetring, and most commonly shows itself in walls newly erected, but will also be evident in parts of older walls exposed to much damp. It varies somewhat in appearance and chemical composition, and is most apparent in spells of dry weather. Commonly known as hoar or rime frost, it makes its appearance as a flocculent white substance, covering the brickwork with a thin coating of what would appear snow or white sugar, is crystalline in structure, and if examined closely will resemble fine fibres or needles. These crystals vary in composition, and may consist of sulphate of magnesia, as also of sulphate of lime; of carbonate, sulphate, or nitrate of soda; of chlorides of soda and potash, and carbonate of potash, whilst dampness is favourable to its formation. When the temperature drops to freezing point it stops it. When the bricks have been burnt with coal fires, the sulphur from the fumes of the fuel converts the lime or magnesia in the clay into sulphates; whilst where the bricks have been made from clay, as in the present case, which has been covered with salt water, or if sea-sand or water has been used, chlorides are created. These being easily dissolved when the walls are wet or damp they dissolve, and immediately the work dries, the water is evaporated, leaving the crystals exposed on the surface. Besides having a disagreeable appearance and causing damp patches on the wall, it will, if reaching any considerable extent, and being allowed to remain, in time detach small fragments of the work, particularly in the case of soft bricks, whilst once the efflorescence has commenced it will be a difficult matter to get any coat of paint to stand without the efflorescence eating through. With regard to the remedies, apart from refraining to use any of the materials containing the beforementioned properties, if the bricks are burnt with coke or wood alone, and no coal whatever, the action of saltpetring does not take place; likewise, by adding one ounce of barium carbonate to every hundredweight of brick earth, thoroughly well incorporated before the moulding process, the action is prevented, barium sulphate being formed, which is non-hygroscopic. The exact amount to add should, however, first be ascertained by making up a few samples and testing the result, as the proportion is governed by the percentage of salts contained in the clay, although the weights given will doubtless be found sufficient. If it is suspected that it is only the mortar which gives rise to the efflorescence, it should be treated by mixing it with any animal fatty matter in the proportion of 8lb. to 12lb. to 100lb. quicklime and 300 cement powder. To remove the efflorescence which has already formed, the surface should be well brushed over in dry weather with a stiff bass broom, and the brushing repeated as it reappears, until all the salts have been removed.—J. E. Todd, 145, Victoria-road North, Southsea.

[13036.]—EFFLORESCENCE IN BRICKS.—Most of the methods which have been proposed for curing damp walls have been based on the use of waterproof plastering or paint, or depend on the principle of employing hollow walls, with or without ventilating apertures. The former device may, in certain cases, fulfil the desired end, although, as a rule, it merely hides the mischief for a time, and actually aggravates it. The plan of using hollow walls, with ventilating channels, whilst more correct in principle, is both costly and difficult of application to old houses. Vandoyer has the following remarks on these two methods: Imagine the wall of a basement to be affected by moisture and to exhibit efflorescences on its external surfaces. It would be of no use to try to shut the damp into the wall. We must rather afford it an opportunity of being dried by the air, whilst endeavouring to remove the cause. With this object air-channels should be inserted in the walls above the ground level; cellars may be excavated where none already exist; the inner and outer plastering of the walls may be removed, and any precautions similar to those which are employed in new construction may be adopted. In cases, however, in which these precautions are no longer possible, or when, in spite of them, the effects of dampness still continue to exhibit themselves, recourse must be had to other means, such as the following.—To prevent the moisture which is present in the wall of a building, and shows itself on the interior surface, from influencing the air of the apartments, the best plan is to face the wall with hard tiles, set on edge at a distance of about one inch from the face of the wall, so as to permit a circulation of air between the wall and the inner casing. It is beneficial to give the inner surface of tiles a coat of asphalt, especially those which are tied to the wall, whilst the outer surface may be coated with plaster (?), which, when perfectly dry, can be painted or plastered.—Frederick Worrall, 45, Queen-street, Wolverhampton.

[13036.]—EFFLORESCENCE IN BRICKS.—If the bricks are washed with a solution of tartaric or citric acid, this trouble will be prevented. The workmen's method is by making lemonade on a large scale, i.e., they cut up a number of lemons, and boil in a builder's bucket (omitting sugar, of course), and then wash the bricks showing efflorescence. I have myself been cleaning some brickwork this afternoon by cutting lemons into two, and then rubbing the halves on the bricks affected. If "Rimefrost" refers to the BUILDING NEWS, Vol. LXII. pp. 586, 621, Vol. LXXII. p. 506, and especially Vol. XCIX. p. 956 (weekly number 2921, December 30, 1910), he will obtain some useful information on this subject.—Frank Wilson, 225, Nottingham-street, Sheffield.

[13036.]—EFFLORESCENCE IN BRICKS.—This efflorescence is formed by a process known as saltpetring, which varies somewhat in appearance and also in chemical composition, and is most apparent in dry weather. It is generally white in colour and crystalline in structure, the crystals presenting the appearance and being like a thin coating of snow or white sugar. The chemical analysis has shown that these crystals vary considerably in composition. They often consist of sulphate of magnesia, also of sulphate of lime; of carbonate, sulphate, or nitrate of soda; of chlorides of soda and potash, and carbonate of potash. The formation of chlorides is nearly sure to take place if sea-sand or sea-water were used in the mortar, particularly so if a strong hydraulic lime were used, or in bricks made from clay which has been impregnated with salt water. Efflorescence not only causes unsightly patches on the surface of the wall, but will eat through any coat of paint, distemper, etc., that has been applied after the efflorescence has once commenced. The bricks manufactured by Thomas Lawrence, of Bracknell (T.L.B.), seem to be free from this efflorescence, which is due, no doubt, to the special preparation of the brick earth, such as washing, etc., previous to the making of the brick. Prevention is better than any attempt at cure, unless expense is no object and it is desirable to continue to use this earth; then it might be specially treated, such as washing before making the bricks. Otherwise, I suggest treating it in the work, by waiting for a dry day with an east wind, which will induce the efflorescence to show on the face of the brickwork. Then thoroughly scrub into the face of the work with a scrubbing-brush dilute spirit of salt in the proportion of about half a pint of spirit of salt to an ordinary size builder's pail of clean water. Then return to the starting-point with a hose and brush, and thoroughly wash out; this will eradicate a good bit of it, and it might show slightly again. The operation could then be repeated, if necessary.—William J. Pywell, A.R.I.B.A., Cumberland House, Hanwell, W.

[13036.]—EFFLORESCENCE IN BRICKS.—The crystals vary considerably in composition, according to the clay used in the manufacture of the bricks. They are hygroscopic: absorbing the moisture from a damp atmosphere they dissolve, and spread over the face of the bricks; then, in dry weather, the crystals are reformed. It often takes some years before driving rain, etc., washes them away. The only reliable way to obviate the nuisance, with the local red facings referred to, is to have the clay analysed. It probably contains an excess of pyrites (sulphide of iron) or magnesia. If the clay has been covered by sea-water the formation of chlorides can be expected. Until the actual constituent causing the trouble is known, a remedy cannot be applied for future manufacture. Bricks already used can be treated with a weak solution of acetic acid, and afterwards with naphtha.—George Norman, 83, New Kent-road, S.E.

[13036.]—EFFLORESCENCE IN BRICKS.—New brickwork often shows a flocculent white substance on the face, which may last for some time, but will ultimately disappear. There are various causes, but it is usually attributed to the salts in the brick, and I think in this case that explanation may be reasonably accepted, as the bricks are made from the banks of a tidal river. Sea-sand or sea-water also has the same effect, and plaster made under similar conditions has been found to be subjected to efflorescence. It is not wise to attempt to prevent it, as it would in all probability go internally, and bring down the plaster. If it is very objectionable, it may be removed by a hard brush; but as it will ultimately go of its own accord, this seems unnecessary trouble. Salt water should not be used for soaking the bricks or making the mortar. A test for salt in water can be made by adding a little nitrate of silver. If salt is present, chloride of silver is formed, shown by a milkiness of the water. A test for sand is to add a little sand to the water, and repeat the above test.—S. Douglas Meadows, Town Hall, East Ham, E.

A memorial window, presented by many friends of Dean Luckock, and placed in the north choir aisle of Lichfield Cathedral, will be dedicated by the Bishop of the diocese on Wednesday, May 31. The subject of the window is St. Paul making his defence as he stood on the steps of the castle.

The new Council schools in Derby-road, Eastleigh, were opened on Wednesday week. They have been designed by Mr. W. J. Taylor, the surveyor to the Hants County Council. The infants' department provides for 400, and the boys' and girls' departments for 800 scholars. Each school has a large central hall, and each department has seven classrooms, five accommodating 60 children, and two 50.

The collection which is to be housed in the new London Museum has received some important additions during the past week. A sewer is being laid along Grosvenor-road in the neighbourhood of the Old Westminster Palace, and the men engaged in the work have unearthed some relics which date from the 13th to the 17th century. Among the articles discovered are a silver spoon of the 15th century, a pewter trencher with a bull's head engraved on it, and the head of a figure in pottery, which probably formed part of a rose-water dish.

The First Commissioner of Works reports that the Trustees of the National Gallery have offered to lend for exhibition within the precincts of the House of Lords Copley's picture of the "Death of Chatham." He proposes to hang it in the Royal Gallery. The Director of the National Portrait Gallery has also expressed his willingness to recommend his trustees to lend certain pictures to decorate the walls of the House. The First Commissioner of Works presented a coloured engraving by Nash, representing the Opening of Parliament by Queen Victoria in 1838. This will be placed in the refreshment rooms.

PARLIAMENTARY NOTES.

PUBLIC HEALTH (SEWERS AND DRAINS) BILL.—This measure has been introduced in the House of Commons, but the second reading is being blocked on the Opposition side. The Bill was introduced by Mr. Harmood-Banner, and is backed by the following members of both sides: Sir Thomas Roe, Mr. Charles Nicholson, Mr. G. Thorne, Sir Alfred Cripps, Sir Luke White, Lord Alexander Thynne, Mr. Hamar Greenwood, and Mr. Middlebrook. The Bill, which is introduced at the request of the Association of Municipal Corporations and of the Urban District Councils Association, seeks to amend the definitions of "sewer" and "drain" in the Public Health Acts. Under those definitions, any drain used for the drainage of more than one house becomes technically a sewer, and therefore vested in and repairable by the local authority. Numerous decisions in the Courts of Law illustrate the practical difficulties which arise owing to this state of the law: it involves frequent interference by the local authority with private property, throws upon the whole body of ratepayers the cost of repairing drains which are in all respects private and are of no use to the public in general, and militates against the adoption of the best methods of draining houses and streets.

ORIGINALITY IN ARCHITECTURE.—Mr. Joynson-Hicks, yesterday week, in Grand Committee on the Copyright Bill, proposed the omission of architecture from the scope of the measure. Architecture was not a satisfactory subject for copyrighting, he contended. Already plans of buildings were safeguarded by law. The Bill proposed, however, to extend copyright to the outward form of a building. Mr. Joynson-Hicks added that he was far from objecting to copyright, but before making this experiment far more arguments should be urged in its favour than those he had heard.—The Solicitor-General (Sir John Simon) pointed out that by the Berlin Convention this country was party to an arrangement by which copyright of architectural art was to be included. The inclusion had, moreover, been recommended by thirteen of the sixteen members of the Departmental Committee, which considered the subject exhaustively. Already France and Germany had a similar copyright law in existence. It was illegal in this country for a man to use the plans of another architect, but there was nothing to prevent him from repeating the design of a completed building from photographs. Sir Gilbert Parker urged that there was no reason why the architect, any more than the painter, should be excluded from the results of his research and study.—Mr. George Harwood said that the elements of originality in any architecture he had ever seen were not ascertainable. The proposal of the Bill would strike at the roots of an axiom of social life—the axiom that once a thing had been built it was open to the public to copy it. Under the operation of the Bill every architect would be nervous lest something he had included in a design was an infringement of another's copyright.—Mr. Lansbury supported the amendment. Once an architect had been paid for his design and for superintending the construction of a building, he ought to be satisfied. Architects owed far more to the past than to their own generation. There was originality in the design of buildings at the Garden City. It was to be hoped that such designs would be copied throughout the country.—Mr. T. P. O'Connor said it was illogical to allow the painter, the author, and the photographer the protection of copyright, and to discriminate against the architect of genius.—Mr. Higham supported the amendment.—Mr. Gwynne mentioned that when there was no copyright in this country, books were very much dearer than now.—That suggested that the absence of copyright for architectural ideas was one of the reasons why houses were dear to-day.—Mr. Mackinder said that what was wanted was a stimulus to something original in architecture.—Mr. Butcher said it was practically impossible to apply protection to such a thing as an architectural work of art. An architect who brought an action for infringement would have to prove two things—that his design was original, and that it was artistic. Both things would be exceedingly difficult and exceedingly costly to prove. The Bill as it stood really presented architects with lawsuits, and the architect would be the last person to benefit.—Sir George Agnew cited Mr. Norman Shaw, the Royal Academician, as a representative architect whose undoubted originality of designs ought to be protected.—On a division, the amendment was rejected by 19 votes to 15.

REPRODUCTION OF ARTISTIC WORK.

On Tuesday, Mr. Toulmin moved to omit Subsection 2 of Clause II., which provides that where the author of an artistic work is not the owner of the copyright, he may, without infringing the copyright, use any mould, cast, sketch, plan, model, or study made by him for the purpose of the work, provided he does not repeat or imitate the main design. Stating that the owners of illustrated journals regarded the Government's proposals as objectionable, Mr. Toulmin argued that the author or designer should be left to make his own bargain with the purchaser. He should indicate what he was selling, and not be given statutory power to sell his work twice over.—Mr. Buxton said the Government considered that if an artist had made sketches, designs, etc., for the production of a large picture, it was not fair that he should be prohibited from using them, seeing that the purchaser of the picture would be protected as regarded the main design. At a later stage he promised to introduce words into the Bill making it clear that the main design of a picture, or any substantial portion of it, should not be reproduced except with the consent of the owner of the copyright.—The amendment was withdrawn.—An interesting discussion took place upon Sub-section 3, which exempts from the acts constituting an infringement of copyright, the making of paintings, drawings, engravings, or photographs of a work of sculpture or artistic craftsmanship, if situate in a public place or building, or the making of paintings, drawings, engravings, and photographs (not in the nature of architectural drawings) of any architectural work of art.—Mr. Toulmin moved to extend this proposal by also exempting the "publishing" of such works.—Lord Balcarres pointed out that at present no one could copy a picture loaned to the National Gallery without infringing the owner's copyright. If the Government's proposal were carried, however, that copyright would apparently disappear.—Mr. Joynson-Hicks considered that when works of art were the property of the nation, it was desirable that they should be copied or photographed; but the private owner who lent his works of art to the public should be protected.—Lord Balcarres said the authorities of the National Gallery and other public institutions at present prohibited the reproduction of a work of art exhibited there, either for the purposes of study or for sale, without the permission of the owner.—Mr. Buxton said the Bill proposed no change in the law. There was nothing in the Bill to prevent the authorities of art galleries from making conditions similar to those indicated by Lord Balcarres.—Mr. Joynson-Hicks feared that persons might run the risk of a small fine for violating the by-laws of the National Gallery or British Museum in order to secure ill-gotten gains, and then plead the provisions of this Bill in defence.—Mr. Wedgwood contended that very few people who exhibited valuable pottery and other things included in the term "artistic craftsmanship" would not be glad to have them reproduced by means of photographs.—Mr. Butcher and other members criticised the vagueness of the term "artistic craftsmanship." It was stated that this point would be discussed when the definitions of the terms used in the Bill come under consideration.—The amendment was agreed to.—Mr. Wedgwood moved to widen this subsection by also exempting from infringement of copyright "the making or publishing of photographs if permanently situate in a public place or building the maintenance of which depends wholly or in part on public funds." He argued that anything which tended to the wide distribution of photographic reproductions of great pictures would be of advantage to the whole community.—Mr. Birrell objected that if the amendment were adopted it would tend to dry up the sources of a good deal of generosity which enabled art students and others to see great works in their original form. A loan picture in a public gallery might be a copyright picture.—Mr. Barton suggested that instead of the words "if permanently" in the amendment there should be substituted "not being private property." He pointed in this connection to the efforts often made by municipalities to obtain the loan of pictures for exhibition in their public galleries.—The alteration having been agreed to by Mr. Wedgwood, the amendment as revised was accepted by Mr. Buxton on behalf of the Government. The Committee agreed to the amendment.

FIRE RISKS OF WESTMINSTER ABBEY.

Mr. Booth asked the hon. Member for Southampton, as representing the First Commissioner of Works, if highly-inflammable material was being used inside and adjacent to Westminster Abbey, and whether he had considered the necessity of the use of asbestos and the advisability for steeping the timber used in specially prepared solution to avoid the danger of conflagration.—Mr. Dudley Ward: There is a considerable quantity of timber in and around Westminster Abbey, and the question of treating it with a view to rendering it fireproof was carefully considered. The proposal, however, was not found to be practicable. Every precaution against fire is being taken, and the arrangements which have been made meet with the full approval of the Metropolitan Fire Brigade, who have been consulted throughout.

ST. PAUL'S BRIDGE.—A Select Committee of the House of Commons resumed consideration on Monday of the Corporation of London (Bridges) Bill, under which it is proposed to reconstruct Southwark Bridge and to build St. Paul's Bridge across the river. It was announced that satisfactory arrangements had been made with the occupiers of property in Upper Thames-street, Merchant Taylors' Company, Messrs. Williams, of St. Paul's Churchyard, and the City of London Electric Supply Company, all of whom had presented petitions against the Bill. Sir A. R. Stenning, F.R.I.B.A., ex-President of the Surveyors' Institution, was cross-examined on behalf of Messrs. Higgins and Eagle, whose premises would be interfered with under the proposals of the Bill. The desire of the Corporation was, witness said, to do as little injury as possible to those who had property and businesses on the line of the new bridge. He produced and explained a copy of Sir Christopher Wren's plan showing the City as Wren proposed to reconstruct it after the Great Fire. This plan, curiously enough, showed an approach to St. Paul's from the river in exactly the same position as the Corporation proposed it in connection with the new bridge. He explained to the Committee that the plan showed a direct approach from the river to St. Paul's on almost the same site as was proposed by the Bill, and there was no wide approach to the southern transept of the Cathedral, and that there was a suggestion of a somewhat wide road going east.—Sir W. Nott-Bower, Commissioner of Police for the City of London, gave evidence as to the effect of the new bridge on the traffic problem of the City. The Bridge would give the Fire Brigade a direct route to the north from their headquarters in Southwark Bridge-road. The tramway scheme suggested in connection with the bridge would relieve the tremendous footpath traffic over London and Blackfriars Bridges. He did not think Southwark Bridge, with its steep gradients, could ever be made suitable for through traffic, but it was urgently needed for local traffic. He was not in favour of the alternative route favoured by the Royal Institute of British Architects, which would create a similar congestion of traffic to that existing at Hamilton-place, Hyde Park-corner.—Mr. Basil Mott, consulting engineer to the Corporation of London and engineer for the Bill, said that if the bridge were taken further west, as had been suggested by the Royal Institute of British Architects, it would increase the engineering difficulties and the risk to St. Paul's. It would really necessitate the cutting of a trench close to and on two sides of the foundations of the Cathedral. The tramway subway proposals of the Corporation were made with the approval of the engineers acting for the Dean and Chapter. There were no engineering difficulties about St. Paul's Bridge, except possibly in regard to the abutment on the north side, where he knew the ground was bad. He should propose to deal with that as he dealt with Blackfriars Bridge—sink steel caissons by means of compressed air, and go down until they got a satisfactory bottom. The demolition of the block of buildings which lay between Old Change and St. Paul's would throw open and greatly improve St. Paul's Churchyard, and it would enable St. Paul's to be seen as it had never been seen before. The estimate for works, apart from land, was £623,360. After crossing Queen Victoria-street the tramways would dip down from the surface as they did in Kingsway, and proceed in a subway to Aldersgate-street, where they would again come to the surface. There would be sufficient headway to enable double-decked cars to be used. The estimated cost of reconstructing Southwark Bridge was £246,000. Trial holes were being put down by the engineers to the Dean and Chapter at the east end of St. Paul's, in order to ascertain exactly what depth the foundations were, that had not been known up to the present. One of these trial holes had been completed, and it was found that the foundations of the Cathedral went down 5ft. below the lowest part of the proposed bridge works. There was no idea of running tramways over Southwark Bridge.—Mr. Maurice Fitzmaurice, C.M.G., engineer-in-chief to the County Council, gave the scheme his support from the point of view of tramway communication; and Mr. E. Cooper, civil engineer, with a large experience of bridge-building, expressed the opinion that the Corporation proposal was, everything considered, the best that could possibly be devised.—This concluded the case for

LEGAL INTELLIGENCE.

CHIPS.

Our Office Table.

Among the towns where the ratepayers have raised complaints as to what they regard as the unduly heavy cost of building schools for primary and secondary education is Liverpool, where the average expenditure on school construction is, approximately, £11 per head of the scholars, for whom accommodation is found. The city surveyor, Mr. Thomas Shelmerdine, has designed a school, the erection of which has been commenced, in Rice Lane, Walton, which represents an important experiment in the direction of reducing the price of construction. The special feature of the structure is that it will be built of steel girders and columns with concrete slabs in the exterior. It will be a one-story school, providing accommodation for between 700 and 800 pupils. It is expected that the total cost will work out at about £8 5s. to £8 10s. per head or the scholars educated there. This will be, approximately, a reduction of upwards of 25 per cent. compared with the present average cost of school construction in brick and stone.

A meeting has been held in the town hall, Middleton, to further the plan of building a garden suburb on the Alkrington Estate, which lies just over the Manchester boundary, adjoining Blackley. The scheme is a private one, prepared by the surveyor to the Lees trustees; but the corporation are asking leave to adopt it, and the meeting was called, in accordance with the regulations of the Local Government Board, to obtain the consent of the owners and other persons interested. The plans accepted provide for the immediate development of some 300 acres, but they have been prepared with a view to the ultimate extension of the suburb over the whole estate, which includes 700 acres, mainly of pasture land. The number of houses to the acre will average eight or ten, and it is hoped to provide for the growing population of Middleton and North Manchester a new town capable of housing over 5,000 families, and free at once from the hygienic and aesthetic faults of unorganised growth. At the meeting a resolution was passed unanimously calling upon the corporation to press forward in the matter with all possible speed.

Some three hundred municipal surveyors attended a road conference, held at the Building Trades Exhibition at Olympia on Saturday afternoon. Sir George Gibb, Chairman of the Road Board, who presided, said that at the present time road engineers had to face problems of considerable difficulty, which had come upon them with great rapidity, owing to the increase of motor traffic. A resolution was passed expressing the opinion that the whole subject of the regulation of wheels upon highways required reconsideration and revision, on the basis of wheel diameter, width, and form of tire, and speed, and that the Road Board should be empowered to make such regulations for the whole country. Mr. A. Dryland, county surveyor of Surrey, said that some of the existing regulations were made half a century ago, and might well be reconsidered. It was decided to apply to Dr. Shaw, Director of the Meteorological Office, for daily weather forecasts, localised as far as possible, to be telegraphed to municipal officers and post officers throughout the country. Mr. H. G. Turner, of Surbiton, who moved the resolution, said that the major portion of the country's work was dependent on atmospheric conditions, and the lack of information with regard to weather was an anomaly which should at once be obviated, with the assistance of the splendid organisation at the Meteorological Office.

Mr. Thomas E. McConnell, one of the principal estate agents in Belfast, has given remarkable evidence in that city during an arbitration as to the value of property proposed to be acquired by the corporation in pursuance of an improvement scheme. Recently, he said, he sold to an estate agent fourteen houses in the same locality for £45

They were let at 2s. 6d. per week, and there was a head rent of £16. Property of that class had, he declared, no saleable value. Practically it had to be given away, and he knew of instances where it had actually been given away in order to get rid of the head rent. He instanced two districts where this had taken place, and said these houses were good average letting houses. Mr. Thomas E. Carlisle, another agent, said he knew a case recently where twenty-four houses were offered as a golf prize, with 1s. entrance fee, and no one would enter for fear they should win. The ground under these houses was fully secured. The property about which the arbitration was concerned cost its owner, including purchase money and improvements, £450, and the corporation offered £99 12s. The inquiry was adjourned.

As the Council of the Society of Architects will not publish any further examination questions and answers, it has occurred to Mr. Henry Adams, the examiner to the Society and the Board of Education in Building Construction, that those written by him, and already published at intervals in the Society's Journal, might be useful to students generally if collected in one volume and issued at a cheap rate. We are sure they will be appreciated, and the cost, from the author, 60, Queen Victoria-street, E.C., is only half a crown, or 2s. 9d. post free. They will be found applicable to other examinations besides those of the Society of Architects. To economise space, the diagrams have all been reduced to about half the size required in the examinations, but they are perfectly lucid. The very considerable range of the information given by these worked answers cannot fail to be appreciated by students.

A sixth edition, revised and considerably extended, is issued of "Factory Accounts, their Principle and Practice," by Emil Garcke and J. M. Fells (London: Crosby Lockwood and Son), at six shillings. The new edition is wanted, and will be welcomed. The changes in methods of production and the continuously increasing use of machinery have, in many instances, revolutionised the calculation of cost in the counting house, and the due apportionment of machinery charges. For twenty-three years the book has been a standard help and guide to factory accountants, who will gladly avail themselves of its further help in its new form.

The British Vice-Consul at Leipzig (Mr. R. Turner) reports that an International Building Exhibition is to be held there in 1913. The exhibition will include sections for building construction, furnishing, the laying out of gardens and parks, road-making, the water-supply, drainage, and lighting of towns, etc. A copy of the programme (in German) may be seen by British firms at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C.

MEETINGS FOR THE ENSUING WEEK.

Saturday (To-morrow.) — Architectural Association. Visit to the Modern House and Cottage Exhibition, Gidea Park, Squirrel's Heath, Romford. Train from Liverpool-street Station. 2.30 p.m.
Institution of Municipal and County Engineers. Eastern District Meeting at Cambridge.

Monday.—Royal Society of Arts. "Rock Crystal: Its Structure and Uses." Cantor Lecture, No 2, by Alfred E. H. Tutton, M.A. 8 p.m.

Wednesday.—Junior Institution of Engineers. "Illumination by Gas and Electricity," by F. J. Hawkins. 7.30 p.m.
Royal Society of Arts. "Beet Sugar Factories," by Hal Williams, M.I.M.E., M.I.E.E. 8 p.m.

Thursday.—Society of Architects. Confirmatory Meeting. 8 p.m. "Hospitals," by A. Saxon Snell, F.R.I.B.A. 8.15 p.m.
Concrete Institute. Second Annual Meeting. 8 p.m.
Iron and Steel Institute. Annual Meeting. 10.30 a.m.

Friday (May 12).—Iron and Steel Institute. Adjourned Annual Meeting. 10.30 a.m.

The Wayland Board of Guardians at their last meeting adopted plans by Mr. H. J. Green of Lynn and Norwich, for new workhouse infirmary and chapel.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the Building News, Ellingham House, 1, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to The Strand Newspaper Company, Limited, and crossed London County and Westminster Bank.

Telegraphic Address:—"Timeserver, London."
Telephone, Gerrard 1291.

Received.—B. O. Co., Ltd.—M. R. Co.—R. W.—C. B.—S. S.—B. Bros.—D. and L.—W., Ltd.—C. L. and Co.—S. M. Co., Ltd.—B. B.—F. B. and Co., Ltd.—W. and W.—W. W. and Son.—C. and Son, Ltd.—N. B. and M.—A. Co.—H. F.—H. R.—B. of S.—C. A. Co., Ltd.

V.—Yes.

Amulet.—Thanks, oo.

N. T. T.—Send, and we will see.

R. C.—The system is not one we should use.

C. P. R.—Utterly unreliable, and very unscrupulous.

Harrassed.—We fear we cannot undertake the role of mediator between you. If the other side is bent on litigation, any such effort would be futile.

Blucher and Others.—We hope to announce the result of the Advertisement Competition in a week or two. The Building Exhibition and the Academy have had first consideration.

Undercoating.—Use "Coverine." See our notice last week of Messrs. W. Carson and Sons exhibition, or send them a postcard at their works at Battersea, for particulars, marking it "Department S."

Extra.—Yes, we know clients open their eyes at the prices of what they call "such thin stone fronts" on the exteriors of reinforced concrete buildings, and it *does* no doubt take a good deal off the "cheapness," but you cannot expect stone merchants to take that view.

"BUILDING NEWS" DESIGNING CLUB.

EIGHTH LIST OF SUBJECTS.

H.—A Sea Fishermen's Waterside Institute or Club, in rough stone walling and tooled quoins, for a site situate on the wide river's western bank, the new wall of the back premises rising sheer out of the stream, and built on an old stone embankment wall existing up to the ground level. The frontage faces the town street, with an enclosed 15ft. paved forecourt, and the depth of the building plot for the club itself is 30ft. by 60ft. long, the land being rectilinear and level. The aspect is east and west, the river running north and south. The accommodation to consist of a club assembly bar-parlour 9ft. high on the ground floor, and a club-house kitchen, a small store for beers, with scullery, larder, pantry, and house w.c.: also coal-place. There is no basement floor. The men's convenience to be at the south end of the premises, in a small yard extending beyond the 60ft. There are to be here two w.c.'s, a small wash-place with sink and two lavatory basins, and a three-stall urinal, all arranged in a shed-detached building apart from the club premises, and to be reached by a small, short covered way. There must be a good plain oak staircase 3ft. 6in. wide, and the first floor is to consist of one large room with a billiard table at one end. There are to be two or three stone-built projecting oriel windows, corbelled out from the wall below the ground-floor level on the river frontage. The water-line is 5ft. below the ground or street level. On the upper floor there is to be a timber balcony, say, 20ft. long by 7ft. wide, for the men to sit out and enjoy the prospect up and down the water way: but a doorway is to provide access to this balcony, and to be so set as to obviate draught to those preferring to stay in the club. Relative sizes of the rooms left to competitors. The gabled and tiled roof of the big upper room is to be of open-timber framing to show in the apartment, and a clock turret to surmount the ridge. Two bedrooms to be provided on second floor for the club keeper and wife, and man helper. Style left to competitors. Scale, 8ft. to inch. Two plans and attic floor, three elevations, one section, and view sketch.

Drawings Received.—"Memnon," "Bournemouth Queen," "Kardoh," "Prospero," "Margis," "Jeck," "Sirrah," "Liver," "Granite," "Prior," "Crux," "Showman," "Also Ran," "Oxonian," "Harvey," "Ink Splash," "Tonedale" (in colour, contrary to rules).

The Senate of Cambridge University have authorised the Laboratory of Experimental Psychology Syndicate to obtain tenders for the erection of the laboratory in general accordance with plans by Mr. T. G. Jackson, R.A., the contract not to exceed £4 250.

The trustees of the Chantrey Fund have decided to purchase the following works:—"Moonlit Shore," landscape, by Mr. Julius Olsson, and "Dolce Far Niente," bronze bust, by Mr. Alexander J. Leslie, both in the Royal Academy Exhibition; and "Sketching," water-colour, by Mr. J. S. Sargent (in the exhibition of the Old Water-Colour Society). The Chantrey Bequest Collection is now permanently housed in the Tate Gallery.

Our Illustrations.

ROYAL COLLEGE OF MINES AND IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY, SOUTH KENSINGTON.

We have not received, as we expected, any descriptive particulars of this great work from the architect, Sir Aston Webb, R.A., so that we are unable to add much to the references already made in last week's Building News, when we reviewed some of the principal exhibits in the Architectural Gallery of the Royal Academy Exhibition, opened on the 1st inst. The drawing here reproduced to a four-page size is by far the largest individual contribution in the room, and it forms the centrepiece on the east-end wall. The plans below the elevational drawing will enable the reader to follow the arrangements made for the housing of this great national institution, while the block plan displays the intention of the Government to occupy two further sites in Prince Consort-road by more quadrangular extensions.

LAW UNION AND ROCK INSURANCE COMPANY'S NEW OFFICES.

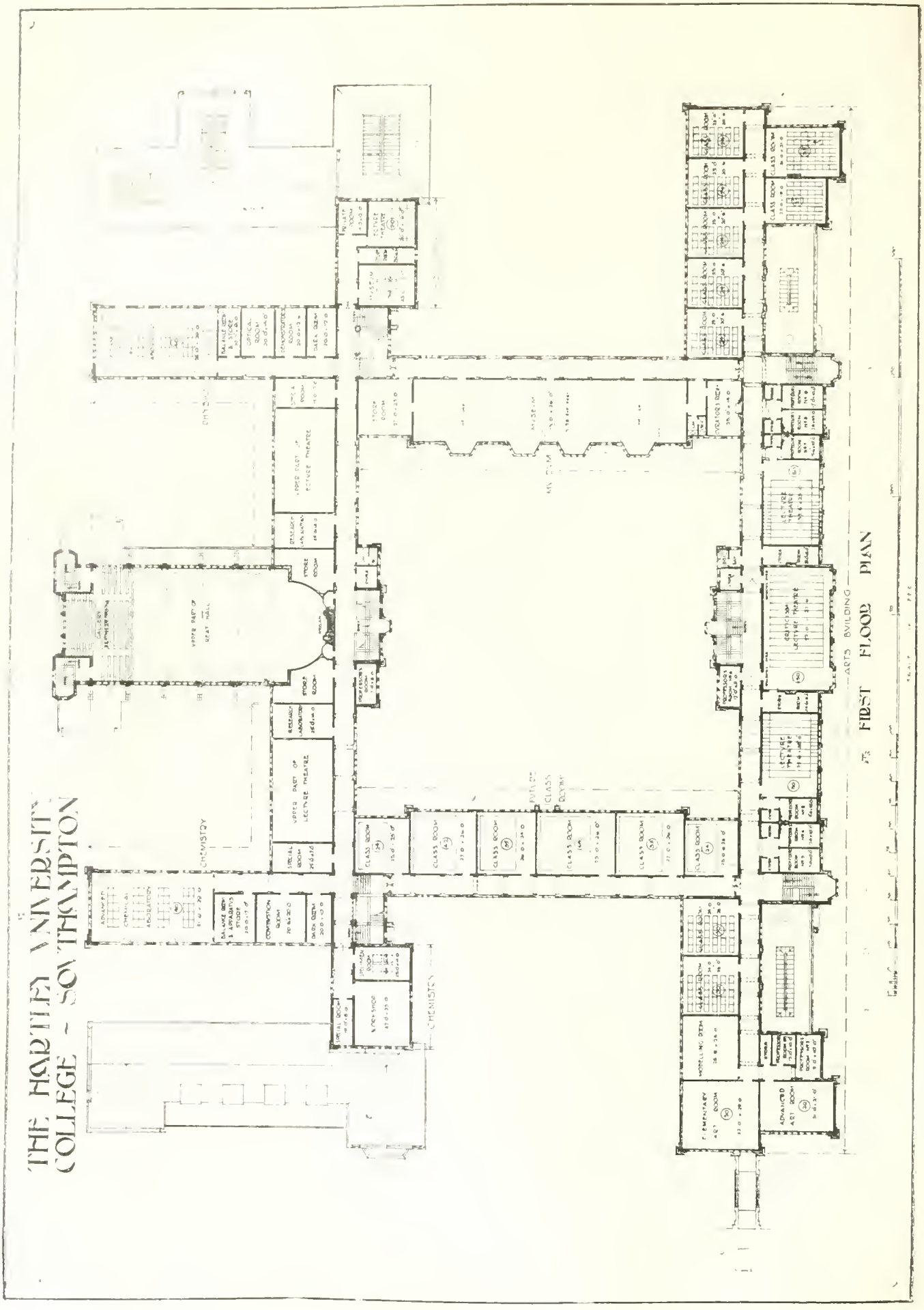
(See description and plans on pages 624 and 625.)

SELECTED DESIGN FOR THE HARTLEY UNIVERSITY COLLEGE, SOUTHAMPTON.

Messrs. Clyde Young and East, of Lancaster-place, Strand, have been awarded the first premium, and the award of Mr. Henry T. Hare, F.R.I.B.A., the assessor, has been confirmed by the Council. We give the two principal plans of the chosen design. The elevations are not yet available, but the architects have promised us the loan of a perspective at an early date. The façades express their scholastic purpose, and are treated in a free and simple manner, with little ornament, with stone dressings and green slates for the roof coverings. The scheme is symmetrical, and arranged in the annular corridor type of contrivance, with rooms on one side of the corridors only. The accommodation is provided on two floors. The part facing Church-lane, with the administration unit in the centre, having the art department and classrooms on either side of the dining-hall, etc., at the north end, will be first erected. The future hostel adjoins this section, and to the east is the heating and power-station, so that the work now done will be complete in itself, without depending on future extensions for satisfactory working. Advantage has been taken of the fall in the land so that the power-station and workshops will be masked by the other buildings. The quadrangles will be 160ft. by 160ft., with wings to the buildings, the great hall forming the centre of the east side, opposite the administration block. The library and museum are on the south side, with classrooms on the north. The engineer's shop is at the lower end of the site. The dining-hall will seat 150 students, with a raised dais tabled for the professors. Sloping floors are intended for the main lecture theatre, and the engineering library has been placed below this on the mezzanine floor. The classrooms accord with the rules of the Board of Education, and have E.S.E. lights, a north light being secured for the art rooms. Fire-resisting materials will be used. The main buildings are at a cube of 8½d. per foot, set down at £33,658, some of the minor parts being reckoned at less per foot. Taking the same proportions from 8½d. to 6d. per foot, the cost of the whole is priced at £100,284 complete. The immediate intention is to spend £25,000. The second premium was awarded to Mr. Edwin Cooper, F.R.I.B.A., of Gray's Inn square, and the third premium to Messrs. J. H. Hickton and H. E. Farmer, FF.R.I.B.A., of Walsall. The exhibition of the drawings will be held shortly.

A ROOM FROM DAMASCUS.

For the drawing, from the original, of this room, which has been brought, just as shown, from Damascus, we are indebted to Mr. J. D. Bayne.



SELECTED DESIGN, HARTLEY UNIVERSITY COLLEGE, SOUTHAMPTON.—Messrs. CLYDE Young and East, Architects.

NEW·OFFICES
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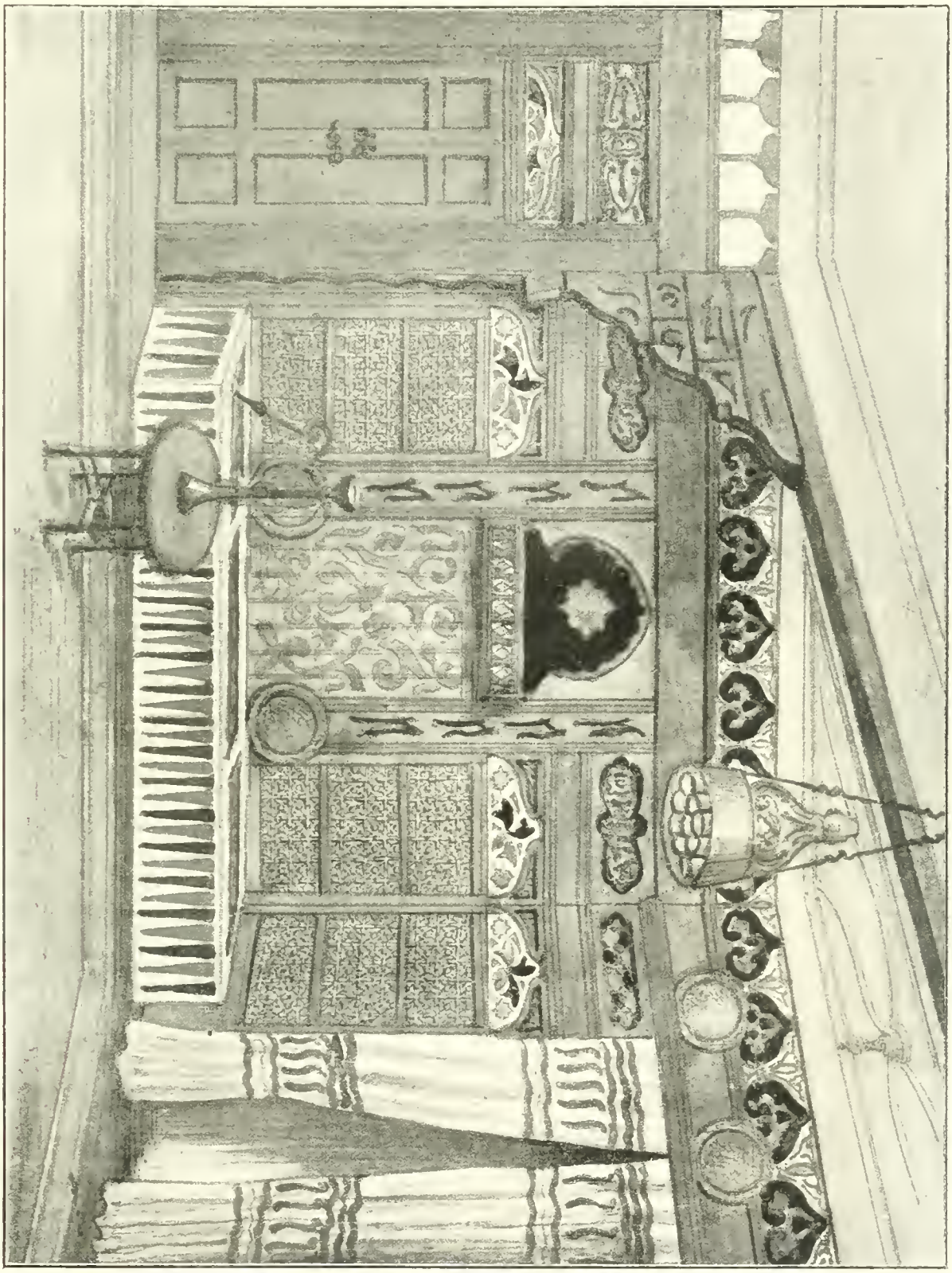
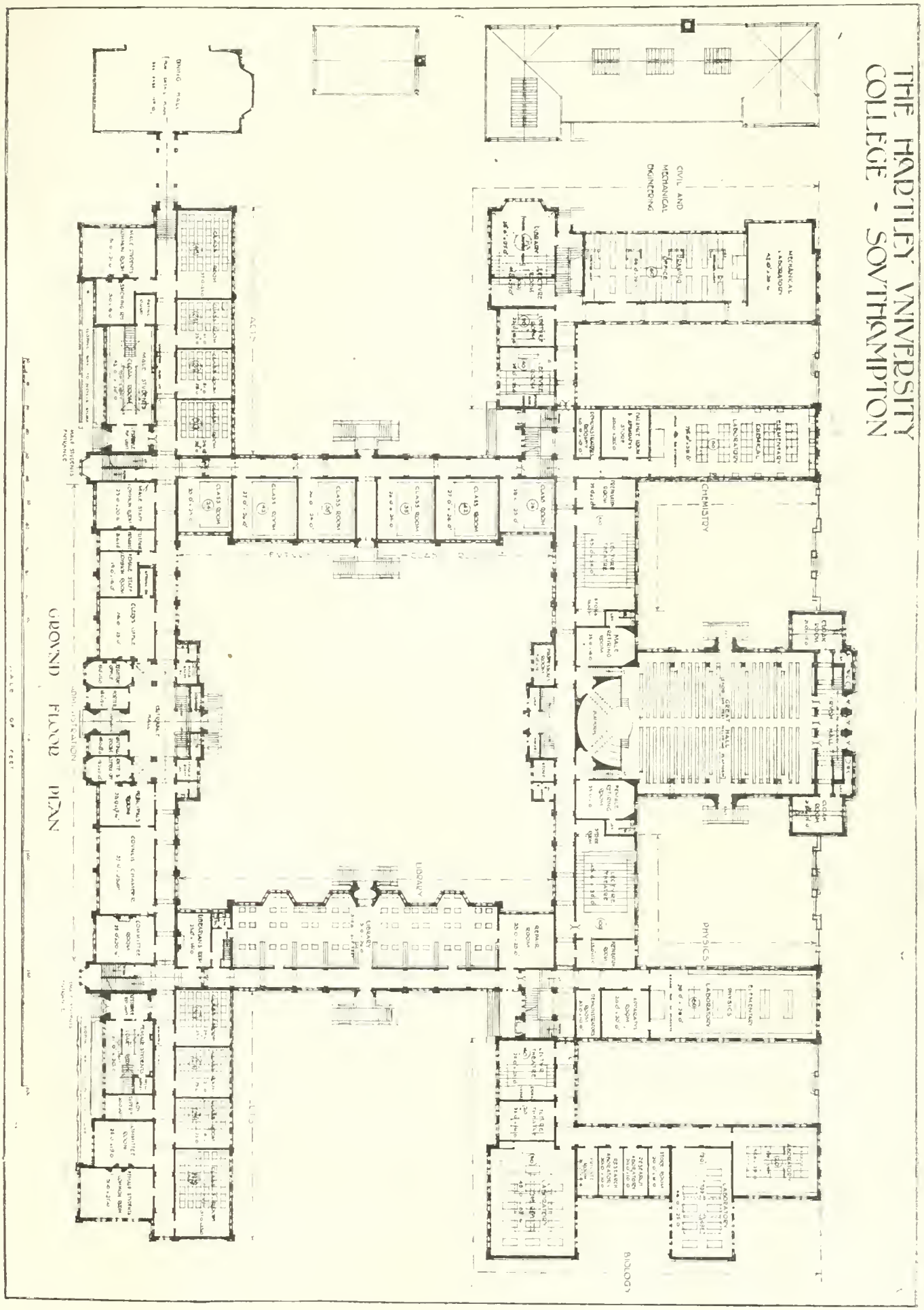
NEW OFFICES FOR THE LAW UNION AND ROCK INSURANCE COMPANY, CHANCERY LANE.

ARTHUR C. BLOMFIELD, M.A., F.R.I.B.A., Architect.



INTERIOR OF AN IMPORTED DAMASCUS ROOM.—Drawn from the Original by J. D. BAYNE.



SELECTED DESIGN. HARTLEY UNIVERSITY COLLEGE, SOUTHAMPTON. Messrs. CLYDE Young and EAST, Architects.

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8ft. to 8ft. long, inclusive gauge	Per ton. £13 0 0	Per ton. £13 10 0
Best ditto	13 0 0	14 0 0

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			Per ton.			Per ton.
Cast-Iron Columns		£8	10	0	to	£9 10 0
Cast-Iron Stanchions		8	10	0	,,	8 10 0
Rolled-Iron Fencing Wire		8	5	0	,,	8 10 0
Rolled-Steel Fencing Wire		8	5	0	,,	8 10 0
,, ,, ,,	Galvanised	7	15	0	,,	8 5 0
Cast-Iron Sash Weights		5	0	0	,,	5 5 0
Cut Floor Brads		9	15	0	,,	—
Corrugated Iron, 24 gauge		16	0	0	,,	—
Galvanised Wire Strand, 7 ply, 14 B.W.G.		14	5	0	,,	—

B.B. Drawn Telegraph Wire, Galvanised—

0 to 8	9	10	11	12	B.W.G.
£10 5 0	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.

Cast-Iron Socket Pipes—

3in. diameter		£6	2	5	to	£6 7 0
4in. to 6in.		6	0	0	,,	6 5 0
7in. to 24in. (all sizes)		5	7	6	,,	6 0 0

[Coated with composition, 5s. 0d. per ton extra; turned and bored joints, 5s. 0d. per ton extra.]

Pig Iron—			Per ton.		
Cold Blast, Lilleshall		110s. 0d.	to	117s. 6d.	
Hot Blast, ditto		70s. 0d.	,,	75s. 0d.	

Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.):—

Gas-Tubes	75 p.c.
Water-Tubes	72½ ,,
Steam-Tubes	67½ ,,
Galvanised Gas-Tubes	65 ,,
Galvanised Water-Tubes	62½ ,,
Galvanised Steam-Tubes	57½ ,,

OTHER METALS.

Spelter, Silesian	Per ton	£24	0	0	to	£24	5 0
Lead Water Pipe, Town		16	12	6	,,		—
,, ,, ,, Country		17	7	6	,,		—
Lead Barrel Pipe, Town		17	12	6	,,		—
,, ,, ,, Country		18	7	6	,,		—
Lead Pipe, Tinned inside, Town		18	12	6	,,		—
,, ,, ,, ,, Country		19	7	6	,,		—
Lead Pipe, Tinned inside and outside ....Town		21	2	6	,,		—
,, ,, ,, ,, Country		21	17	6	,,		—
Composition Gas-Pipe, Town		19	12	6	,,		—
,, ,, Country		20	7	6	,,		—
Lead Soil-pipe (up to 4in.) Town		19	12	6	,,		—
,, ,, ,, Country [Over 4in. £1 per ton extra.]		20	7	6	,,		—
Lead Shot, in 28lb. bags		24	15	0	,,		—
Copper Sheets, sheathing & rods		70	0	0	,,	70	10 0
Copper, British Cake and Ingot		57	5	0	,,	57	15 0
Tin, Straits		194	0	0	,,	194	10 0
Do., English Ingots		193	0	0	,,	193	10 0
Do., Australian		194	0	0	,,	194	10 0
Do., Bars		194	0	0	,,	194	10 0
Pig Lead, in 1cwt. pigs		14	0	0	,,		—
Sheet Lead, Town		16	2	6	,,		—
,, ,, Country		16	17	6	,,		—
Genuine White Lead		21	0	0	,,		—
Refined Red Lead		19	0	0	,,		—
Sheet Zinc		32	5	0	,,		—
Old Lead, against account		11	17	6	,,		—
Tin	per cwt.	11	0	0	,,		—
Clout Nails (per cwt. basis, ordinary brand)		0	10	6	,,		—

TIMBER.

CONSTRUCTIONAL.

Per St. Petersburg Standard (100—12ft. by 11in. by 11in.)							
Yellow Pine Deals, Quebec, 1st quality		£34	0	0	to	£42	0 0
,, ,, ,, 2nd ,,		24	0	0	,,	26	0 0
,, ,, ,, 3rd ,,		15	10	0	,,	18	0 0
Spruce Deals: St. Johns		6	0	0	,,	11	0 0
,, ,, Miramichi		7	5	0	,,	8	10 0
,, Boards: Swag		7	0	0	,,	8	0 0
Red Deals: Archangel 1st quality		20	10	0	,,	21	10 0
,, ,, ,, 2nd ,,		15	0	0	,,	17	0 0
,, ,, ,, 3rd ,,		11	0	0	,,	12	0 0
,, ,, St. Petersburg— 1st quality		16	0	0	,,	17	0 0
,, 2nd ,,		13	0	0	,,	14	10 0
,, ,, Wyburg & Uleaborg		10	0	0	,,	12	0 0
,, ,, Gefle, Gothenburg, and Stockholm		10	0	0	,,	17	0 0
White Deals: Crown		10	0	0	,,	12	0 0
,, ,, Seconds		9	10	0	,,	10	0 0
Flooring: White and Planed— 1st and 2nd quality mixed		9	0	0	,,	9	5 0
1st, 2nd, and 3rd quality mixed		8	5	0	,,	8	10 0
Red Planed, 1st quality		11	5	0	,,	11	10 0
Pitch Pine: Prime Deals and Boards		17	0	0	,,	20	0 0
Dgmara Vitæ		5	10	0	,,	12	0 0
	Per foot super, as 1in.						
Yellow Pine Logs (waney board)		0	2	9	,,	0	4 3
Pitch Pine Logs		0	1	6	,,	0	1 10
Birch: Quebec Logs		0	2	0	,,	0	2 6
Oak: Austrian Wainscot		0	7	0	,,	0	8 0
Mahogany: Gaboon		0	6	11½	,,	0	8 2

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (50c.ft.)		£20	0	0	to	£21	10 0
,, Java	,, ,,	15	0	0	,,	18	0 0
			Per cubic foot.				
Oak Planks U.S.A., imported		0	1	9	to	0	2 6
,, Boards ,, ,,	Prm.	0	2	4	,,	0	2 9
,, ,, ,, ,,	Mdm.	0	1	10	,,	0	2 2
Sequoia (Californian Redwood)		0	3	0	,,	0	3 6
Birch: Quebec logs		0	1	8	,,	0	2 2
,, ,, sawn planks		0	1	0	,,	0	1 2
Oak: Austrian Wainscot		0	6	0	,,	0	7 0
Walnut: Prime boards & planks		0	5	0	,,	0	6 0
,, Mdm. ,, ,,		0	3	4	,,	0	3 6
Greenheart: Hewn logs		0	3	6	,,	0	4 6
Cedar: Cigar box		0	3	6	,,	0	4 6
Satin Walnut: Imp. sawn boards, prime		0	2	3	,,	0	2 6
Orham: Imp. sawn boards, prime		0	1	10	,,	0	2 2
			Per foot of lin.				
Mahogany: St. Domingo, Cuba, and Honduras		0	0	5½	to	0	0 6
,, African, Assinee, &c.		0	0	4½	,,	0	0 9
,, Lagos and Benin		0	0	3½	,,	0	0 4½
,, Sekondi and Cape Lopez		0	0	2½	,,	0	0 3½
,, Gaboon		0	0	1½	,,	0	0 0
Satinwood: West Indian		0	0	10	,,	0	2 2
Rosewood	Per ton	7	0	0	,,	12	0 0
Lignum Vitæ	,,	4	0	0	,,	11	10 6

STONE.*

Red Mansfield, in blocks	per foot cube	£0	2	4
Darley Dale, ditto	,, ...	0	2	3
Red Corsehill, ditto	,, ...	0	2	2
Closeburn Red Freestone, ditto	,, ...	0	2	0
Ancaster, ditto	,, ...	0	1	10
Greenshill, ditto	,, ...	0	1	10
Chilmark, ditto (in truck at Nine Elms)	,, ...	0	1	9
Beer, ditto	,, ...	0	1	6
Hard York, ditto	,, ...	0	2	10
Ditto ditto 6in. sawn both sides, landings, random sizes	per foot sup.	0	2	8
Ditto ditto 3in. slab sawn two sides, random sizes	,, ...	0	1	

* All F.O.R. London.

Bath Stone, delivered on rail at quarry stations	per foot cube	0	1	0
Delivered on road waggons, Paddington Depot	,, ...	0	1	5½
Ditto ditto, Nine Elms Depot	,, ...	0	1	6½
Beer Stone, delivered on rail at Seaton Station	,, ...	0	1	0
Ditto, delivered at Nine Elms Station	,, ...	0	1	6

Portland Stone, in random blocks of 20ft. average:—

	Brown Whit Bed.			White Base Bed.		
Delivered to railway depot at the quarry ..... per foot cube	£0	1	5½	£0	1	7½
Delivered on road waggons at Paddington Depot ...	0	2	1	0	2	2½
Ditto, Nine Elms Depot ...						
Ditto, Pimlico Wharf						

SLATES.

	In.	In.	£	s.	d.			
Blue Portmadoc	20 × 10	...12	12	6	per 1000	of 1200	at r.stn.	
,, ,,	... 16 × 8	.. 6	12	6	,,	,,	,,	
Blue Bangor	..... 20 × 10	..13	2	6	,,	,,	,,	
,, ,,	... 20 × 12	..13	17	6	,,	,,	,,	
First quality	..... 20 × 10	...13	0	0	,,	,,	,,	
,, ,,	... 20 × 12	...13	15	0	,,	,,	,,	
,, ,,	... 16 × 8	... 7	5	0	,,	,,	,,	
Eureka unfading green		£	s.	d.				
,, ,,	... 20 × 10	..15	17	6	,,	,,		
,, ,,	... 20 × 12	..18	7	6	,,	,,	,,	
,, ,,	... 18 × 10	..13	5	0	,,	,,	,,	
,, ,,	... 16 × 8	..10	5	0	,,	,,	,,	
Permanent green	20 × 10	...11	12	6	,,	,,	,,	
,, ,,	... 18 × 10	.. 9	12	6	,,	,,	,,	
,, ,,	... 16 × 8	.. 6	12	6	,,	,,	,,	

BRICKS.

(All prices net.)

Hard Stocks	£1	6	6	per 1,000	alongside, in river
Rough Stocks and Grizzles	1	6	0	,, ,,	,,
Picked Stocks for Facings	2	10	0	,,	delivered at railway station.
Flettons	1	6	0	,, ,,	,,
Pressed Wire Cuts	1	19	0	,, ,,	,,
Red Wire Cuts	1	14	0	,, ,,	,,
Best Fareham Red	3	12	0	,, ,,	,,
Best Red Pressed Ruabon Facing..	5	0	0	,, ,,	,,
Best Blue Pressed Staffordshire	3	15	0	,, ,,	,,
Ditto Bullnose	4	0	0	,, ,,	,,
Best Stourbridge Fire Bricks	3	14	0	,, ,,	,,
2¾" Best Red Accrington Plastic Facing Bricks	4	10	6	,,	Net, delivered in full truck loads in London.

	Per 1,000
3¾" Accrington Best Red Plastic Facing Bricks	£2 10 0
3¾" Ditto Second Best Plastic ditto	2 2 6
Ditto Ordinary Second Bricks	1 11 3
Ditto Plastic Engineering Bricks	1 17 6
Sewer Arch Brick, not more than 3¾" at thickest part	2 0 0
3¾" Chimney Bricks fit for outside work	2 6 0
3¾" Ditto Ditto through and through	2 0 0
3¾" Beaded, Ovolo and Bevel Jambs; Octagons; 2¼" and 3" radius Bullnoses; Stock patterns	3 7 6
Accrington Air Bricks, 9" × 2 courses deep, each	0 0 6
Ditto Ditto 9" × 1 course, each	0 0 3

Accrington Camber Arches—

3 course deep, 1" soffit, per foot opening			...	0	1 3
4 ditto	4"	ditto ditto ditto	...	0	1 8
5 ditto	4½"	ditto ditto ditto	...	0	2 1
6 ditto	4½"	ditto ditto ditto	...	0	2 6
3 ditto	9"	ditto ditto ditto	...	0	2 1
4 ditto	9"	ditto ditto ditto	...	0	2 11
5 ditto	9"	ditto ditto ditto	...	0	3 9
6 ditto	9	ditto ditto ditto	...	0	4 6

Net, free on rail or free on boat at works.

GLAZED BRICKS.*

HARD GLAZES. (PER 1,000.)

	White, Ivory, and Salt Glazed. Best.	Seconds.	Buff and Cream.	Other Colours.	Second Colours.
Stretchers—	£10 17 6	£9 7 6	£12 7 6	£16 7 6	£10 17 6
Headers—	10 7 6	8 17 6	11 17 6	15 17 6	10 7 6
Quoins, Bullnose, and 4½in. Flats—	13 17 8	12 17 6	16 7 6	19 17 6	14 7 6
Double Stretchers—	16 7 6	14 17 6	19 7 6	22 17 6	16 7 6
Double Headers—	13 7 6	11 17 6	16 7 6	19 17 6	13 7 6
One side and two ends, square—	17 7 6	15 17 6	20 7 6	24 17 6	17 7 6
Two sides and one end, square—	18 7 6	16 17 6	21 7 6	25 7 6	18 7 6
Splays and Squints—	15 17 6	14 7 6	20 7 6	23 7 6	15 17 6

Plinth and Hollow Bricks. Stretchers and Headers—5d. each 4d. each 6d. each 6d. each 5d. each
Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres—5d. each 4d. each 6d. each 6d. each 5d. each
Rounded Internal Angles—4d. each 3d. each 5d. each 5d. each 4d. each

MOULDED BRICKS.

Stretchers and Headers—	8d. each	8d. each	8d. each	5d. each
Internal and External Angles—	1/2 each	1/2 each	1/2 each	1/2 each
Cill Bullnose, Stretchers and Headers—	5d. each	4d. each	6d. each	6d. each 5d. each

	Per 1,000
Majolica or Soft Glazed Stretchers and Headers	£21 17 6
,, ,, ,, Quoins and Bullnose	26 17 6
Compass bricks, circular and arch bricks of single radius £6 per 1,000 over above list for their respective kinds and colours	Not exceeding 9in. × 4½in. × 2½in.
Camber arch brick, any kind or colour, 1s. 2d. each	

Stretchers cut for Closers and Nicked Double Headers, £1 per 1,000 extra.

* These prices are carriage paid in full truck loads to London stations.

	s.	d.	
Thames and Pit Sand	7	0	per yard, delivered.
Thames Ballast	5	6	,, ,,
Best Portland Cement	28	0	per ton, ,,
Best Ground Blue Lias Lime. Exclusive of charge for sacks.	19	0	,, ,,

Grey Stone Lime ..... 11s. 6d. per yard, delivered
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. stn.

TILES.

	s.	d.		Delivered
Plain red roofing tiles	42	0	per 1000	at rly. stn.
Hip and Valley tiles	3	7	per doz.	,, ,,
Broseley tiles	50	0	per 1000	,, ,,
Ornamental tiles	52	6	,,	,, ,,
Hip and Valley tiles	4	0	per doz.	,, ,,
Ruabon red, brown, or brindled do. (Edwards)	57	6	per 1000	,, ,,
Ornamental do.	60	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	0	,,	,, ,,
Selected "Perfecta" roofing tiles:—Plain tiles (Peake's)	46	0	per 1000	,, ,,
Ornamental do.	48	6	,,	,, ,,
Hip tiles	3	10½	per doz.	,, ,,
Valley tiles	3	4½	,,	,, ,,
"Rosemary" brand plain tiles	48	0	per 1000	,, ,,
Ornamental tiles	50	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,
Staffordshire (Hanley) Reds or Brindled tiles	42	6	per 1000	,, ,,
Hand-made sand-faced	45	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,
"Hartshill" brand plain tiles, sand-faced	50	0	per 1000	,, ,,
Pressed	47	6	,,	,, ,,
Ornamental do.	50	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,

OILS.

Rapeseed, English pale, per tun		£28	15	0	to	£29	5 0
Do., brown	,, ...	26	15	0	,,	27	5 0
Cottonseed, refined	,, ...	29	0	0	,,	30	0 0
Olive, Spanish	,, ...	39	10	0	,,	40	0 0
Seal, pale	,, ...	21	0	0	,,	21	10 0
Cocoanut, Cochin	,, ...	48	0	0	,,	48	10 0
Do., Ceylon	,, ...	42	10	0	,,	43	0 0
Do., Mauritius	,, ...	42	10	0	,,	43	0 0
Palm, Lagos	,, ...	32	5	0	,,	33	5 0
Do., Nut Kernel	,, ...	35	0	0	,,	35	10 0
Oleine	,, ...	17	5	0	,,	19	5 0
Sperm	,, ...	30	0	0	,,	31	0 0
Lubricating U.S.	per gal.	0	7	0	,,	0	8 0
Petroleum, refined	,,	0	0	6½	,,	0	0 6½
Tar, Stockholm	per barrel	1	6	0	,,	1	10 6
Do., Archangel	,,	0	19	6	,,	1	0 0
Linseed Oil	per gal.	0	4	0	,,		—
Baltic Od	,,	0	4	3	,,		—
Turpentine	,,	0	5	2½	,,		—
Putty (Genuine Linseed Oil)	per cwt.	0	11	0	,,		—
,, Pure Linseed Oil, "Stority" Brand	,,	0	10	0	,,		—

GLASS (IN CRATES).

	15oz.	21oz.	26oz.	32oz.
English Sheet Glass:				
Fourths	1½d.	2½d.	3½d.	4½d.
Thirds	2½d.	3½d.	4d.	5d.
Fluted Sheet	2½d.	3½d.	6d.	6½d.
Hartley's English Rolled Plate:	¼in.	⅜in.	½in.	
	2½d.	2½d.	3½d.	
Figured, Rolled, and Repoussine:	White.	Tinted.		
	3½d.	5d.		

VARNISHES, &c.	Per gallon,		
Fine Pale Oak Varnish	£0	8	0
Pale Copal Oak	0	10	0
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of churches	0	14	0
Fine Elastic Carriage	0	12	6
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	18	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flatting Varnish	0	18	0
White Copal Enamel	1	4	6
Extra Pale Paper	0	12	6
Best Japan Gold Size	0	10	0
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	0
Berlin Black	0	16	0
Knotting	0	10	0
French and Brush Polish	0	10	0

TRADE NOTES.

Messrs. E. H. Shorland and Brother, Ltd., of Failsworth, Manchester, have just supplied their patent Manchester stoves for the Guards' coffee-bar, Pirbright Camp.

The Boyle system of ventilation (natural), embracing the latest patent "Air-pump" ventilators and air-inlets, has been applied to St. Mary's Hall, Mullingar.

Messrs. Wm. Potts and Sons, Ltd., clock manufacturers, Leeds and Newcastle, have received instructions to make and fix a new large turret-clock at the new wing of the Old Mills, Darlington, for Messrs. Pease and Sons and Partners, Ltd.; also a new illuminated clock and chimes at the parish church, Birtley, Co. Durham, for the Coronation Committee, from the designs and plans of the late Lord Grimthorpe.

A new convent, from the designs of Messrs. W. H. Byrne and Son, architects, of Dublin, is to be built at Achill, Co. Mayo.

The Manchester Corporation has opened a new public library at Crumpsall. The building was designed by Mr Henry Price, F.R.I.B.A., the city architect, and includes a general reading-room, rooms for children, special study-rooms, and a lecture-hall with accommodation for two hundred persons.

Drapery premises known as London House, Hereford, are being enlarged and refronted. The shop will measure 85ft. long by 47ft. wide, and at the extreme end are a showroom (33ft. by 30ft.) and a ladies' fitting-room. On the first floor are dressmaking and millinery work-rooms running the whole length of the building. The extensions, according to plans by Mr. W. W. Robinson, architect, are being carried out by Mr. Charles Cooke, builder—both of Hereford.

In the grounds of the Nottingham School of Art there was unveiled on Wednesday a statue of Richard Parkes Bonington, the artist, who was born at the village of Arnold, near Nottingham, in 1802, and died in London in 1828. The statue, which is the work of Mr. F. W. Pomeroy, A.R.A., has been presented by Mr. Watson Fothergill, architect, of George-street, Nottingham. It is of Carrara marble, and represents the artist, brush and palette in hand, standing beside an easel. Over it is a canopy of stonework, with pillars of Aberdeen granite.

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TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender; it adds to the value of the information.

BRISTOL.—For erecting retaining hall at Windmill-hill school, for the education committee. Mr. P. Addie, Exchange, Corn-street, Bristol, architect:—

Coles, J., and Son, Clevedon ... (Accepted.)	£369	0	0

CARDIFF.—For the erection of a stable for sick horses at the cleansing depot, Trade-street, for the corporation:—

Cox, W., Llandaff	£619	14	7
Thomas, J., Mardy-street ...	555	15	7
Hatherley & Co., Windsor-terrace, Penarth	539	0	0
Tucker Bros., Broadway ...	526	0	0
Bryan, D., Allensbank-crescent	522	15	6
Symonds, W., & Sons, Rectory-rd.	518	0	0
Allan, J., Ltd., Grwya-road	515	9	1
Turner, E., and Sons, Penarth-rd.	508	2	3
Davies, D., & Sons, Trade-street*	490	0	0

* Accepted, subject to confirmation by council. Rest of Cardiff.

CLIFFORD CHAMBERS.—For erection of new church and schools at Clifford Chambers. Messrs. Knight and Hebery, 5, Rother-street, Stratford-on-Avon, architects:

Dallow, J., and Son, Blackheath	£730	0	0
Commander, T., Tachbrook ...	728	10	0
Harris, P. C., Warwick	639	0	0
Griffiths, C., Stourbridge	565	0	0
Brisker, R., Gaydon	555	19	6
Harris, J., and Sons, Stratford-on-Avon	549	0	0
Cox, J., Stratford-on-Avon*	532	0	0

* Recommended for acceptance, subject to modification.

DARTFORD.—For the erection of a secondary school for girls at Dartford, for the Kent Education Committee:—Godden and Sons (accepted—a revised estimate), £8,422.

DUNBAR, N.B.—For the erection of cavalry barracks, for the War Office:—
Cruickshanks and Sons, Edinburgh (accepted).

FINCHLEY AND FRIERN BARNET.—For the construction of sewers and 48in. concrete culvert in Clevedon-avenue, and roadmaking in Fenstanton-avenue. Messrs. C. Sparrow and Son, Church End, Finchley, N., surveyors:

Batchelor and Sons	£3,114	0	0
Swaker, R. W.	3,051	0	0
Ballard, R.	2,947	0	0
Adams, T.	2,802	0	0
Brummell, F. G.	2,683	0	0
Gibbons, O. T.	2,568	0	0
Bell and Sons	2,466	0	0
Farrow, H.	2,275	6	0

IPSWICH.—For the erection of an attendant's lodge, shelter, storehouse, and stable, at Gippeswick Park, for the corporation:—

Borrett, C., Ipswich (accepted) ... (Lowest of thirteen tenders received.)	£305	0	0

LONDON, N.—For internal painting, whitening, &c., at the Islington Infirmary, Highgate-hill, N., for the guardians of St. Mary, Islington. Mr. Edwd. J. Harrison, 9, Gray's Inn-square, W.C., architect:—

Jones & Stoodley, Bowes Park, N.	£403	0	0
Reason, W., Rosebery-avenue ...	337	0	0
Jewell, B., Strout Green-road, N.	303	0	0
Dainton, F. W., Calabria-road, Highbury, N. (accepted)... ...	294	0	0

MIDDLESBROUGH.—For gates and railings at the new Tees transporter bridge, for the corporation:—

Hill & Smith, Brierley Hill, Staffs ... (Accepted.)	£435	0	0

NORWICH.—For the supply of (a) a petrol-motor fire-engine, 53H.P., R.A.C. rating, 4-cylinder vertical type, with Hatfield reciprocating pump, capable of delivering 500 gallons per minute, (b) a 50ft. sliding carriage fire-escape, for the city council:—

Merryweather and Son, Ltd., Greenwich-road, S.E. (accepted for both)—(a) £948, (b) £90.			

OAKDALE.—For erecting twenty workmen's houses and eleven official houses, at Oakdale, for the Oakdale Navigation Colliery Co., Ltd. Mr. A. F. Webb, Blackwood, Mon., architect:—

Jevens, H. S., Cardiff	£9,770	0	0
Smith, H., Newport	9,520	0	0
Mathews, T., Pengam	9,388	0	0
Marsh, J., Bridgend	9,075	0	0
Vodden, T., Pengam	8,190	0	0
Smith, G., Ynysddu	7,767	0	0
Newcombe, J., Tredegar	7,705	0	0
Thomas, W. & D., Ystradmynach	7,645	0	0
Passmore and Perkins, Tredegar Junction	7,603	0	0
Gregory Bros. and Pember, Pontnewynydd	7,418	0	0
Lee, W., Bargoed	7,289	0	0
Davies and Williams, Blackwood*	6,758	0	0
Edwards, S., Newbridge	6,550	0	0
King, E. T., and Co., Newport ...	6,268	0	0

* Accepted.

PENYDARREN.—For rebuilding the portion of Penydarren School recently damaged by fire, for the Merthyr Education Authority:—

Jones Bros., Treharris	£1,900	0	0
Williams, J., and Sons	1,846	0	0
Bond, W. G., Cefn	1,801	9	11
Williams, E., and Sons, Dowlais ...	1,776	8	7
Sullivan, E. L.	1,736	14	0
Colborne, A. J.	1,690	10	0
Jenkins Bros., Penydarren*	1,642	0	0

* Accepted.

PORTLAND.—For erecting three conveniences in Victoria and Easton Square-gardens, for the urban district council. Mr. R. S. Henshaw, Council Offices, New-road, Portland, engineer. Quantities by R. Stevenson, Henshaw:—

Jeaty and Baker, Castletown, Portland (accepted)	£279	17	6

ROCHDALE.—For the construction of the first section of the Rock Mills sewerage works extensions:—

Bentley, J. E., Bradford ... ... (Accepted. Lowest but two of thirteen tenders received. Engineer's estimate, about £25,900.)	£25,600	0	0

SALFORD.—For supply of fire- and police-alarm system for the corporation. The Chief Constable, Town Hall, Salford, architect:—

Gamewell Fire Alarm Co., Ltd. (accepted). (Four tenders received.)			

SMALL HEATH.—For the erection of a school in St. Benedict's-road, Small Heath, for the Birmingham Education Committee:—

Whitehouse and Son (accepted) ...	£15,885	0	0

STOKE-ON-TRENT.—For coal elevator for the gas committee. Mr. E. Jones, Borslem, gas engineer:—

Leech, Goodall, and Co., Ltd., Pepper-road, Hunslet	£443	0	0
Gilbert, Little, and Co., Ltd., Bradford	438	0	0
Dempster, R., and Sons, Ltd., Rose Mount Iron-works, Elland	430	0	0
Drakes, Ltd., Halifax	430	0	0
New Conveyor Co., Ltd., Smethwick	431	0	0
Wright, J., and Co., Tipton ...	416	0	0
Naylor Bros., Ltd., Golborne Iron-works, Golborne	401	0	0
Robson, G., and Co., Eclipse Engineering Works, Sheffield ...	379	0	0
Hartley, Causton, Richmond, and Co., Fenton, Stoke-on-Trent*	359	0	0

* Accepted.

TORQUAY.—For the extension of electricity works, for the town council. Mr. F. S. Rex, Town Hall, Torquay, town clerk:—

Section A:—

British Thomson-Houston Co., Ltd., Rugby	£4,601	0	0

Section B:—

Brush Electrical Engineering Co., Loughborough	295	10	0

WARRENPOINT, Co. DOWN.—For the construction of new waterworks:—

Thompson, J., & R., Ltd., Belfast (Accepted.)	£3,900	0	0

WATFORD.—For the erection of proposed Domestic Economy Centre, for the Hertfordshire County Council. Mr. Urban A. Smith, M.I.C.E., county surveyor, Hatfield, architect:—

Wall, C., Ltd., Fenchurch-st., E.C.	£2,614	0	0
Nightingale, B. E., Albert Embankment, S.E.	2,553	0	0
Trudgett, J. W., Lexden, Colchester	2,440	0	0
Chessum, J., and Son, South-place	2,389	0	0
Marsland and Son, York-street, Walworth, S.E.	2,334	0	0
Higgs & Hill, South Lambeth-road	2,334	0	0
Clifford and Gough, Estcourt-rd., Watford	2,299	0	0
Honour and Son, Tring	2,241	0	0
Patrick, J. and M., Wandsworth ...	2,202	0	0
Faulks, A., Sparrow-hill, Loughborough	2,164	13	8
Eames, D., Market-street, Watford	2,163	0	0
Fryd, A. H., Southend-on-Sea ...	2,144	0	0
Foster, F. and G., Norwood Junction, S.E.	2,140	0	0
Brightman, C., and Son, Queen's-road, Watford	2,127	0	0
Ensor and Ward, Queen's-road, Watford	2,123	0	0
Wigg, G., and Son, St. Alban's-road, Watford	2,087	0	0
Hunt and Son, High Wycombe ...	2,053	0	0
Jaggard, G., Vale-road, Bushey	2,021	0	0
Clark Bros., Fearnley-street, Watford (accepted)	1,979	0	0

WEST LLANDUDNO.—For the erection of a new church near the shore:—

Edwards, P., Doddleston, Chester (Accepted.)	£2,300	0	0

WHITCHURCH, CARDIFF.—For erecting fire-station Bishop's-road, for the parish council. Mr. C. H. Kempthorne, 24, High-street, Cardiff, architect:—

Tomkinson, W., Liverpool	£1,089	0	0
Knox and Wells	1,047	0	0
Griffiths, G., and Son	1,041	0	0
Gimmer, H., Whitchurch	1,009	5	0
Thomas, W., and Co.	1,001	0	0
Evans, E. R., and Bros.	994	0	0
Gibby and Cleak, Barry Dock ...	995	0	0
Davies, D., and Sons	945	0	0
Rendell, H. S., Barry Dock ...	979	0	0
Stephens, J.	970	0	0
Haneon, S., Clanishen	922	7	6
Williams, E., Whitchurch	919	0	0
Parsons, V.	915	18	3
Vickery Bros., Barry Dock	899	0	0
Haines, R. E. J.	889	0	0
Bryan, D.	879	17	6

Rest of Cardiff.

LIST OF COMPETITIONS OPEN.

[illegible]	£[illegible]	E. Thorn, Hon. Secretary, Dewsbury	May 10
[illegible]	[illegible]	H. P. Smallpeice, Clerk, 138, High-street, Guildford	,, 20
Aspatria, Cumberland—Proposed Cottage Hospital	[illegible]	F. Richardson, Clerk, Aspatria, Cumberland	June 10
[illegible]	£[illegible]	The Secretary, Co-operative Society, Cwmavon, Port Talbot	,, 10
Architecture	£50, £25, £10	Comm. Intel. Branch, Board of Trade, 73, Basinghall-street, E.C.	Aug. 8
Essay—"[illegible]"	£[illegible], £20	C. J. Macleod, Secretary, 115, St. Vincent-street, Glasgow	Dec. 20
[illegible]	[illegible]	The Rev. J. Haslam, Wesleyan Manse, Portrush, N.B.	No date

LIST OF TENDERS OPEN.

BUILDINGS.

[illegible]	[illegible]	J. R. Thomson, [illegible]isk-street, Silloth	May [illegible]
[illegible]	[illegible]	O. P. Bevan, Architect, Express Chambers, Merthyr Tydfil	,, [illegible]
[illegible]	[illegible]	The Borough Engineer, Town Hall, Wimbledon	,, [illegible]
[illegible]	[illegible]	H. W. Long, Architect, Fairmeade, Calverley, near Leeds	,, [illegible]
[illegible]	[illegible]	C. Christie, Factor, Estate Office, Strathdon	,, [illegible]
[illegible]	[illegible]	C. L. Marsh, Fern Bank, Merthyr Vale	,, [illegible]
[illegible]	Free Hartismere Court of Foresters	T. Inglis Goddie, Architect, Bank-plain, Norwich	,, [illegible]
[illegible]	[illegible]	[illegible] Christie, Factor, Strathdon	,, [illegible]
[illegible]	[illegible]	W. B. Rees, Architect, 3, Dumfries-place, Cardiff	,, [illegible]
[illegible]	Hospital Committee	T. A. Fisher Hall, Secretary, Southampton	,, [illegible]
[illegible]	C. S. Sprl[illegible]	T. A. Buttery, L.R.I.B.A., Queen-street, Morley	,, [illegible]
[illegible]	[illegible] Erskine	W. Hendry, Architect, 91, West Church-street, Buckie	,, [illegible]
[illegible]	[illegible]	J. Wittet, Architect, Elgin	,, [illegible]
[illegible]	Governors	G. Bord, 33, Queen-street, Whitehaven	,, [illegible]
[illegible]	Montgomery County Council	The County Agent, Newtown	,, [illegible]
[illegible]	[illegible] Union Guardians	J. H. Davies and Sons, Architects, 14, Newgate-street, Chester	,, [illegible]
[illegible]	[illegible]	R. W. Yates, Architect, 32, John William street, Huddersfield	,, [illegible]
[illegible]	Montgomery County Council	The County Agent, Newtown	,, [illegible]
[illegible]	Ashgrove Building Club	W. Harris, Architect, Bank Chambers, Bargoed	,, [illegible]
[illegible]	Derbyshire Education Committee	G. H. Widdows, A.R.I.B.A., Education Office, Derby	,, [illegible]
[illegible]	Montgomery County Council	The County Agent, Newtown	,, [illegible]
[illegible]	Trustees	Jeffress and Shirley, Architects, 24, Bridge-street, Walsall	,, [illegible]
[illegible]	J. and W. Stone	A. F. Webb, M.S.A., Blackwood, Mon.	,, [illegible]
[illegible]	Derbyshire Education Committee	G. H. Widdows, A.R.I.B.A., Education Office, Derby	,, [illegible]
[illegible]	Montgomery County Council	The County Agent, Newtown	,, [illegible]
[illegible]	[illegible]	J. Berry, Architect, 3, Market-place, Huddersfield	,, [illegible]
[illegible]	[illegible]	W. H. Robinson, Architect, Caxton House, Westminster, S.W.	,, [illegible]
[illegible]	Hebden Co-operative Society, Ltd.	W. G. Scott and Co., Architects, Workington	,, 1
[illegible]	Lancashire Education Committee	H. Littler, Architect, 16, Ribbleside place, Preston	,, 10
[illegible]	Guardians	J. C. S. Mammery, Architect, 13, Fitzroy-square, W.	,, 10
[illegible]	Rhondda Valley Breweries Co., Ltd.	R. S. Griffiths, M.S.A., Tonypandy	,, 10
[illegible]	Guardians	Thorp and Turner, Architects, Carlisle-street, Goole	,, 10
[illegible]	Urban District Council	C. F. Dawson, Surveyor, Public Offices, Barking	,, 10
[illegible]	[illegible]	Rev. J. Vincent Thomas, The Manse, Clydach-on-Tawe	,, 1
[illegible]	South Monmouthshire Colliery Co., Ltd.	J. J. Eltringham, Architect, Derwent-street, Blackhill	,, 10
[illegible]	Rev. W. S. Isherwood	E. G. Davies, M.S.A., 132, Widemarsh-street, Hereford	,, 10
[illegible]	[illegible]	W. H. H. Davis, Architect, 2, York row, Wisbech	,, 10
[illegible]	Gas Committee	T. B. Ball, Manager, Gasworks, Dane-street, Rochdale	,, 10
[illegible]	Guardians	C. E. Davenport, Architect, 152, Hospital-street, Nantwich	,, 11
[illegible]	[illegible]	J. L. Bennett and Son, Downham Market	,, 11
[illegible]	[illegible]	D. A. Knox, Clerk, Annan	,, 11
[illegible]	[illegible]	J. H. Mills, Architect, 9, Oak-street, Shaw, Lancs.	,, 11
[illegible]	Viscount Tredegar	B. L. Pritchard, 21, Castle-street, Brecon	,, 11
[illegible]	Stockport Education Committee	Spalding and Theakston, Architects, King-street, Cheapside, E.C.	,, 11
[illegible]	Wilts County Council	J. G. Powell, County Surveyor, Trowbridge	,, 12
[illegible]	Education Committee	A. Long, Architect, West Bromwich	,, 12
[illegible]	Visiting Committee	W. P. Gepp, Clerk, New-street, Chelmsford	,, 12
[illegible]	Education Committee	A. Long, Architect, West Bromwich	,, 1[illegible]
[illegible]	Southampton Terr. Force Assoc.	Hair and Bucknill, Architects, 23, Portland-terrace, Southampton	,, 12
[illegible]	[illegible]	Robinson and Jones, Architects, 2, Albion-place, Leeds	,, 12
[illegible]	Corporation	A. E. White, M.I.C.E., City Engineer, Town Hall, Hull	,, 12
[illegible]	Wilts County Council	J. G. Powell, County Surveyor, Trowbridge	,, 12
[illegible]	Education Committee	G. E. T. Laurance, A.R.I.B.A., 22, Buckingham-street, W.C.	,, 1[illegible]
[illegible]	Guardians	J. J. Simpson, Clerk, St. Peter's Hospital, Bristol	,, 1[illegible]
[illegible]	[illegible]	J. H. Phillips, F.R.I.B.A., 7, Pembroke terrace, Cardiff	,, 13
[illegible]	[illegible]	D. C. Udell, Architect, Commercial-street, Pontypool	,, 13
[illegible]	Co-operative Industrial Society, Ltd.	P. J. Jones, Architect, Church-street, Pontypridd	,, [illegible]
[illegible]	[illegible]	J. H. Martindale, F.R.I.B.A., Castle-street, Carlisle	,, 13
[illegible]	Education Committee	G. E. T. Laurance, A.R.I.B.A., 22, Buckingham-street, W.C.	,, 13
[illegible]	[illegible]	J. F. Curwen, F.R.I.B.A., F.S.A., 23, Higgate, Kendal	,, 13
[illegible]	Kent County Council	The County Architect, 83, Week-street, Maidstone	,, 13
[illegible]	North Cornwall China Clay Co.	W. H. Patchell, M.I.C.E., Caxton House, Westminster, S.W.	,, 13
[illegible]	Kent County Council	The County Architect, 86, Week-street, Maidstone	,, 13
[illegible]	H.M. Works Commissioners	The Secretary, H.M. Office of Works, 3, Parliament-st., Edinburgh	,, 13
[illegible]	[illegible]	Johnson and Richards, Architects, Merthyr Tydfil	,, 13
[illegible]	Town Council	A. T. M. Bond, Town Clerk, Lyme Regis	,, 13
[illegible]	Caledonian Railway Co.	J. Blackburn, Secretary, 302, Buchanan-street, Glasgow	,, 1[illegible]
[illegible]	W. Axnsley	J. J. Eltringham, Architect, Derwent-street, Blackhill	,, 16
[illegible]	Beaufort Building Club	W. Harris, Architect, Bank Chambers, Bargoed	,, 16
[illegible]	Monmouthshire Education Com.	Swash & Son, FF.R.I.B.A., Midland Bk. Chmbrs., Newport, Mon.	,, 16
[illegible]	Macindle, Moore, and Co., Ltd.	J. F. M'Mahon, Architect, 9, Exchange Buildings, Dundalk	,, 16
[illegible]	Education Committee	W. H. Pertwee, Architect, Chelmsford	,, 16
[illegible]	[illegible]	P. J. Jones, Architect, Church-street, Pontypridd	,, 16
[illegible]	Hants County Council	W. J. Taylor, County Surveyor, The Castle, Winchester	,, 16
[illegible]	Urban District Council	E. W. Hilton, Architect, Mossburn-buildings, Altrincham	,, 17
[illegible]	Lancashire Education Committee	H. Littler, Architect, 16, Ribbleside-place, Preston	,, 17
[illegible]	Urban District Council	J. A. Scheuermann, Architect, Northgate-street, Ipswich	,, 17
[illegible]	[illegible]	H. J. Green, Architect, Paradise-parade, King's Lynn	,, 17
[illegible]	[illegible]	E. W. Hilton, Architect, Mossburn-buildings, Altrincham	,, 17
[illegible]	Urban District Council	The Engineer, 9, Charlotte-street, Hull	,, 17
[illegible]	Hull and Barnsley Railway Co.	A. E. Brookes, County Surveyor, Truro	,, 17
[illegible]	Cornwall County Council	R. W. Yates, Architect, 32, John William-street, Huddersfield	,, 18
[illegible]	Clayton and Athletic Club	R. W. Davies, M.S.A., Carno, Mont.	,, 18
[illegible]	Merionethshire Terr. Force Assoc.	T. Kershaw, A.R.I.B.A., 26, George-street, Halifax	,, 19
[illegible]	[illegible]	J. W. Ross, Bolton, Doncaster	,, [illegible]
[illegible]	[illegible]	The Vicar, Hemingbrough, Howden	,, [illegible]
[illegible]	Warwickshire Terr. Force Assoc.	C. P. Trepess, Architect, Church-street, Warwick	,, [illegible]
[illegible]	Martin, Sons, and Co., Ltd.	C. F. L. Horsfall and Sons, Architects, Lord-st. Chambers, Halifax	,, [illegible]
[illegible]	[illegible]	J. H. Cooke, Clerk, Winsford	,, [illegible]
[illegible]	Kent Education Committee	W. H. Robinson, Architect, Caxton House, Westminster, S.W.	,, 22
[illegible]	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, [illegible]
[illegible]	Corporation	A. E. White, M.I.C.E., City Engineer, Town Hall, Hull	,, 24
[illegible]	[illegible]	Jowett Kendall and Sons, Architects, Pudsey	,, 30
[illegible]	[illegible]	C. G. Boales, M.S.A., Architect, Halkett-place, Jersey	,, [illegible]
[illegible]	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, [illegible]
[illegible]	[illegible]	J. Davies and Son, M.S.A., Colwell House, Llanelly	No date
[illegible]	[illegible]	E. W. Lister, Architect, The Parade, Liskeard	do.
[illegible]	Rural District Council	The Surveyor's Office, West-street, Barnet	do.
[illegible]	G. Garnett and Son, Ltd.	G. F. Boxman, Architect, 5, Greek-street, Leeds	do.
[illegible]	Hospital Committee	Bryden and Walton, Architects, 3, George-street, Bixton	do.
[illegible]	[illegible]	Nantes and Sanctuary, Bridport	do.
[illegible]	[illegible]	P. N. Bernard, Architect, Princes-street, Doncaster	do.
[illegible]	[illegible]	J. Starey, Architect, Brass-street, Carlisle	do.

May 12, 1911. Volume C.—No. 2940

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House, Strand, W.C.

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OUR ILLUSTRATIONS.

The New Roman Catholic Cathedral of St. John, Norwich. The late Mr. George Gilbert Scott, M.A., and Mr. John O. Scott, F.S.A., Architects. Interior and Exterior Views.

The Canon Greene Memorial Church, Clapham Common, S.W. Mr. H. P. Burke Downing, F.R.I.B.A., Architect. Interior and Exterior Views, with Plan.

Woodard Society Girls' School, Harrogate the Chapel Designed by the late C. Hodgson Fowler, F.S.A., and being carried out by W. H. Wood, F.R.I.B.A., his successor.

Reinforced-Concrete Design. By Messrs. R. and R. Coulson.

ABOUT EASEMENTS GENERALLY.

The Law of Easements is full of interest for all who have to deal with land and buildings. Its principles, and their practical application, form an intellectual exercise for any man of intelligence, who wishes to know something of the essential points involved in matters he would usually leave to the lawyers. The various rights of easement can be and are described in terms of scientific accuracy, so that, in cases of this kind, where the facts can be proved, or are admitted, it is possible to work out the legal position with an almost mathematical exactitude. But to understand an abstract proposition in the law as to easements, and to appreciate its concrete effect, it is necessary to get away from prejudices or predilections, and to put aside local or personal cases, which have probably not been thoroughly understood. The book noted below* is a good example of the way in which a legal subject should be treated, and it is written in a series of definite propositions of scientific clearness and accuracy. It is a new and revised edition of a well-known work, improved in many ways, and brought down to the latest possible date. It is arranged in a logical manner, and gives a view of its large subject in a close and orderly sequence.

The legal rights which we call easements, are those acquired by the owner of one tenement over that of another. The first is spoken of as the dominant tenement, and the second as the servient tenement. These rights of easement, or of servitude, are not amongst the natural rights of property. In law, every owner of a piece of land started with having all the rights over it which naturally belong to the possession of such property. Thus the owner of each plot of ground was originally entitled to use it as he liked; but those natural rights have got cut down by the acquisition of other legal and dominant rights in adjoining owners. In order to see how this change occurs, let us suppose that two men, A. and B., are each the owner of a plot of ground, with merely a boundary line between them. Each is presumed to hold the land in absolute fee simple, without any sort of restriction or stipulation. We will imagine that A. is an active, and B. a passive, owner. A. sets to work to use and develop his land. He builds a house, and opens windows as and where he likes. B. does nothing in the effective use of his land, but looks on and lets it alone. The active owner, wanting water, and needing a line of drainage, runs a pipe across a portion of the passive owner's land; or, seeing an advantageous short cut to another road, lays a path across a corner of that land, and puts up a gate, if necessary. All these things are done with the passive or implied consent of B., who, at all events, makes no complaint. He does not block the windows, nor object to the flow of water, or the right-of-way, across his land. The active owner then, by the mere lapse of time, and the acquiescence of his passive neighbour, will acquire ancient lights and rights-of-way and water. His house will become the dominant tenement, and when the adjoining owner comes to build upon and use his land, he will find that his original rights have become so far limited by those acquired by his active neighbour.

This is what is meant by prescription at Common Law, and it is in that way that many easements are acquired, others being obtained under the Prescription Act, where applicable. Rights of easement are therefore such restrictions of the natural rights which are inherent in the absolute owner of land, as follow from the long user of opposing rights by an adjoining owner. In law, the natural rights of every owner to the free access of light and air, and to the free and unfettered use of his land, begin by being equal. But in an old country like ours, and in crowded towns and cities, such as we have to-day, easements have grown up everywhere in the course of centuries and the passing of generations. The law has to deal with these acquired and existing rights, and it has done so upon sound principles of equity. There is no written code, although many of our essential points have been drawn from the great Codes of ancient Rome. In the long course of time our judges have decided leading cases, which form, as it were, the basic stones upon which the legal edifice has been built. Other judgments of the Courts have followed, adding more stones, or sometimes, it may be, only bricks, to the building, but all helping to rear a solid structure of legal doctrine. So it still goes on, and, as new points arise, fresh decisions are made, if needed; but the principles long ago propounded, and the authorities settled, are followed in their application to the changing facts that arise. The value of a digest consists in clearly showing what are the essential elements of the law. When these essentials are grasped and understood, it should be as easy to apply them to any admitted state of facts as it is to work out the problems of Euclid from what has been proved therein before.

Apart from prescription, whether at Common Law or under the Act, an easement can be acquired by grant either express or implied. An express grant could be made by deed under seal, or by a will. In such cases, the deed or will speak for themselves as to the nature and extent of the easement granted. An implied grant is really a legal inference from facts proved or admitted, and would depend upon the principle found applicable to the case. There may also be a grant of an easement by reservation, expressed either in a deed or will, as where the owner of property sells or gives it to another person, reserving to himself, and his successors, certain rights over the same, which thereby become easements. Or there may be a reservation legally implied from the facts of a transaction, and having a similar result. For convenient classification, some easements are called positive or affirmative, such as a right-of-way over land, and others negative, like ancient windows, the possessor of which has a right to the access of light to his house over the land adjoining, the owner of which is therefore restricted in his building, and cannot legally obstruct that light. They may also be apparent, as in the case of ancient windows, or non-apparent, such as a right to lateral support of a building from the neighbouring land. A grant of an easement, whether it be express or implied, must be one for continued use, or, at all events, use perpetually recurring, as sometimes happens, although this may be at uncertain intervals. It also follows, from the nature of an easement, that the building to which it can be attached as a right must have a permanent existence, or, at least, must be intended to continue for some defined terms. The importance of this principle was well shown in one curious case. A man built a temporary workshop in front of his own house. It was not in any way attached to the freehold. The shop had windows receiving light over the land of an adjoining owner, who at length built upon his own ground in such a way as to obstruct these windows. The temporary structure had been up for over twenty years; but it was held that no easement of light could be acquired in such a building, which had no permanent existence, nor was intentionally erected for any definite time.

To acquire an easement by prescription at Common Law it is generally said that there must be proof of immemorial user. The old theory as to this word was that the user must go back to the first years of the reign of Richard I., beyond which it was said legal memory does not extend. But this ancient view of the matter was long ago abandoned. All that is now

* Innes' Digest of the Law of Easements. 8th edition. By Noel L. Goddard, Barrister-at-Law. 1911. Stevens and Sons, Ltd., Chancery-lane. Price 7s. 6d.

REINFORCED CONCRETE DESIGN. VIII.

By Prof. Cotton, Licentiate R.I.B.A., and Richd. Cotton, Hon., Assoc.R.C.Sc.I.

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Opinions are still much divided on the point of bending moment factors for continuous T-beams, as the extent to which they may be regarded as fixed at intermediate supports depends largely on the loading of adjacent spans.

In the following example the factors used are in accordance with general practice for the secondary beams, viz., 12 in the middle and 24 at supports. For the main beams, however, where with concentrated loads at one-third span the bending moment at middle third, for freely-supported ends, would be $= 2 \text{ L } 3$, or $= 6$, and for perfectly fixed ends $1 \text{ } 3 = 2 \text{ L } 3$, or $= 18$, the mean between the two has been taken for both positive and negative M, thus practically providing for either full or partial loading of the floor.

EXAMPLE 12.

A floor is required to carry a superload of 2½ cwt. per square foot, and is to be supported by pillars 24ft. apart in each direction, with main beams in one direction only carrying secondary beams at 8ft. centres, as shown by Fig. 13, which is a plan looking up, the usual limiting stresses per square inch of ¼ ton in concrete and 7½ tons in steel being adopted.

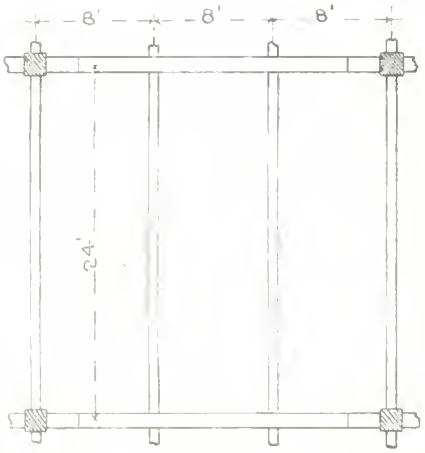


Fig. 13.

Then, assuming the floor slabs to be reinforced across the shorter span, L = 8, $\frac{1}{30}$, and from Diagram 6, Article IV. p. 106, $d = 4$, and T $= 1\frac{1}{2} = 6$in. A say .52sq.in. per foot breadth spacing of ½in. diam. rods = say 7½in., or of ⅝in. diam. rods 12in. weight of slab $=$ say 3 wt. per square foot, and total load therefore $=$ say 2½ cwt. per square foot.

Now taking the secondary beams, the load supported will be 24ft. by 8ft. = 24 × 8 = 192 sq.ft., and adding 5 per cent. for web thereof, 192 + 9.6 = 201.6 sq.ft. at 2½ cwt. per square foot = 504 cwt. = 25.2 tons.

$$M = \frac{25.2 \times 24 \times 12}{12} = 302.4 \text{ ton-in.}$$

Effective breadth of such a rectangular flange T beam = the lesser of ⅓ span of beam = 24 × 12 = 96in., or distance between the beams = 8 × 12 = 96in., the latter must, therefore, be taken, and $b = 72$in.

Then $M = \frac{b}{756} \frac{72}{2} = 2.05$, and from Diagram 14, Article VII. p. 551, $d = 16\frac{1}{2}$in.; breadth of web may be taken as half this depth, and $= 8\frac{1}{4}$in.; from Diagram 15, Article VII., p. 551, $A = .093 \times 72 = 6.7$sq.in., and six 1 in. diam. rods may be used in two rows when $= 1 \text{ } 2$ say, 3½in., and D = 20in.

Increased depth at supports should now be calculated for, $= M = 6.22$, and using Diagram 16, Article VII. p. 552, for $p = \frac{1}{2}$, $= 1.14$, and $= d$ or $= 19.1$in.; then from Diagram 17 on same page, $= .0125 \times 24 = .3$in. only, and as this would certainly come within the main beam or pillar, no increase in depth of web is necessary in this case; but it is important that the tensile reinforcement be continued right through.

Negative tensile reinforcement is also still necessary, extending from the ¼ points of beams over the supports, and its area $A_s = pA = \frac{1}{2} \times 6.7 = 3.35$, say three 1 in. diam. rods, the minimum distance to their centres from upper surface of beam, allowing for 1½in. of cover, being, say, 2½in.; but where passing through pillars they must be kept under the negative tensile reinforcement of main beams.

Stirrups should be used, and from Diagram 1, Article II. p. 304, for $d = 16\frac{1}{2}$in., and $t = 7\frac{1}{2}$ tons, $= \frac{3}{8}$in. also from Diagram 2, on same page, $N = 51$, and if $n = 3$, N = 17, their spacing being obtained by method shown in Fig. 6, Article II. p. 305, when radius of generating curve

$$= \frac{L}{2N} \cdot \frac{N}{2 \times 17} = \frac{288}{34} = \text{say } 35\text{in.},$$

and minimum spacing

$$= \frac{L}{4N-1} = 4\frac{1}{16}\text{in.}$$

The main beams can now be designed, the loads being taken as concentrated at the intersecting points of secondary beams, each one being equal to one complete panel of 24ft. by 8ft. plus 5 per cent. for web of one beam, making 31.5 tons, to which must be added another 5 per cent. for web of main beam, giving a total of 33.075 tons, and maximum bending moment

$$M = \frac{33.075 \times 2 \times 24 \times 12}{9} = \text{say } 2{,}117 \text{ tons-in.}$$

Acting breadth of flange = the lesser of ⅓ span of beam = 24 × 12 = 8ft., or as there is slab reinforcement parallel to the beam, half the distance between them = 24 ÷ 2 = 12ft., so that the former must be taken in this case, and $b = 96$in.

Then $M \div b = 2117 \div 96 = 22.05$, and from Diagram 14, $d = 25\frac{1}{2}$in., $b =$ say 12½in., and from Diagram 15, $A = .429 \times 96 = 12.38$ square inches, say ten 1¼in. diam. rods in two rows, when $= 1\frac{1}{4} \text{ } 2 = 4\frac{1}{2}$in., and D = 28½in.

For increased depth at supports, $= M = 7.83$, and from Diagram 16 for $p = 1$, $= 1.75$, and $= d$ or $= \text{say } 15$in., $A = pA = 1 \times 12.38 \div 1.75 = 7.07$sq.in., say five 1½in. diam. rods, and allowing for 1½in. cover, this gives say, 2½in. from upper surface of beam to centre of rods, which, added to t, makes total increased depth at centre of pillar = 47½in.

The increased depth must commence at the point where the negative $M = 51 \times 112 \text{ V} = 25.5 \times 51 \times 25.5 \times 112 = 12.38 \times .962$, and this being plotted in the bending moment diagram as shown by Fig. 14, gives say 35in.

To counteract the tendency to lateral movement of the outer rods where under compression due to negative moment, it is advisable to introduce cross bindings as shown on Fig. 15, and these may be, say, ⅜in. diam. by the distance between centres of the two outer rods apart = 9in., the first to be being placed

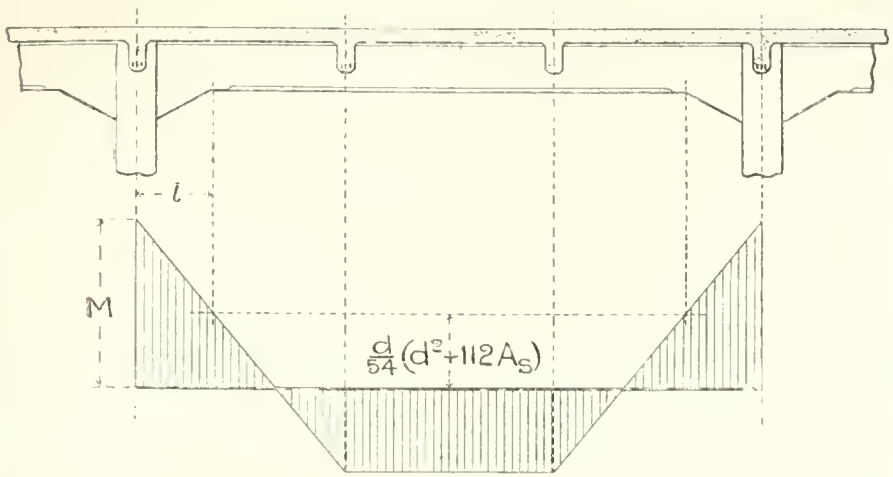


FIG. 14.

at the point where increase in depth of beam commences.

For the stirrups, from Diagram 1, when $d = 25\frac{1}{2}$in. and $f_s = 7\frac{1}{2}$ tons, $n = \frac{3}{4}$in., and from Diagram 2, N n = say 40, so that if $n = 2$, N = 20. The spacing for two symmetrical loads being uniform between each load and centre of support, the distance apart

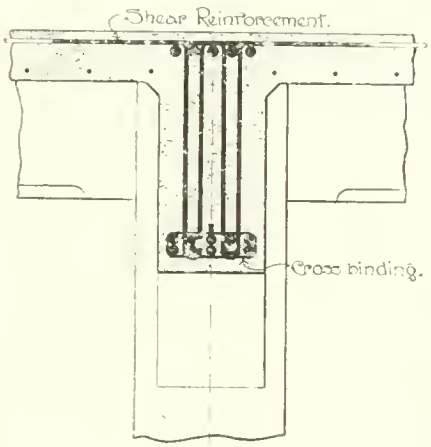


FIG. 15.

is $96 \div 20 = 4.8$in., but those coming within intermediate pillars may be omitted.

As in this case there is no slab reinforcement transversely to the beam; rods are required to take up the shear along the vertical planes at junction of slab with beam, and assuming their diameter n to be $\frac{3}{4}$in., the number required would be 64 in total length of 24ft., or say 3in. centres, and they may be placed $1\frac{1}{4}$in. below upper surface of slab, so as to clear the negative tensile reinforcement in main beam, as shown on Fig. 15. The length of these may be $3h$ = say 36in.; but it is desirable that every fourth rod be continued the full length to prevent cracking of slabs laterally.

These rods would not, of course, be required where the negative reinforcement of secondary beams crosses the main beam, so that the actual number at 3in. centres would be 87, of which 24 would be continuous.

The total cost of the floor per bay of 24ft. square works out approximately as follows:

	£ s. d.
Slab—	
$24 \times 24 = 576$sq.ft. at $7\frac{1}{2}$d.	18 0 0
Web of secondary beams—	
$\frac{8\frac{1}{2} \times 14 \times 23 \times 3}{144}$ = 56 cube ft. concrete at 1s.	2 16 0
Reinforcement of secondary beams—	
$\frac{6.7 \times 24 \times 3}{144}$ = 3.35 cube ft. steel at £3	10 1 0
Negative reinforcement of secondary beam—	
$\frac{3.35 \times 12 \times 3}{144}$ = .8375 cube ft. of steel at £3	2 10 3
Stirrups in secondary beam—	
$.007\ M \times \frac{1f_s + 15}{2f_s + 5} \times 3 = 11.9 \times 3$ = 35.7 shillings, say	£1 15 9
Web of main beam—	
$\frac{12\frac{1}{2} \times 22\frac{1}{2} \times 24}{144}$ = 48 cube ft. concrete at 1s.	2 8 4
Brackets on main beam—	
$\frac{12\frac{1}{2} \times 18\frac{1}{2} \times 35 \times \frac{1}{2} \times 2}{1,728}$ = 4¼ cube ft. concrete at 1s.	0 4 9
Reinforcement of main beam—	
$\frac{12.38 \times 24}{144}$ = 2.063 cube ft. steel at £3	6 3 9
Negative reinforcement of main beam—	
$\frac{7.07 \times 12}{144}$ = .589 cube ft. steel at £3	1 15 4
Cross bindings in brackets on main beam—	
$\frac{1.1^2 \times .7854 \times 2\frac{1}{2} \times 8}{144}$ = .0068 cube ft. steel at £3	0 0 5
Stirrups in main beam—	
$.007\ M \times \frac{1f_s + 15}{2f_s + 5}$ = 33.34 shillings, say	1 13 4
Shear rods across main beam—	
$\frac{1.2^2 \times .7854}{144}(3 \times 63 + 24 \times 24)$ = 1c.ft. steel	3 0 0
Total cost for one bay of 576sq.ft.	£50 8 11
Cost per square foot = 1s. 9d.	

It will be noticed that the cost is divided almost equally between the slab, secondary beams, and main beam.

(To be continued.)

THE ANNUAL REPORT OF THE INSTITUTE COUNCIL.

The Annual Report of the Council of the Royal Institute of British Architects, which was approved and adopted at the annual general meeting, held last week, states that the present subscribing membership of the Institute, compared with that at the corresponding periods of 1908, 1909, and 1910, is as follows:

Year.	Fellows.	Associates.	Hon. Associates.	Total.
1908	906	1,288	45	2,239
1909	888	1,344	46	2,278
1910	874	1,431	48	2,353
1911	862	1,509	55	2,426

The number of Associates shows a considerable increase, and the Council desire again to suggest to those Associates who are qualified for the Fellowship that they should take the necessary steps to enter the senior class. During the official year since the last annual general meeting, 18 Fellows have been elected, 115 Associates, and 9 Honorary Associates.

LICENTIATES.

On March 23, 1910, it became the duty of the Council to invite applications from architects qualified for the new class of Licentiates. A widely-circulated appeal was made to the profession in the United Kingdom and the Dominions, and the allied societies were invited to co-operate in the work of enrolling the practising architects of the Empire. In connection with the movement the Council organised a series of meetings in the provinces for the purpose of laying before provincial architects the important principles of the Royal Institute's policy, and of giving them an opportunity of applying for admission to the Licentiate class. These meetings were well attended, and aroused great interest, and did invaluable service in bringing the members of the profession in the provinces into closer sympathy with the work of the Royal Institute. Before the expiry of the twelve months fixed by the Supplemental Charter some 1,200 Licentiates were elected, after careful and exhaustive inquiry into their qualifications. At the close of the twelve months the applications were still coming in so rapidly that it became obviously desirable to extend the period of admission. Accordingly, by resolution, so as to enroll, if possible, all eligible members of the profession, the date was extended to the end of June, 1912, and at the present moment the applications for admission are still coming in freely.

REGISTRATION BILL.

Under the terms of the policy agreed upon by the Royal Institute on March 4, 1907, it became necessary during the present session for the Council to draft a Registration Bill to secure the statutory recognition of the profession. This work was first entrusted to a strong committee, which drafted the principles of a Bill on broad lines to provide for the objects aimed at—the enrolment of all qualified architects within the Institute, the compulsory architectural education and examination of those entering the profession in future, and the legal recognition of qualified as opposed to unqualified architects. At this stage it became necessary to consider the position of the Society of Architects. On the initiative of the President, a friendly conference was held between representatives of the two bodies, and it soon became apparent that there was a broad ground of agreement in their respective policies. Serious negotiations were then entered upon, and a scheme was prepared by the Councils of the two bodies which provided for the winding-up of the Society of Architects and for the election of its members into the various classes of membership and Licentiateship of the Royal Institute. The details of this scheme and the principles of the Registration Bill were laid before a special general meeting on April 10, and, after a long discussion, were approved. If the scheme is approved by the general body of the Society of Architects, and the resolution to effect the necessary changes in the By-laws is confirmed by the Royal Institute, it will at once be proceeded with, and will remove the last obstacle which hinders the architectural profession from approaching Parliament as a united body in favour of the principle of Registration.

TOWN-PLANNING CONFERENCE.

The past year will be distinguished in the history of the Royal Institute by the striking success of the Town-Planning Conference held in the middle of October last. The Conference did incalculable service to the cause of town planning in this country. It aroused and concentrated public interest and attention upon the great possibilities presented by the Town-Planning Act. For the great success of the Conference, which exceeded all expectations, the Royal Institute is especially indebted to the invaluable services rendered by Mr. John W. Simpson, who acted as secretary-general and organiser of the Conference, and to Mr. Raymond Unwin, who, as hon. secretary of the Exhibition Committee, was mainly responsible for the organisation of the Exhibition in Burlington House.

ARCHITECTURAL COPYRIGHT.

During the course of the past session a standing committee, under the chairmanship of Mr. John W. Simpson, has been actively engaged in considering the terms of the Government's Copyright Bill in so far as they affect architecture. The views of the Council have been laid before the President of the Board of Trade, and there is good reason to hope that they will be favourably considered when the Bill receives its final shape, and that the claims of architecture will, for the first time, be treated with the

respect that has hitherto been reserved exclusively for the kindred Arts.

DRY ROT.

As regards one of the questions [illegible] have been thrown upon architects as the result of recent legal decisions [illegible] dry rot [illegible] serious [illegible] applying the Courts during the past [illegible] Board of Professional Defence [illegible] what steps can be taken [illegible] architects against [illegible] claims.

[illegible]

The progress [illegible] during the year is shown in the following table:—

Admitted	Passed Intermediate	Passed Final	Registered
Previous to [illegible]			
20	72	40	—
Intermediate [illegible]			
28	94	94	146
Final and Special Examinations—			
21	21	8	137

THE INSTITUTE PREMISES.

On June 24, as was foreshadowed in the last annual report, the Royal Institute took possession of the new premises at 9 and 11, Conduit street, with entrance from Maddox street, the leases of which had been purchased from Messrs. Knight, Frank, and Rutley. A scheme of alteration and decoration prepared by Mr. Henry T. Hare, the hon. secretary, was at once undertaken, and the work was rapidly carried out during the vacation, so as to render the galleries available for the Town Planning Conference. While this work was going on, it became apparent that the old premises also were urgently in need of repair in various directions, and before the end of the recess the drainage system and the electric light installations were completely renewed, and a rearrangement and extension of the library was carried out, which have added greatly to its convenient and efficient working.

NEW ALLIED SOCIETIES.

Since the publication of the last annual report the Council have had the pleasure of admitting in affiliation with the R.I.B.A. the Royal Victorian Institute of Architects and the West Australian Institute of Architects.

GRANTS.

Since the issue of the last annual report the following grants have been made by the Council:—Architectural Benevolent Society, £100; Architectural Association, £100; Architectural Association Sketch Book, £25; British School of Archæology, Egypt, £10; British School at Rome, £21; Croydon Antiquities Preservation Society, £5 5s.; Incorporated Joint Committee on Water Regulations, £10 10s.; Royal Architectural Museum, £21; Sheffield Society of Architects, in support of the University of Sheffield Department of Architecture, £12 10s.

COMPETITIONS.

The new draft regulations for architectural competitions, as revised by the special committee appointed by the Council, were submitted to the general body on Nov. 21, and agreed to after slight modification. The document as revised has now been issued as an Institute paper, and the old regulations have been withdrawn. The following have been the President's appointments to assessorships during the official year:—Bangor, baths, Mr. F. Batchelor; Bradford, technical schools, Mr. Keith D. Young; Brighton, grammar school, Mr. John Belson; Chobham, Oldham, new town hall, Mr. H. W. Wells; Denbigh, public buildings, Messrs. Lessing and Lemarg; Douglas, Isle of Man, Victoria Pier, Professor S. D. Adshead; East Anglian Institute for blind and deaf children, Mr. H. P. Burke Downing; Henley-on-Thames, school, Mr. T. Edwin Cooper; Manchester, library and art gallery, Mr. Reginald Blomfield, A.R.A.; Maryport, town hall, Mr. Henry T. Hare; School of secondary schools, Mr. A. W. S. Cross; St. Ippolyt, proposed new school, Mr. John W. Simpson; Stockport, police buildings, Professor C. H. Reilly; Southampton, University College, Mr. Henry T. Hare; Swansea, Corporation [illegible], Mr. S. S. Reay; Taunton, council school, Mr. H. W. Wills; Weston Mill, church, Mr. Walter J. Tapper; Whitley (Newcastle-on-Tyne), cemetery chapel, Mr. A. W. S. Cross; Woldsea, garden city, Mr. Raymond Unwin.

FINANCE.

The balance-sheet and other financial statements appended to the Report indicate the manner in which the Council have utilised the accumulated funds of the Institute for the purpose of obtaining greatly enlarged and improved premises on a practically permanent tenure. By the purchase of Messrs. Knight, Frank, and Rutley's leases, followed by the purchase of the shares of the Architectural Union Company, the Royal Institute now finds itself practically in the position of a freeholder of the whole premises extending from Conduit street to Maddox street. The expenditure necessarily entailed amounted to a larger sum than was immediately available, and an overdraft not to exceed £7,000 has been negotiated with the bankers to supply the funds temporarily needed. It is expected that the balance of income over expenditure in the next few years will be sufficient to liquidate the debt. Under the will of the late Henry Jarvis (Fellow), who died on March 4, 1910, the Royal Institute received the most important bequest that has ever fallen to it. When certain legal procedure has been concluded, it is anticipated that the Council will have to dispose of the sum of at least £20,000. The Council have appointed a committee to consider and advise them as to the best method of employing the bequest.

BOARD OF ARCHITECTURAL EDUCATION.

The report of this Board states that a committee has reported generally on the question of the examination of Licentiates desiring to become Fellows, and is now engaged in drawing up a syllabus for that examination. The same committee is considering the question of certain alterations in the syllabus of the course of training for students originally drawn up by the Board. Negotiations are proceeding with the Universities with regard to the appointment of their external examiners. At present the Board has no voice in such appointments, and, in view of the fact that in connection with the examinations at the Universities and schools exemptions are granted from the Institute Intermediate examination, the Board consider that it is most desirable that the Institute should be kept in touch with these examinations. There is every reason to hope that a satisfactory solution of the present difficulty will shortly be reached. A joint committee of the Board and the Prizes and Studentships Committee has been considering the best means of co-ordinating the work of the two bodies, and the Council, acting on the recommendation of this joint committee, has deputed the Board to take over the work of the Prizes and Studentships Committee.

THE ART STANDING COMMITTEE.

Attention was drawn, the report of this committee states, to the unsatisfactory results of some of the new premises in the scheme of rebuilding in Regent-street. It was felt that all hope of a traditional uniform treatment of the buildings is gone. It was apprehended, however, that the variety in scale, style, and outline in some of the recently-completed works was productive of ultimate restless confusion. The committee considered that much could yet be done by the regulation of scale and sky-line in the future buildings, and recommended the Council to approach H.M. First Commissioner of Woods and Forests with a view to securing these desirable elements. In his courteous reply the Commissioner informed the Council that he was conscious of the necessity for such desirable considerations in the new works, and that it would be found that the newly completed buildings were in many cases the component parts of complete blocks, and, although there were objections to a single treatment, the results would show a less varied design than the new premises appeared to suggest. At the request of the Council, recommendations have been made for holding exhibitions of architects' work in the new galleries, which it is hoped will be the means of stimulating public interest in British architecture.

THE LITERATURE STANDING COMMITTEE.

The committee report that the arrangement of the library and the facilities for members consulting the books have been greatly improved since the Institute has become the owner of the property. Additional shelves have been provided for folio volumes. The committee have under consideration the question of providing reading-tables of a more convenient size for tracing and the use of large volumes, as well as a more prominent position for the Arthur Cates bequest. The librarian reports to the committee that during the twelve months ending March 31 of the present year 227 volumes and 44 pamphlets have been added to the library of the Royal Institute, exclusive of periodicals, reports, and Transactions of societies, and parts of works issued in serial form. The attendance of readers in the reference library numbered 5,054, and the number of books issued on loan was 3,908.

THE PRACTICE STANDING COMMITTEE.

Various points in connection with the Institute form of contract have occupied the attention of the committee at many meetings, and several important matters requiring serious consideration, with a view to amending the form in several particulars, have now been referred to a sub-committee to report upon, and the committee hope soon to be in a position to report to the Council thereon. Last session a sub-committee was appointed to consider the question of revising the schedule of professional charges. Their labours not being finished at the end of the session, they were reappointed, and are still giving the subject their careful consideration. The committee is expecting their report at an early date.

Questions having been asked as to whether an architect should hold a valuer's license when valuing for mortgages or issuing final certificates, and if the latter should be upon stamped paper, the committee, after consideration, submitted a request to the Council that legal opinion should be obtained upon these points for the benefit of the Institute.

THE SCIENCE STANDING COMMITTEE.

In reviewing the work of the session, two subjects stand out, says the report of this committee, as specially important to the profession generally. In the case of steel-framed buildings under the L.C.C. General Powers Act of 1909, it becomes incumbent upon architects submitting drawings to the district surveyor to show details of such steelwork, including calculations of loads and stresses. With a view to the formation of a uniform scheme for such presentation, the District Surveyors' Association has drawn up a form for nomenclature and a tabular statement for the submission of these details, which has been submitted to several bodies concerned, including the R.I.B.A., for criticism. The Science Committee, having regard to the importance of simplifying and reducing the labour involved in dealing with this additional burden upon architects, has devoted much time to the discussion of this draft, and made a number of recommendations, which have been accepted by the District Surveyors' Association as improvements. In connection with the above regulations, the committee have submitted a table of suggested standard weights for various materials for calculation purposes. The advantage of a uniform and generally-accepted basis for weights of brick walls, concrete floors, and similar materials appearing in all load calculations is obvious. The other field of most general interest is the question of researches on materials. The committee have felt that many questions of great importance to architects and the building trades, dealing with materials and their defects, ought to form the subject of researches which are beyond the scope of any single professional or trade organisation. The forest infection of timber with dry-rot, the efflorescence of brick and plaster, and the action upon iron of various patent floor-

ing compositions may be mentioned. The Council have promised to support an effort on the part of the committee to obtain some representation of architects' special interests, with the object of initiating such researches in one or more existing technical institutions, and, if necessary, inviting joint action for an appeal to the Government for a grant in aid. It is now possible to present the results of the mortar tests which have been carried out by Mr. Dibdin, and which reached finality in January last, when the committee paid a visit of inspection to the analyst's laboratory. The very large amount of data obtained has been digested and arranged, and will be presented later *in extenso*. The results have confirmed those given in the paper read before the Institute by Mr. Dibdin on December 17, 1906; but the longer period over which the later tests have extended has enabled certain additional data to be obtained which conclusively show that, whilst with mortars of good quality the results of the short-period tests are reliable, inferior qualities show a marked deterioration over the longer period. A valuable outcome is the indication of the best proportions to be used with a given matrix or aggregate to obtain the best results. Another valuable point is the comparison of ancient mortars of excellent quality with those made for these tests, with the result that certain preconceived ideas as to proportions and cause of strength must undergo considerable modification. Last year a small International Committee was formed as a branch of the International Society for the Testing of Materials to inquire into the effects of mortar in producing decay in stone and brick. A series of questions dealing with defective stonework, from which it is hoped valuable information may result, are about to be issued to the professional Press. The Science Committee trust that, in the interests of architects, members of the Institute will do what they can to further the investigation by sending replies to these questions.

The following are the nominations for Council, 1911-12:—President: Leonard Stokes (23). Vice-Presidents: Reginald Blomfield, A.R.A. (11), A. W. S. Cross, M.A. (18), E. Guy Dawber (17), Ernest Newton, A.R.A. (14), Beresford Pite (10), John W. Simpson* (four to elect). Past-Presidents: Thomas E. Collcutt (1), Ernest George, A.R.A. (2). Hon Sec.: H. T. Hare 22). Council: Maurice B. Adams (24), S. D. Adshead,* W. H. Brierley,* Walter Cave (18), Max Clarke (21), William Flockhart (23), H. P. Burke Downing,* William Dunn,* Thos. E. Eccles, Banister F. Fletcher,* W. A. Forsyth (14), James S. Gibson (16), J. A. Goteh, F.S.A. (11), W. C. Green,* E. T. Hall (18), George Hubbard, F.S.A. (20), Arthur Keen (14), H. V. Lanchester (14), Edwin L. Lutyens (9), A. M. Mackenzie,* G. E. Nield,* Paul Ogden,* A. N. Paterson,* Sydney Perks,* S. P. Pick,* G. H. Fellowes Prynne,* C. H. B. Quennell,* Halsey R. Ricardo (14), E. J. Sadgrove,* A. Saxon Snell,* H. H. Statham (22), Sir A. B. Thomas (14), Arnold Thornely (9), P. B. Tubbs,* E. P. Warren,* W. H. White,* E. W. Wimperis,* J. B. Wilson (7), William Woodward,* and P. S. Worthington (14) (eighteen names to be returned, and at least twenty-two to be erased). Associate Members of Council: A. C. Dickie,* K. Gammell,* S. K. Greenslade (10), E. V. Harris,* C. E. Hutchinson (16), G. A. T. Middleton,* H. A. Saul,* W. J. Tapper,* H. I. Triggs (6), H. W. Wills (10), A. Needham Wilson (15), S. Warwick* (six names to be returned, and six to be erased). Representative of the Architectural Association: Gerald C. Horsley. Representatives of Allied Societies: H. C. Charlewood, Northern Architectural Association (4); S. D. Kitson, Leeds and Yorkshire Architectural Society (1); Edgar Wood,* Manchester Society of Architects; James Jerman,* Devon and Exeter Architectural Society; J. B. Mitchell-Withers,* Sheffield Society of Architects; A. E. Murray,* Royal Institute of the Architects of Ireland; W. F. Wilkie,* Dundee Institute of Architecture; C. L. Wilson,* Cardiff, South Wales and Monmouth Architects' Society; J. F. Wood,* Bristol Society of Architects (no contest). Auditors: J. Hudson and W. H. Bart.

[Note. — The numbers attached to those candidates who are now members of the Council record the individual attendances at Council meetings, of which twenty-four were held during the year up to date of issue of the voting papers. The asterisk to the other names indicate candidates not members of the present Council. The retiring members under the new By-law 34 are Messrs. Paul Waterhouse, M.A., J. J. Burnet, LL.D., and Andrew N. Prentice, members of Council; and C. H. Reilly, Associate member of Council.]

ARCHITECTURAL ASSOCIATION DINNER.

Advanced education for architectural students was, characteristically enough, the main topic of the speeches at the sixty-fourth annual dinner of the Architectural Association, held on Thursday evening in last week at the Empire Hall, Trocadero Restaurant, Piccadilly. The President, Mr. Arthur Keen, F.R.I.B.A., occupied the chair, and among the company were Sir Alexander R. Stenning (immediate Past-President Surveyors' Institution) and Mr. Leslie Vigers (President Surveyors' Institution), Mr. G. E. Bond (President Society of Architects), Mr. Robert Cobay (Master) and Mr. J. Hutton Freeman (clerk of the Carpenters' Company), Mr. W. J. Hardcastle (President Quantity Surveyors' Association), Mr. G. Bird Godson (President Master Builders' Association), Mr. J. S. Holliday (President Institute of Builders), Professors R. Elsey Smith and E. C. Alston, Messrs. H. T. Hare and Henry Tanner, jun. (Past-Presidents A.A.), John Murray, L. A. Turner, A. W. S. Cross, S. Chatfeild Clarke, W. Flockhart, A. Montefiore Brice, F. Dare Clapham, Rudolf Dircks, Ian MacAlister (Secretary R.I.B.A.), C. McArthur Butler (Secretary Society of Architects), Gerald C. Horsley (President-elect A.A.), W. Curtis Green and W. J. Tapper (Vice-Presidents-elect), G. Leonard Elkington and E. Gunn (Hon. Secretaries), D. G. Driver (Secretary), etc.

Mr. Henry T. Hare (Hon. Secretary R.I.B.A.) proposed the toast of the evening: "Continued prosperity to the Architectural Association." From its earliest days its work had been characterised, he observed, by a large amount of enthusiasm and energy, and the great educational scheme it had evolved was ever growing in importance. When they contrasted the three small rooms in which the Association was housed in 1881, where he first knew it, with the fine premises in Tufton-street, they must feel great satisfaction at the progress which had been made. The first great step forward was the acquisition of the building in Great Marlborough-street, which rendered it possible to establish an evening school. The provision of a day school followed—a movement in which he was proud to have taken part. The Association had since prospered to an extent for which they would then have hardly dared to hope, and the school had now become the greatest educational centre for architects in the country. Although there was great cause for congratulation, the school was still in its infancy, and further developments might be anticipated. They owed a deep debt of gratitude to their first master, Mr. Arthur T. Bolton, who originated a curriculum, and his work had been ably carried on by his successor, Mr. H. P. G. Maule, and his assistants. It was impossible to imagine a more enthusiastic head of a school than Mr. Maule, who had the fine quality of communicating that enthusiasm to others. It was a grave question whether two years afforded a sufficiently long period in which to prepare the student, and whether it would not be well to extend the time. Whether that should be done or not, courses of instruction had been devised on what experience showed to be right lines, and the work of the school had been of great benefit to the profession, and also to the public. There seemed to be a possibility of making it too easy to enter the profession of architecture, and all would agree that such a thing would be a great calamity. In the interests of the young men themselves, it ought not to be thought that the architectural profession was the easiest and cheapest to enter. The Royal Institute of British Architects was contemplating the introduction of a Registration Bill into Parliament that would make definite education compulsory for everyone who hereafter called himself an architect. It was obvious that that scheme had a very important bearing on the future of the Association, which existed purely for educational purposes. If that measure became law—and he sincerely hoped that it would—it would give a great impetus to the A.A. school. He should like to see the Association more intimately related to the Institute, and to see it recognised as the great national college of architecture. In conclusion, Mr. Hare paid a high tribute to the energy and zeal of their excellent and devoted secretary, Mr. Driver.

In responding, the President sketched the growth and development of the school from evening classes, conducted by architects who gave their services, and claimed that the present curriculum was a survival of the fittest. He referred to the value and interest of the Sketch Book, which had survived very many changes, and was still greatly appreciated, and to the annual play, which this year was to be performed, by kind permission of the R.I.B.A. Council, in the Great Gallery at 9, Conduit-street. Among the newer features of the Association was the athletic club, which had a large and increasing membership, and had just taken an important step in acquiring its own ground at Elstree. This ground would be opened by Lady Webb, who would be accompanied by Sir Aston Webb, at the end of the present month. As to their school, they had their critics, many of whom had made wise suggestions, and the Council considered these carefully, and hoped to profit by their advice. Some of their critics thought they ought to devote more attention to the allied arts—in particular, to mural painting and decoration—and others would insist upon the necessity of making their students better draughtsmen, able to draw the human figure with dexterity and precision. As a matter of fact, it was very difficult to find time for all the branches of study that in themselves were admirable. They had also a few unwise critics who urged them to run before they could walk. Among the most important characteristics of architecture were soundness, sobriety, and suitability to purpose, and these qualities also applied to education for the profession. They endeavoured in the school to give young men a solid basis of knowledge, believing that too many men failed from being too superficial. It was, as he had suggested, exceedingly difficult to find room for any more subjects in their curriculum, and it was a question whether the courses of study should not be extended by one, or even two years. They ought to charge higher fees, and it might possibly come to that before long. He claimed that the tuition given in the school was sound and thorough, and carried the student up from mere building to architecture. Opportunities were given by visits to study not only old edifices, but actual work in progress. They kept the requirements of the Board of Architectural Education constantly before them, and regulated their courses accordingly. He understood that the programme of the Board was about to be reconstructed, and they awaited developments with interest. In arranging the Association curriculum they had to bear in mind the average capacity of the student and the time at his disposal, and the great difference that existed between the outlook of England and France, Germany and the United States, in the matter of architectural education. Reverting to the criticisms that had been passed upon the school, he felt that it behoved critics to be very careful to ascertain that their strictures rested upon actual knowledge and a sure foundation. They had recently an interesting exhibition at Tufton-street of work done last term by men in their third and fourth years, and he considered that they had shown excellent draughtsmanship, and had reflected the highest possible credit upon Mr. Maule and his staff. In conclusion, he urged young men to stick to the

Sir Alexander Stenning observed that he was a member of the Association in the early part of the last century, and took an active part in the Improvement Scheme, and had been struck with the beauty of the drawings and designs being exhibited there. He concurred in Mr. Vigers' suggestion that such a Library would be of the utmost value to members, and he would like to see papers read on the work that was being done in other countries.

Mr. Cole also regretted the passing of the admirable lectures recently given by the President of the Carpenters' Hall.

THE DEVELOPMENT OF BUILDING LAND.*

By John James Dowl, F.S.I.

We are not only now towns being planned, many points have to be dealt with that do not arise when a smaller block of suburban land is concerned. Open spaces, parks and pleasure grounds may be allocated, sites for schools and public buildings, and for the sanitary requirements of the intended town may be satisfactorily arranged and other matters may be dealt with that in the case of suburbs, where the land is held by numerous owners, can only be carried out by a public authority. Sites for public worship have also to be considered, but these are not always easy of arrangement. They are undoubtedly a necessity, but many people who use them do not always care to live too near them. Many years ago a deputation from a certain religious community came to me to ask for a site for a chapel, and had great stress on the advantages of having one on the estate as being an attraction to their congregation. Some time after, having a house to let on the estate, and knowing that a member of that persuasion was looking for such a house, I sent him particulars. It actually adjoined the chapel; and he replied with unexpected promptitude that the house would not suit him because it was "too near"! I believe that the chapel became a centre to attract members of that community to the neighbourhood; but they have all been careful to live off the estate where it was built. The question of provision of such sites can only be dealt with satisfactorily by each body having what it requires. Voltaire (I quote from memory) described it as a contrivance whereby unsound money was exchanged for sound land, and said that if anyone tried the experiment of freely selling such lots he would be able to rely on each of the hundred promptly appearing. An interesting object-lesson in the divergences of theological opinion in England. A piece of land has to be carefully guarded against the alteration of its originally granted use for public worship to secular purposes, and I am inclined to think the only body [illegible] is the Congregational Free Church, which [illegible] 999 years. At the same time those bodies perform an important and valuable public service, and the real question is how far they can reasonably be assisted. In this respect there is a wide difference between the Garden Cities, nations with their admirable organisations, and small bodies that may dissolve in the course of a generation. As to the class of house which may be erected, a public owner has, of course, much more control than one who owns a field or even a farm in the suburbs; but owners are all alike in this, that they are more or less dependent on the demand. It is useless building houses of a better class than is required. It only means two, three, or four families in a house. One often hears complaints that a better class of house is not built, but if people don't want them and won't pay for them, there is no object in building them. Whatever be the nature of the estate—large, medium, or small—the first desideratum is an accurate map, on a scale of not less than 10ft. to the inch. For a building estate practically the only really high class land surveying that is left to the ordinary practitioner. To be of any use it must be as accurate as surveying is capable of; but when every care has been taken, one is sadly conscious of the limits of surveyors, surveying instruments, paper, and subsequent plotting when measurements are in inches. For this reason it is a wise precaution to make a note on the plan attached to a building agreement comprising a number of plots that "all measurements are approximate." Speaking broadly, therefore, it may be said that the question of building development is that of the management of suburban land, both that which is ripe for building and that which has a prospective building value. There are three stages, each of which has its own problems: (1) The management and nursing of land growing into building land; (2) the stage of actual development and building; (3) the management of a building estate which has been covered with houses. It is not proposed in this present paper to touch the last phase of the problem at all, as its problems are sufficiently numerous in themselves to demand an evening's discussion. The management and nursing of land growing into building land is comparatively simple, though all important. Such land is generally worth more than merely agricultural land. Proximity to a town usually, but by no means always, adds to the agricultural value; but when it is on the immediate edge of the building fringe it is liable to trespass over every part, and frequently becomes next to valueless for that reason, so that as it grows more and more valuable as building land it becomes less and less valuable as agricultural or accommodation land, and when building development begins on an estate it frequently happens that land previously let at £3, £4, or £5 per acre has to be let for a merely nominal rent of £1 an acre, or indeed less. Where, however, it is possible to grant a lease of seven years or more, the land not uncommonly commands a high rent for such purposes as sports, and for recreation grounds; but where building is imminent and it is deemed inadvisable to tie the land up for so long a period, all that can be done is to let it for rough grazing or allotments, or some such purpose. As regards allotments, it is well to enter a caveat, because if the land is let for that purpose, and is suddenly and urgently required for building, compensation has to be paid to the tenants, and it may well be that that compensation may prove of a most serious nature. For example, to have to compensate the grower of mushrooms when his beds are at their full bearing would result in an amount which must in some cases equal the fee simple value of the land. If, therefore, any land is let for allotments it should only be on conditions which have been very thoroughly considered and which provide for such serious contingencies. Again, it is at all times necessary with this class of land to keep a sharp look out for encroachments: ditches are quietly filled in by some enterprising building neighbour, lights are opened which may later have a damaging effect, and in many other ways questions are constantly cropping up which are troublesome from their frequency and from their very smallness. As regards ditches, it may be desirable to point out, as it so often forms a subject of controversy, that the owner of the hedge also claims the ditch for its whole width, however wide that may be, and without any limit of 4ft. or any other number of feet or links. In

* Read at the Ordinary General Meeting of the Surveyors' Institution, held on Monday, May 8, 1911.

Middlesex, where the ditches are badly kept, and where the original width is not easily defined, it is usual to allow 4ft. from the stub of the fence; but there are many cases where a considerably greater width may properly be claimed. At this stage a building estate is by no means an unmixed joy to its owner, and still less is it so to its owner's agent. It is unprofitable and worrying, and one can only admire the subtle humour of the authors of the immortal Budget who imposed their "Undeveloped Land Tax" by pleading that the owners wanted, in what I believe is the classic phrase, "ginger," to induce them to turn it to some profitable uses. Then, again, it is necessary to keep an eye upon the doings of local or borough authorities, so that in the all-important questions of main drainage, the interests of the estate may be adequately safeguarded, and provided with such means of drainage as are necessary. It is probably needless to say that by cordial co-operation with the surveyor of the authority, it is always possible to render him much and very acceptable assistance, which, except in the rarest of cases, will be reciprocated. Every main drainage scheme, therefore, has to be carefully considered. Again, questions with adjoining owners have to be worked out, such as the straightening of boundaries, securing through roads, exchanges of land for mutual advantage, and other similar matters. There are not a few intricate legal questions that frequently arise at this stage. When does a lane become a "new street"? is a problem that has for some time puzzled the lawyers, and the only answer they have arrived at so far is that it is a question of fact in each case. What right of entry has an owner into a public sewer? For house drains his right is unquestioned; but sometimes if he wishes to open up a building estate, and to discharge his new sewers into an existing sewer, the sewer authorities may object on the ground that their sewers are already overburdened, or on other grounds, and a long and tedious negotiation, with perhaps an appeal to the Local Government Board, may be necessary, though in the meantime the owner may be paying undeveloped land duty as a punishment for keeping his land out of the market. Further, the Town-Planning Act will, no doubt, throw upon surveyors the task of co-operating with local authorities in order that the wider issues under that Act may be carefully worked out. If, therefore, there is plenty of work for the surveyor at this stage, it cannot be said that it is of a directly remunerative character, and all parties concerned are, no doubt, very glad when some direct return is forthcoming. Sometimes, indeed, after everything has been done to provide for the expected building development, either from what is inelegantly called "a slump," or from the popular demand finding its way into other directions, the estate may hang fire for years, to the great loss and disappointment of all concerned. Assuming, however, that everything has been done to prepare for building, and that the demand exists, the question arises as to the lines on which the estate shall be developed. It may be said at once that the overmastering problem of building development is finance. It is probable that every acre of land by the time that it has been covered with buildings has required an expenditure of, in round figures, not less than £10,000, and to raise this money in the cheapest manner possible is the first element of success, and must be so long as this is a competitive business. When it is considered that a great deal—perhaps the majority—of this work is carried on by small builders, it is a matter worthy of note that as a rule the supply of houses is well in advance of the demand. The methods of dealing with building land are different in different parts of the country. In London there are, broadly speaking, two ways—viz., the sale of the freehold in plots, and letting on leases for 99 years. In the North of England a great deal of land is let on a perpetual rent charge, commonly called a "chief" rent; or, failing that, on leases for 999 years. A general account of the various modes of dealing with building land will be found in the Minutes of Evidence of the Select Committee on Town Holdings, which was appointed in 1886 and reported in 1887. My own experience is almost confined to London and the South of England; for, although my earliest professional experience was in the office of a Manchester surveyor, it is, I regret to say, so long since that I have lost nearly all touch with the Manchester practice. The sale of the freehold in plots has been the method largely carried out by land companies, who purchase the freehold, make the roads, and then sell the plots on what is called "the nine years' principle"—that is to say, one-tenth of the purchase-money is paid at the time of sale, and the remaining nine tenths are paid in nine annual payments, interest being charged on the unliquidated balance; this interest is, I think, almost universally five per cent. per annum. The purchaser is usually given a free conveyance if he accepts the title of the vendors without investigation, and almost invariably this is done. The purchaser has, of course, the right to pay up the whole of his instalments before the time named if he chooses to do so, and if he has good luck and sells his houses he does so in order to make a title. He very frequently, however, buys the freehold plots himself, and then grants 99-years' leases at ground rents which give him a substantial profit on the land, which profit, however, is more apparent than real, because by fixing a high ground rent on the property he not infrequently sells the house at cost price or even in some cases at below cost price, and is content to take the profit on his creation of ground rents. Although the leasehold system has had its fair share of abuse, it is worth remarking that on estates where the purchasers have the option of taking a lease or buying the freehold they generally prefer the lease to the freehold on account of getting their houses at a considerably reduced outlay in the first instance. On an estate of over two hundred houses which has been developed in the last few years, and where the tenants had the option of the freehold or a lease, in only three cases has the freehold been purchased, and in all three cases the premises were trade premises. The objection to the development of land by selling the freehold in plots is that no one has a sufficient interest in the reversion to exercise control from time to time and to see that the estate is kept up to a proper level; some of the worst property has been built on freehold estates, and the subsequent history has been by no means happy. Undoubtedly, the best estates are those of the large landlords who keep the freehold of the ground in their own hands, and who are able to secure the best after management of the entire property. In dealing with leasehold estates, again there are more methods than one. It sometimes happens, as in the case of corporate bodies, that they have the land but no funds to develop it, and in such circumstances it is usual to let it in large blocks to a speculator who will make the roads and carry out the whole development of the estate. The usual method of dealing with a transaction of this kind is that leases are granted by the ground landlord as the houses are roofed in, at ground rents which must not exceed, say, one-sixth of the rack-rental value. Thus, assuming that ten acres of land are so let, that the freehold value of that land is £1,000 per acre, and that the rental value of it on lease is £50 per acre, and that it is possible to build twenty houses per acre of the rack-rental value of £36 each, the speculator would secure £6 on twenty houses, or £120 per acre; but as he is only liable for £50 per acre, there is generally a settling up in respect to each acre—that is to say, when he has secured a ground rent of £6 on eight houses, or £48 in all, he is then entitled to a lease of a plot of land which with half the roads and houses already leased will comprise one acre. This is granted at a ground rent of £2, which is about the lowest amount which is worth collecting half-yearly, and which, with the £6 secured on each of the eight houses built amounts to the £50 an acre as agreed. The lease of this remaining portion is what is generally called a "residue" or "remainder" lease. The speculator has thus fourteen more plots on which he can secure £6, or if he cares to do it on this part of the land, the limitation of one sixth of the rack rental value not applying, a higher ground rent than one sixth of the rack rental; but, of course, the higher the ground rent in proportion to the rack rental value, the fewer the number of years' purchase which he can obtain for these so called improved ground rents. Generally speaking, an improved or leasehold ground rent sells for about five years' purchase less than a similar freehold ground rent; they are, I believe, largely bought by insurance companies, whose methods of business easily enable them to set by the sinking fund necessary to compensate for a melting or terminable security. Thus, acre by acre, the whole of the ten acres would be covered. The profit on a transaction of this kind represents a substantial gross sum; but it has to be remembered that out of this profit the speculator has to recoup himself for his outlay upon roads; and in all probability, unless he is very fortunate, for losses on financing builders, the delay in getting the land covered, during which time he is standing out of interest on his roads; for the peppercorns which he has to grant to his builders, which, however, are partly or wholly covered by the peppercorns which he receives from his ground landlord; and for many other incidental expenses. The whole question of profit or loss is entirely speculative. If everything goes right he probably makes a handsome profit; but if everything goes wrong he is just as likely to make a substantial loss. The so-called peppercorn consists, of course, in a rising rent, and on a letting such as that under consideration, the terms would probably be:—A grass rent for the first year; £100 for the second year; £200 for the third year; £300 for the fourth year; £400 for the fifth year; £500 for the sixth and subsequent years of a 99 years' lease. In cases where the freeholder makes the roads the modus operandi is very similar, the difference being that the ground rent is higher and the balance on the residue lease correspondingly smaller. In such a case as the foregoing, the builder would pay the ground rents as already set out with an addition in each case of five per cent. upon the cost of the roads, which may be taken for that class of property, at a rough approximation, at £300 per acre, a figure, however, which it is only right to point out may vary considerably, because the larger the plots the less road-making is required per acre. Where the ground landlord makes the roads there is this great advantage: he can then deal direct with the builders, and the profits of a middle man are entirely avoided; a better class of builders can be obtained, and these, by improving their ground rents in the manner already indicated, can obviously afford to sell their houses substantially cheaper than builders who pay the full rack-rental value and make no profit out of the land. There is a third system which is adopted where the ground landlord is prepared to take risks, or where the developer is a speculator who has purchased the land, and that is, to make the roads and to let the land at practically its full value, making liberal advances to the builder as the work proceeds, and giving him some return either in the way of bonus or allowing him to improve upon his ground rent. The underlying idea of financing the builder is to allow him to create improved ground rents and sell them in the open market, but if the freeholder will himself buy them, a simpler plan is to purchase them in blocks of, say, four at a time. Thus, if the land is let at a price which works out at £3 per house, and the builder secures £5 10s. per house, and the freeholder agrees to buy these at twenty or other number of years' purchase when the last of every fourth house is taken up, the builder draws four times £2 10s., multiplied by the years' purchase, which is "a very present help in time of trouble." It is very desirable that surveyors who have to negotiate in many of these matters should have a general knowledge of the legal principles that are involved in the question of covenants which run with the land. These have been largely developed by lawyers in the last twenty years, and it is useless stipulating for provisions which in the end are held to be non-

[illegible] not run with the [illegible]. A general knowledge of covenants [illegible] run with the land and those which do [illegible] of the difference between negative and [illegible] covenants; of breaches which are continuing, and of those which are prejudiced by the [illegible] ground rent, and [illegible] are matters [illegible] surveyors are [illegible] dealt with and [illegible] should be [illegible] for possible [illegible] limits [illegible] to enter upon them more largely. All of us, however, who have the subsequent management of building estates must be impressed with the greatly superior advantages of a lease as compared with the freehold in respect to the subsequent good management of a property. As regards the laying out of estates, there are a number of points which are well worth consideration. Road making itself is a fairly simple matter, because the main lines of a specification are rigidly fixed by by-laws. Nearly every parish has its own pattern of manholes, and there is very little that can be said of any value on the question of the actual construction. Personally, I am in favour of making the roads to a high standard in the first place, but here I know there is great difference of opinion. A well-made road which will stand the wear and tear of building prevents an estate from getting into the horrible condition that is not uncommon in the course of the development of a building estate; and, moreover, the subsequent cost of making up by the local authority is substantially less. The increased cost makes itself felt, of course, in increased ground rent, but the difference is negligible, and the advantages, in my opinion, quite preponderate. As regards the laying out of roads, a few simple principles may be laid down. First, it is better to have as many roads leading out of main roads as possible. This involves making the roads at right angles to the main roads instead of parallel, as is sometimes done, the parallel roads leading out of other roads which themselves lead out of the main roads. Secondly, where possible it is better to have the roads running north and south. In that case, every room in every house gets the sun either morning or afternoon, whereas if the roads lie east and west, the rooms looking north never get the sun. This is a counsel of perfection, and can only be achieved other things being equal; the shape of the estate, such inexorable barriers as railways, the levels of the land, and many other points have to be taken into consideration. Moreover, the position of the public main roads is already fixed and unalterable. Thirdly, I for one cannot see the serious objection to what are generally called "cul-de-sacs," though why they should not be called by the equally expressive and more English phrase "dead ends" I do not know. One thing is certain; they are quiet, and quietness in a large town is an immense advantage. The ideal to be aimed at in all cases is simplicity of planning, giving convenience of access and freedom from acute angles. Generally speaking, it is better that roads should run down the slope than at right angles to it; where the slope is material, it is very difficult to get the drains from the backs of the houses on the lower side into the sewer in the road. Our English streets leave much to be desired, but probably no cause has contributed more to this than cast-iron by-laws, which have much to answer for. There seems, however, to be a probability of a more reasonable attitude in this respect being adopted in the near future. After the roads have been laid out, there are still questions of planning, because it is impossible to provide right angles to every plot. There is one matter to which personally, I have a great objection, and that is, that where there is an acute angle between two parallel roads and the main road, as shown in Fig. 1, we see sometimes the houses set back from the road in steps. This always appears to me to indicate poverty of ideas in planning. Fig. 2 shows a similar way of dealing with the same problem, and, I venture to think, a much better one. The larger the class of house, the easier it is to vary the plans of the two corner houses. This sketch is, of course, merely a suggestion that the way to deal with corner sites such as these is so to vary the plan as to fit the corner pieces. This may add a little to the cost, which is, however, more than recouped by the gain of two plots. Such is a brief outline of the methods by which the development of land for building has hitherto proceeded in this country.

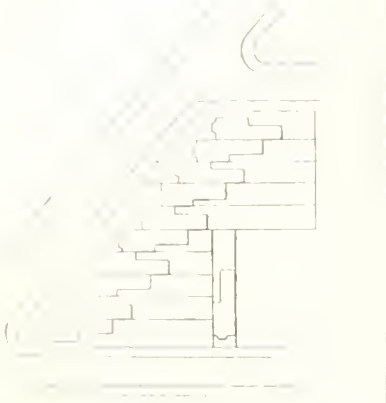


Fig. 1.

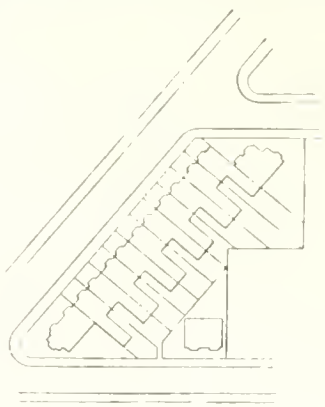


Fig. 2.

THE PHOTOGRAPHIC EXHIBITION.

The Royal Photographic Society's Exhibition at Prince's Club, Knightsbridge, which remains open till May 31, was not in a very ready state on the Press day, Monday, when we visited it, but is likely to be well worth a visit ere this is read.

There is a very complete loan exhibit of Royal portraits lent by Queen Alexandra, including one showing King Edward as Prince of Wales with two of his children; and another, taken at Marlborough House, in the company of Lord Suffield. One of the earliest specimens of composite photography ever made is that of King Edward and Queen Alexandra, taken by Vernon Heath in 1864. The only photograph comprising all the members of King Edward's family was one taken on board his Majesty yacht Osborne in 1880. Two portraits bear the late King's signature, and the eighty photographs shown make an excellent pictorial record of his life and reign.

There are no very striking architectural subjects. Among the best—and some of these are rather pictorial than architectural—are "A Street in Rothenburg" (7), by James McKissack, "A Street in St. Servan" (8), by Miss Mary Eames, "To the Choir, Beverley," by J. B. Portway, sen., "The Mosque of Hassan" (90) by Harold A. Crawford, "St. Giles' Cathedral" (120), by Dan Dunlop, "St. Pancras" (179), by James C. Batkin, "The South Triforium, Gloucester" (185), by G. J. T. Walford, "In Peterborough Cathedral" (193), by Victor E. Morris, "The Crypt, Gloucester" (211), by F. M. Weaver, "In St. Bartholomew's, Smithfield" (250), by the same, "Across the Choir, Norwich," by Dr. and Mrs. Bradley—one of the very best on view, "The Lion" (279), by Victor E. Morris, and "A Twelfth-Century Doorway, Chartres Cathedral" (326), by Henry W. Bennett, who has also "A Fragment of the Great Screen" (336) in the same cathedral.

But the most satisfactory exhibit, regarded as a picture, is "Sermione," shown in the trade section by Messrs. Jas. A. Sinclair and Co., 54, Haymarket, S.W., an oil print made with the Sinclair permanent pigments, and taken with the Sinclair "Una" camera.

IMPERMEABILITY TESTS OF CONCRETE.

In order to discover some method of waterproofing which would produce impermeability in mortar and concrete only 4in. thick when subjected to a head of water of 100ft., and which would not be prohibitive in cost, a series of tests has been made at the Engineering Experiment Station of the Iowa State College, Ames, Ia., by Mr. W. A. Burton. The specimens were in the form of pipes, 18in. long, 6in. in inside diameter, and 4in. thick. The concrete was mixed in proportion of 1 : 2 : 3½, though there were a few specimens mixed 1 : 3 : 5. Atlas Portland cement, fairly well-graded sand with 35 per cent. voids, gravel retained on a No. 8 sieve, and running up to 1½in. in diameter, and crusher-run stone passing a 2½in. screen were used. The mix was moderately wet, so that it would quake with a little agitation. The waterproofing materials were clay, alum, and soft soap, and reground cement. A few wires were embedded for reinforcing. The pipes were tested between bulkheads of 2½in. by 16in. by 16in. plates held against the ends by eight 1in. bolts. A ¼in. rubber gasket was placed between the plate and the pipe.

In the first set of tests, made with pipe sixty days old, the measurement of water passing in twenty minutes at the end of three hours was chosen as the standard. At the end of this time the pipe would, in most cases, have reached its maximum leakage. In some of the best pipes it appeared later that maximum leakage may not come for a couple of days; but, still, there was not much leakage after twenty-four hours. In the second set of tests it was first intended to find a pressure for each kind of pipe at which there would be no leakage after twenty-four hours; but this was found to involve so many guesses that instead it was decided to test at the age of ninety days under the same condition as in the first test, except that the measurement was made at the end of twenty-four hours instead of three hours. All of the best pipes tested as well or better in the ninety than in the sixty-day test.

The following summary gives the conclusions reached by Mr. Burton: All of the tests showed that broken stone is much better for impermeability than gravel. The effect of clay, which had been prepared by grinding until 98 per cent. passed a No. 200 sieve, was rather disappointing. When the cement was replaced by 10 per cent. of clay the leakage was decidedly cut down as compared with specimens having only 5 per cent. of clay. One specimen containing no waterproofing showed practically no leakage. The soap and alum waterproofing gave very satisfactory results, the pipe tested when ninety days showing practically no leakage at the end of twenty-four hours. This specimen was afterwards kept under a 45lb. pressure for twelve days. The maximum leakage, ten drops per minute, occurred on third, fourth, and fifth days. It then decreased to one drop per minute. The pipes made with reground cement showed less leakage than any of the rest, the leakage being practically nil under a pressure of 50lb. per square inch. Tensile tests indicated that soap and alum do not materially affect the strength, and that reground cement increases it, the strength of these briquettes being about 25 per cent. in excess of those made with ordinary cement.

Mr. W. Matthews Jones has been appointed city surveyor pro tem. by the Chester Town Council at a salary of £300 per annum.

CURRENTE CALAMO.

The annual report of the Institute, the substance of which we give elsewhere, is one on which not only its members, but architects generally—*all* to be its members very soon, we trust—may congratulate themselves. Steadily increasing its ordinary membership, and additionally reinforced by the many recently joined and still joining Licentiates, the Institute is now justified to the hilt in expecting the prompt adherence of every member of the profession who really cares for its welfare and for his own position. Nothing has given us greater pleasure than its development during the past few years, and nothing is too much to expect in the near future if the same effort characterises its policy as has marked that of the able men who have so unmistakably raised its status and influence. There are things to be done yet; but the way to do them is to join the Institute and agitate for them from inside. We note with some regret the still steady and slight annual decrease in the number of Fellows, and strongly second the Council's appeal to those Associates who are eligible to take the necessary steps to qualify. They owe this to the Institute and to themselves, and we hope before this time next year the Fellowship will be at least a thousand strong. The brief reference to the Town-Planning Conference does the barest justice to the splendid work of its organiser and secretary-general, Mr. John W. Simpson. We are very glad to note that the Board of Professional Defence is seriously considering the responsibility for dry-rot with which recent legal decisions have saddled architects. Here, again, we may add that if architects seriously want such injustice redressed they must make it plain that the Institute speaks for the whole profession. Its voice will not long be heard in vain then, on this or any other question.

We seldom comment in these pages on political matters; but the State Insurance Bill now before Parliament affects the whole nation so tremendously, for good or evil, and our own great group of trades so markedly, that it deserves the serious and, as far as possible, the most unbiassed consideration of all thinking men. No one can object to the ideal which the measure sets before us. It is the first real national effort to remove the special curse of the Industrial Revolution—the terrible insecurity of employment that has harassed every worker since machinery upset the old methods of manufacture and industry, and driven the people into the big factories, or into the crowded yards of the large employers—more and more aggregations of invisible shareholders regardless of everything but the dividend.

Nothing, probably, has been more pernicious to the moral fibre of the workers than this ever-present uncertainty whether, to-morrow, unemployment or sickness may not stop wages, break up the home, and pauperise the family. If insurance against this does fulfil its aim, then the desire for independence which the better-class workers have nourished in their Friendly Societies and Trade Unions, and the instinct of self-provision against the risks of life will also be nurtured in the breasts of the now naturally thriftless, because the trifle they can save seems not worth the effort. The State, by subsidy and organisation, makes profitable thrift on the smallest scale possible, and thus encourages further saving; and, meanwhile, saves the worker from that grave of all that makes for self-reliance—the workhouse, and raises the efficiency of the whole nation.

How far does the Bill hold out promise of this good sort? Let us take the provisions dealing with unemployment first. They are only to apply to the trades we represent for the present. Having made up his mind to proceed tentatively in this direction, Mr. Lloyd George has, we think, wisely selected employees in the building and engineering trades as the first recipients of benefit, because in no others are the evils sought to be mitigated of more frequent or widespread occurrence. The workman will pay 2½d. a week, and the employer the same. The State will bear a quarter of the total cost. No payment for strikes or lock-outs. No payment for the first week of unemployment. No benefit until at least five weeks' contributions have been paid. The scheme will affect 2,400,000 men. In the first year the men will contribute £1,000,000, the employers £900,000, and the State £750,000. The benefit will be 7s. a week to engineers for fifteen weeks, and 6s. a week in the building trades. A very proper inducement to the master to employ regular and not casual labour is held out by a considerable reduction if his share of the premium is paid yearly instead of weekly. We think, however, that the State contribution should have been one third, as was expected, and not one-fourth. As the Trade Unions which give unemployment pay are to be repaid to the extent of that now to be given by the State, we suppose the trade unionist's contribution to his own society will be lessened correspondingly by the Unions?

The Sickness section embraces compulsorily all workers in the realm—man, woman, and young persons under sixteen—who earn less than £160 a year, except soldiers, sailors, and teachers, who are to be provided for under special schemes, Crown and municipal servants with retiring pensions, commission-agents working for more than one employer, and certain very casual labourers. All workmen earning more than 15s. a week will pay 4d. a week, workwomen 3d. a week, the employer 3d. a week for both sexes, and the State 2d. a week for men and women alike. Workpeople earning only 9s. to 15s. a week will pay from 1d. to 3d. a week, and in these cases the employer will have to pay more. Small tradesmen and men working for themselves may join voluntarily, paying, we suppose, all but the Government contribution. Benefits:—Free medical relief, 30s. allowed in maternity cases (the mother not being allowed to return to work for four weeks), special help in consumption cases, sick allowance of 10s. a week to men and 7s. 6d. to women for three months, and to both 5s. a week for the next three months. Permanent disablement pay of 5s. a week to the age of 70, when the sufferer will be transferred to the Old-Age Pension Fund. Young persons under sixteen will get no sick pay, but medical treatment and the use of the sanatoria it is proposed to establish.

Nobody, we think, will deny the general advantages of the whole scheme. Nobody can fail to admit that there are many things to be made clear and probably modified when the Bill gets into Committee. Meanwhile we must face the fact that the Bill places heavy new obligations in one way or the other on the whole community to the tune of twenty-two millions a year—probably a good deal more. The better-to-do classes will, of course, find the State contribution; but where is the employer going to get his back? Out of his customers or by reducing his wages? If he adopts the latter course, will not the workmen think they are all paying out at both ends while only some of them get back anything in return? We do not know. We see, however, that some of the Tariff Reformers are insisting there is little difference between "taxing the food of the people" and taking eleven millions a year from their wages for compulsory sick insurance. The masses *may* not regard Mr. Lloyd George's proposals presently with such lively enthusiasm as some are bidding them work up.

That, ere many years pass, the measure will repay its cost many times over we think is certain. The provision for mothers during the month following childbirth is at least one step towards the insurance of more healthy motherhood and stronger children. The provision of sanatoria and the provision of good medical treatment will circumscribe and often prevent disease. There will be more real "doctoring" and less drugging—either by the general practitioner or the quack-medicine vendor. And if thus sickness is diminished, if the incidence of unemployment grows less frequent, and the concurrent administration of the Town Planning and Housing Act, and the insistence by the State on the exclusion of the quack architect and the jerry-builder from the control of our towns and dwellings, have helped in the battle with disease and poverty as they must, we shall have a generation better fitted than our own to insure the solidarity of the nation in its ordered progress on the lines of reason and moderation to real prosperity.

Especially if one pregnant provision in the Bill against inability on the part of the workman suggests presently the insistence of corresponding responsibilities on the part of the employer:

> "Any workman who becomes repeatedly unemployed through lack of skill or knowledge may be required to attend a suitable course of technical instruction, and if he fails to do so or to profit by such instruction, this fact may be taken into account in considering what is suitable employment for him."

Is it not practically certain that Labour will demand very soon that if compulsory efficiency, or relegation to a lower grade of industry, is to be law for the man, it shall be law for the master?—that if the "captains of industry" fail in ability to find employment, or skill to direct it, they, too, shall be made to learn their business, or sent about some other than that in which they have failed? We shall say more about this anon, for it heralds possibilities some of us had better ponder very seriously.

A correspondent asserts that, as he reads the Copyright Bill, it will be the client who will suffer, if he gets into the hands of a pirate-architect. The natural course of the law under the Bill as it stands will be for the owner of the copyright to sue the owner of the building for damages, leaving the owner of the building afterwards, if he can, to recover damages from the architect who had actually pirated the copyright. The right of action on the part of the owner of the copyright,

MRS. HUMPHRY WARD ON MR. PASSMORE EDWARDS

The following letter from Mrs. Humphry Ward appeared in the *Times* of Monday last:

"May I send you these few lines of deep regret and true homage with regard to the death of my old friend Mr. Passmore Edwards? No nobler and more disinterested giver has been known to English life in our generation than the truly modest and generous man who has now passed away. My own knowledge of him dates from, I think, 1894. I am at present far from home and cannot exactly verify the date), when I wrote to him to ask if he would help what was then University Hall to build a Settlement building—something to replace the little dingy hall in Marchmont street, where the social work of the Settlement began. He took time to investigate and inquire, and one day came a short business letter from him, saying that he was prepared to give £4,000 towards such a building. That sum was afterwards expanded to £11,000, and thanks to Mr. Edwards's munificence, to the constant and generous help of the Duke of Bedford, on whose property it stands, and to the gifts of other kind friends, the beautiful building in Tavistock place, which has been the opportunity of so much educational experiment and, through its means of evening education, music, and club life, has meant so much under its successive Wardens to the working class of St. Pancras, came into being. From the means provided by Mr. Passmore Edwards, and supplemented by the Duke of Bedford's garden, at the rear of the Settlement, sprang the first cripple school in London under the public authority there are now more than thirty such schools in London, with more than 3,000 children in them, vacation schools, and play centres.

"In all that was done at the Settlement Mr. Edwards showed a warm interest, but always in his own way—a way singularly simple and sincere. When once a thing was started he would never interfere with the working of it, though he often helped. 'I have provided the means; now you must do the rest,' he would say in the case of his free libraries or his convalescent homes; and he stepped aside, a kindly watcher in the background. He belonged to the best type of Nonconformist Liberalism. An enthusiast for peace, justice, freedom, and simplicity of life, a follower of Mr. Gladstone in politics up to the Home Rule Bill, he was always fair towards opponents, and his mind broadened to the end. His passion for giving had brought him into contact with all sorts and conditions of men, and shown him, I think, the emptiness of many of our class and party divisions. He gave nobly and wisely, that he might increase the moral and intellectual store of his fellows, and help their infirmities; he gave till he became himself a comparatively poor man, and the modest house in Netherhall gardens, together with the retirement of his later years, put, as it were, a seal of honour on all that he had done. His family were his friends and helpers throughout; and it is fitting, indeed, that to our sympathy with them in their loss all of those whom he helped—and how many they are through the length and breadth of England!—should add the warm tribute of a reverent gratitude. Yours faithfully,

"Lucca, Italy. MARY A. WARD."

A new Sunday school, connected with the Ashley-road Congregational Church, Hale, was opened on Friday. The building has been designed by Messrs. Prince and Laycock, of Manchester.

Private enterprise is stepping in at Doncaster to provide artisan dwellings. On a site of 12½ acres off the main road to Bentley the erection of 300 houses is about to be proceeded with, the rents of which are to be from 4s. to 8s. weekly, houses at 6s. per week and upwards being provided with bath.

Plans were submitted to the Rural Education Board at a special meeting on Friday last for the erection of a new school for special classes of a site adjoining the present school at Renfrew-road. The estimated cost of the new school is £11,902 19s. 5½d., equal to £35 18s. 2½d. per child, not including furniture and benches.

HOSPITALS.*

By A. SAXON SNELL, F.R.I.B.A.

Modern hospital planning in this country dates from 1858, when the Blackburn and (a little later) the Herbert Hospitals were built. Then, for the first time, the pavilion system was adopted. Previously, the wards generally consisted of a number of rooms containing a limited number of beds, generally ranged on each side of an enclosed corridor. With but one external wall, this necessarily entailed absence of through ventilation, a matter which we shall see is of vital importance. The administrative offices and sanitary conveniences were all in more or less direct communication with the wards, and the materials and methods of construction did not differ generally from that of ordinary buildings for the healthy. These are the main points which mark the difference between old and new hospitals, and to appreciate the importance of the change in these matters we must look at the fundamental principles which actuate them. Now, as a first point, I will remind you that a hospital is, or should be, designed first and last for the housing and cure of the sick, diseased, and injured; an elementary proposition too often overlooked, or not always realised, in the building. We may start out with that ideal before us, but sooner or later other considerations obtrude themselves, to its detriment. To see clearly how this proposition is to be realised, let us examine in detail the thing to be done and the condition under which it can be done. No doubt it is true that every one of us endeavours, and in part succeeds, in making each building we design an improvement upon its predecessor; but these improvements are too often in matters of detail only, and our satisfaction and absorption in them is liable to lead to forgetfulness of larger problems as yet unsolved. Do we not, indeed, see this tendency even in the purely architectural design? Who, contemplating the latest creations of Neo-Greek, can trace any connection between the details of the most pleasing and refined elevations, and the original purpose of cornice, column, and beam? The beauty and refinement may be there, but they are merely applied ornament without relation to realities. The columns and cornice of a Greek temple were but idealised construction, and the form of each part had some definite relation to the practical work it had to do. In the same manner, it is possible to improve and refine details of hospital design, whilst losing sight of their practical purpose. The really perfect hospital will be realised only when we can free ourselves from conventional ideas and try to get a true sense of the end to be achieved, and keep that end steadily in view. No one of us can hope to make a revolution, but each one of us can do something towards it if we have will and initiative. One might multiply these abstract ideas indefinitely, but I think it will be more interesting to you if I descend to more practical matters. I propose, therefore, to give a general description of the buildings which go to form a modern hospital, and to deal in detail with the most important part—i.e., the ward unit. Dealing first with the question of site. The ideal site has often been described at length, but may be shortly defined as being in the open country, but within convenient distance by rail or road of the town or area from which the patients will mostly be drawn. A light soil overlying gravel or permeable chalk sloping gently towards the S.E., and protected by hills or rising ground or trees from the N., N.E., and N.W. A good water-supply should also be available, and facilities for disposal of sewage. For special hospitals, which depend upon the services of the highest medical and surgical skill, much has to be sacrificed to bring them within reasonable distance of the specialist's consulting-room. The disposition of the buildings depends, of course, largely upon the shape and area of the site, and the only general rules we can make is that the ward blocks should be so placed as to be free from the traffic of the other buildings, and the noise and dust of a public highway, should not be shadowed by other buildings, and should have uninterrupted light and air. Note how the Germans space their ward blocks, being only one, or at most two, stories in height. Also the plan of Dresden Hospital, with ward blocks one story in height, and lifted high above the ground. Our reason is, no doubt, that in England so many of our buildings, and particularly hospitals, have been built and endowed by individuals, instead of, as abroad, by the State, and States, of course, have large resources to draw upon. Note that the public or road approach is on the N. side, from which easy access is obtained to the administrative offices, leaving the ward blocks freely exposed to the S., S.E., and S.W.

* Read before the Society of Architects, May 11, 1911.

LODGE.

Commencing at the entrance gates, we have a small lodge placed midway between two pairs of carriage-gates. One of these entrances should be reserved for goods traffic, and should have a full-sized weighing-machine on the inner side of the gates. It is always to be desired that carts bringing in coals, provisions, etc., should be weighed on entering and leaving for the purpose of checking. The lodge should be occupied night and day, and be in telephonic communication with the rest of the hospital.

OUT-PATIENTS' DEPARTMENT.

To the left of the lodge, I place the out-patients' department, which should have separate entrances and exits into the road, and it should also be entirely disconnected from the other buildings. This is a point which is not always observed; indeed, cannot be with some sites, especially in city hospitals. Bearing in mind that dirt and disease are largely cause and effect, no patient is admitted to the wards of a hospital until he or she have been bathed and re-clothed in perfectly clean garments. This cannot be insisted upon in the case of out-patients, and it is obvious that dirt and disease germs to a considerable extent must be deposited in that particular department, and it is, therefore, best isolated. The out-patients' department is too large to describe in detail. It comprises a number of consulting-rooms, each devoted to certain classes of disease and surgery, ranged round a large waiting-hall. The main point to be observed in the plan is that the hall should be sufficiently large, along a long parallelogram, to allow of easy classification of the patients. In large institutions it is customary to have smaller waiting or preparation rooms intervening between the hall and each consulting room, where patients can undress, if necessary, and otherwise be prepared for examination by the surgeon or physician. It is also important to provide separate exit-doors for the consulting-room, and, if it can be so arranged, patients should not return to the main hall, but go directly into the waiting-hall adjoining the dispensary. This is very difficult to manage unless the consulting-room is lighted from the roof. It is so arranged at Charing Cross Hospital.

CASUALTY DEPARTMENT.

Adjoining, and, indeed, forming part of, the out-patients' department, is the casualty department, which, for identical reasons, should also be disconnected from the main building.

For this department it is essential to have easy and quick access from the public road, and it should be possible to bring a cab or vehicle almost to the door of the operating-room, because fatal damage may be done to the injured person in removal. At Charing Cross Hospital you will see that the doors actually open on to the courtyard. Attached to the operating-room would be a waiting-hall for patients' friends, and a room or small ward for the injured after treatment.

OBSERVATION WARDS.

Beyond this block is a smaller one for the observation of cases suspected of infectious disease, or such as may develop in the hospital itself. This building should have no closed communication at all with other buildings.

ISOLATION WARDS.

In all hospitals a few rooms or a small isolated building is provided for fever cases which may arise among patients admitted to the hospital for other diseases. It is, of course, better that such cases should be at once removed to an infectious hospital; but it is not always practicable. The planning and fitting of this building falls under the head of Fever Hospitals, which is a subject for a separate paper. I need only say here that if one, however small, is attached to a general hospital, it should be absolutely isolated, with a zone at least 40ft. wide all round. It should be complete with kitchen and nurses' quarters. I show the plan and section of such a building planned on the lines of the Pasteur Hospital at Paris, which may interest you, and for a description I may refer you to the short paper I read last year before the Royal Sanitary Institute.

MEDICAL SCHOOL.

On the right of the lodge are placed the medical school, lecture-room, etc., and beyond these the pathological department, museum, mortuary, and engineering-plant house, etc. The medical school should contain, besides a large lecture theatre, smaller lecture-rooms, museum, library, students' studies. The students' recreation- and reading-room may be conveniently placed in the same building, though it is not altogether to be commended. They would be better placed in connection with the living quarters, or hostel, if one is provided.

MORTUARY.

Even in public mortuaries this is recognised, and you will find, for instance, that in Marylebone bodies are placed in a building which is more or less a small chapel. For a hospital it may be quite a small place if there is adjoining a large room, or preferably a mortuary chapel. You may call it, or use it as, a "viewing-room." In practice, bodies are placed in the mortuary proper, which is severely and coldly practical in its construction and finishings, with its washable walls and floors, and ample ventilation. When friends or relatives come to see their dead, the body is brought into the viewing room or chapel, to spare them the grimsomeness of the mortuary. It has always seemed to me there should be a separate exit from the mortuary yard to the public road, as a hearse and funeral procession are not a cheerful sight for either the patients or staff. Attached to the mortuary, or in close proximity, is the post-mortem room and pathological laboratory. Both rooms must be severely plain, with washable and impervious walls and floors. The danger of blood-poisoning awaits the careless operator in these rooms. Pathological theatres are seldom used now. Instruction in pathology is given in the lecture-rooms, and practical demonstrations are held with small classes. A hospital mortuary should be something more than a sort of cold-storage room.

> "How wonderful is Death—
> Death and its brother Sleep
> . . . . so passing strange and wonderful"

sang Shelley; and even the meanest of us will always feel awed in its presence; always by instinct pay respect to the cold clay, save only those whom constant familiarity have rendered callous. It has always appeared to me a beautiful idea to make the mortuary a consecrated place.

OPERATING ROOM.

Every hospital must have an operating room; and its area and arrangement differ according to whether the hospital has or has not a medical school attached to it. In the former case, all that is required is a fairly large room, preferably square on plan, say from 200ft. to 250ft. in area. Its adjuncts comprise a small sink-room, anæsthetic room, and sometimes what is clumsily called an after-recovery room, which is merely a small ward in which to place a patient immediately after an operation. Separate operating theatres are often provided, one to each surgical ward, partly to avoid carrying patients long distances, and partly because distinguished surgeons differ so much in their ideas as to fittings, arrangements, etc. Otherwise, a more reasonable and economical plan is to place them all in one building with their adjuncts in common. A very good arrangement may be seen at the London Hospital.

[illegible]

KITCHEN AND STORES

[illegible]

[illegible]

[illegible]

think it an ideal position, because, for one thing, it is just at those points that we are able to get the most and best sunlight, which these towers necessarily block out. Mr. Aldwinckle, at the Brook Hospital, placed these offices in a tower leading out of the centre of the ward, and this plan has its advantages from some points of view; but on the whole it seems that a better position (especially in a short ward) is at the lower end of the ward adjoining the ward kitchens, etc. This leaves almost the outer wall surface and windows of the ward itself exposed to the sun without interruption. It is most usual to place the baths in one of the towers, but this is, I venture to think, entirely unnecessary from a sanitary point of view, and they are more convenient placed adjoining the kitchen and offices. In this way it is possible to make the towers of small dimensions—a matter of great importance, in view of the obstruction they form to the light and air of other parts. For this reason, too, and another, it is better to put the ward conveniences in one tower and the nurses' sink-room in another. The other reason is that the nurses' work (at best not the most pleasant) is rendered easier and more agreeable. The special convenience for the use of nurses may also be well placed in the sink-room tower. It should contain separate sinks respectively for emptying and cleaning bed-pans without unnecessary handling, and also a long wide and shallow sink for washing mackintoshes. Also a small cupboard for preserving specimens of excreta for examination. This can be well placed in the thickness of the outer wall, and it should be thoroughly ventilated. These towers are separated by cross-ventilated lobbies from the ward. The air which is extracted from the ward by open fires and flues must be replenished from the outside, and it will be drawn more freely through the openings which offer the least resistance to its passage. That may easily happen to be through the sanitary annexes, and it is, of course, the function of the cross-ventilated lobby between the annexe and the ward to obviate this. Care must be taken that this lobby is not a mere flue between them, and that can only be done by making the passage of air in the lobbies easier than in the annexe. It is possible to make the extracting power of the annexe stronger than that in the wards, so that the draught is away from, rather than towards, the wards. Although I do not propose to deal at any length with the question of ventilation, I must state the general principles as applied to wards, because it has a bearing on the particular form of the pavilion block. In the first place, I think it is not unknown that

I ABJURE ALL FORMS OF MECHANICAL VENTILATION,

and it is with no little satisfaction that I find that medical men as a rule are emphatic in their preference to what we call natural ventilation. Ample and efficient ventilation can be secured in this country by means of open windows and air inlets. In the treatment of consumption, it has been found that unlimited fresh air is one of the most important factors, and it is now recognised that it is equally valuable for every other disease. I think it is not too much to say that even the doubtful freshness and cleanliness of the air in cities is better in excess rather than in small quantities. In other words, have plenty of air in the wards, clean and fresh if you can, but if you cannot, at any rate have as much as you can of the best available supply. I am not suggesting that air is not best when cleansed of all dust and dirt, but until we can secure this by more simple means than machinery and long dark flues, we are better off as we are. In most mechanical schemes the engineer cannot resist the opportunity of combining the heating with ventilation—i.e., by delivering the air into the wards warmed. Those who can enjoy and thrive in warm air love also sterilised water, and other lifeless things. The majority of us prefer and thrive better on air and water as nature supplies them. In placing the windows directly opposite one another, we can at most times get a gentle flow of air from one side to the other. This is the case even on the stillest day; because the temperature on any one side of a building is always greater or less than on the others, and as we know movement of air is caused entirely by the differences in temperature. In rough or cold weather, we have to rely more or less on the inlet flues which are placed—one to each bed—in the outer walls. They discharge into the ward about 3ft. to 4ft. below the ceiling level. A little air may also be introduced at the floor level, the inlets being so placed that it impinges on, and is slightly warmed by, the radiators or hot-water pipes. This helps the general circulation of the air. An inlet, or inlets, may also be placed with advantage in connection with the central heating stoves. Very important is the provision for extracting the foul air which is given off by the patients. The most powerful agent in this direction is the open stove; but strong extraction flues at the ceiling level are of equal importance, and an induced current is valuable. The golden rule is to have plenty of air, fresh and cold, but not too cold for reasonable comfort, and to keep it gently moving.

DAY-ROOMS.

Day-rooms for patients cannot be considered essential, but they are desirable. They are most often placed adjoining the kitchen and separation wards, where they can be kept under better observation by the staff. Much, however, may be said in favour of placing them at the extreme end of the ward, where, with abundance of window space, they form veritable sun-rooms. It is desirable that they should have conveniences adjoining. At Willesden Infirmary I placed the day-rooms in this position, and the sanitary towers are so placed as to serve them as well as the sick wards.

SCULLERY.

The ward kitchen or scullery is an essential part of the ward unit. It need not be large if the door and window fittings are conveniently placed. A deep sink is provided, with drainer-boards and plate-rack. Also a small cooking stove—preferably a gas range—for keeping food hot.

SEPARATION ROOMS.

One or two small rooms are very desirable to accommodate noisy patients, or those for whom absolute quiet is essential. In a large hospital it is usual to provide one such room for two patients and two for one each.

LINEN STORE, ETC.

To complete the ward unit, we require a linen store-room, broom cupboard, patients' own clothing room, and a small pantry. For these, space can be economised by providing a small cupboard in the outer wall of the scullery for food storage; cupboards along one side of the passage leading to the ward for linen, etc., and a cupboard in the kitchen for brooms, pails, etc. I prefer that the latter should not be placed in a closed space at all. They can be neatly hung on the wall of the kitchen. Cupboards are so handy for hiding dirty things. Patients' own clothes should, however, be placed in a small room fitted with steel lockers, pegs, etc.

WARD SISTER'S ROOM.

In large hospitals, a room is generally provided for the special use of the ward sister, but it should be in no sense a sitting or bed-room. It should be more in the nature of an office.

STAIRCASE AND LIFT.

If the ward block is of more than one story, a staircase and lift is, of course, necessary. The stairs should not be less than 4ft. in width, and with an easy rise, say 6½in., with an 11in. tread. No winders should be allowed. The lift should be large enough to hold a bed and two nurses or attendants. It is desirable that the staircase should be cut off by a corridor or cross-ventilated lobby from the wards and adjuncts, so that the air from the lower ward may not be able to ascend to the one above. I will conclude by pointing out the special features of the plans I exhibit, many of which have been lent me this evening by distinguished architects who have made a special study of these institutions, and for whose co-operation in this way we owe our cordial thanks.

OBITUARY.

American art has sustained a great loss in the sudden death on Friday night during a visit to London, of Professor Halsey Cooley Ives, LL.D., Director of the City Art Museum at St. Louis, Miss. Professor Ives was born at Montour Falls, New York, in October, 1846, and received his training in the technical schools at South Kensington. In 1874 he became Director of the St. Louis School of Fine Arts, the art department of Washington University, and two years ago assumed the office which he held at the time of his death—the Directorship of the City Art Museum. In 1877 he married Miss Margaret A. Lackland, of St. Louis, who survives him with a daughter at present engaged in art studies at Berlin. Professor Ives was chief of the Art Department of the Chicago Exposition in 1893, and also of the St. Louis Exposition in 1904. Professor Ives was a lay member of the National Sculpture Society, and an honorary member of the American Institute of Architects, the Chicago Art Institute, and the Phi Beta Kappa Society. He received many foreign decorations and academic honours. He was a strong advocate for the principle of supporting the art galleries of the City of St. Louis by direct taxation, a proposal which provoked bitter opposition, but was eventually adopted.

The completion of the Church House for Liverpool is about to be undertaken at a cost of £14,000. The first section was built in 1899-1901 at an outlay of £25,000. The whole property covers an area of about 1,061 square yards, possessing a frontage to Lord-street of 52ft., to South John-street 141ft., and at the rear to Cable-street 72ft.

The foundation-stone of a new open-air ward for the treatment of non-pulmonary cases of tuberculosis at the West Kirby Convalescent Home for Children was laid on Monday afternoon by Miss Callister, the daughter of the donor. The ward will cost £800, and has been designed by Messrs. Ware and Bailey, of Liverpool, the architects of the home.

The urban district council of Cleethorpes-with-Thrunscoe has now begun to carry out a scheme of main sewerage and sewage-disposal estimated to cost £58,000. The engineers are Messrs. Chatterton and Alford, of Westminster, and the contract for the first section of the undertaking has been let to Messrs. R. Annakin and Son, of Harrogate, for £23,453.

The Local Government Board have approved of the scheme prepared by Mr. Harry W. Taylor, A.M.I.C.E. (Messrs. Taylor, Wallin, and Taylor), of Newcastle-upon-Tyne, for the augmentation of the waterworks of Peterfield town. The urban district council gave instructions at their last meetings for tenders to be invited at once for the execution of the works.

Good progress is being made with the extension of the Leeds tramways to Morley, and it is hoped they will be completed before the Coronation. The line between Leeds and Churwell is the first section, and that from Churwell to Morley is to be a single line. The works will cost about £50,000. The railless system of cars between Leeds and Farnley is another of the works in hand.

A new Queen's Theatre is to be built on a site in Great Bridgewater-street, Manchester. It will provide seating accommodation for four thousand persons. Above the ground floor there will be only two tiers, a lower circle and gallery. The ground floor will be divided into stalls, pit-stalls, and pit. Obstructing pillars will be dispensed with, for the tiers will be on the cantilever principle. The orchestra will be so arranged that half of the space devoted to it will be under the stage. The building is to be of "black-and-white" Elizabethan type.

At Tuesday's meeting of the London County Council, Sir John Williams-Benn and Mr. C. Stettauer complained of the slow progress which was being made with the construction of the new County Hall. Mr. R. C. Norman deplored the fact that the work was not progressing more speedily, but said that it was not the fault of the Establishment Committee, which had never ceased to urge that the more expedition there was the greater would be the saving. Mr. Edward Smith said that the sum it was proposed to expend on the work this year was less by £36,730 than last year. Mr. Isidore Salmon assured the Council that everything possible was being done to press on with the work.

Building Intelligence.

BURSLEM. [illegible] at Burslem [illegible] The principal [illegible] Trouble, and to [illegible] erected, for [illegible] [illegible] [illegible]

was stated that the survey of Edinburgh and Leith was now about to proceed, and preliminary arrangements were made with a view to taking advantage of the information already available.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—At the annual meeting of this society, held at Sheffield University on the 4th inst., a satisfactory year's work in the interest of the profession was disclosed by the council's annual report, and the statement of accounts was also considered satisfactory. Officers were elected as follows:—President, Mr. J. B. Mitchell Withers; vice-president, Mr. A. F. Watson; treasurer, Mr. F. Fowler; hon. secretary, Mr. James R. Wigfull; council, all the officers and Messrs. W. G. Buck, F. E. P. Edwards, R. W. Fowler, C. B. Flockton, J. R. Hall, H. L. Paterson, E. Winder, C. F. Innocent, H. I. Porter, and F. H. Wrench. In proposing a vote of thanks to the retiring president, Mr. Edwards warmly acknowledged the labours of Mr. W. J. Hale for the society, which he said had gained increased prestige during his period of office. Mr. Wigfull seconded, and the vote was heartily accorded.

SURVEYORS' INSTITUTION. — The pass-lists were issued on Monday in the professional examinations of the Surveyors' Institution. There were about 800 candidates, and the examinations were held in London, Dublin, and Glasgow. The prize-winners in the various sections are as follows:—Intermediate Examination (Student Candidates).—Mr. Louis Michael Dell, 3, Routh-road, Wandsworth, S.W., "Institution Prize." Mr. Thomas Simpson Paterson, "The Knowles," Mere Farm-road, Axton, Birkenhead, "Special Prize." Mr. Charles Gordon Renshaw, The Glen, Broughton Park, Manchester, "Bradel Prize." (Non-Student Candidates).—Mr. Eric Morley, 14, Park drive, Bradford, "Penfold Silver Medal" and "Driver Prize." Mr. James Douglas Brand, Kifellan, Drumchapel, Dumbartonshire, "Scottish Committee Prize." The Final Examination.—Mr. Cyril John Clements, Watson-avenue, Mansfield, Notts, "Penfold Gold Medal." Mr. Norman Cowell, 140, Rodenhurst-road, Clapham, S.W., "Crawter Prize," and Mr. Frank Treacher Terry, 407, Victoria-street, S.W., "Galsworthy Prize."

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

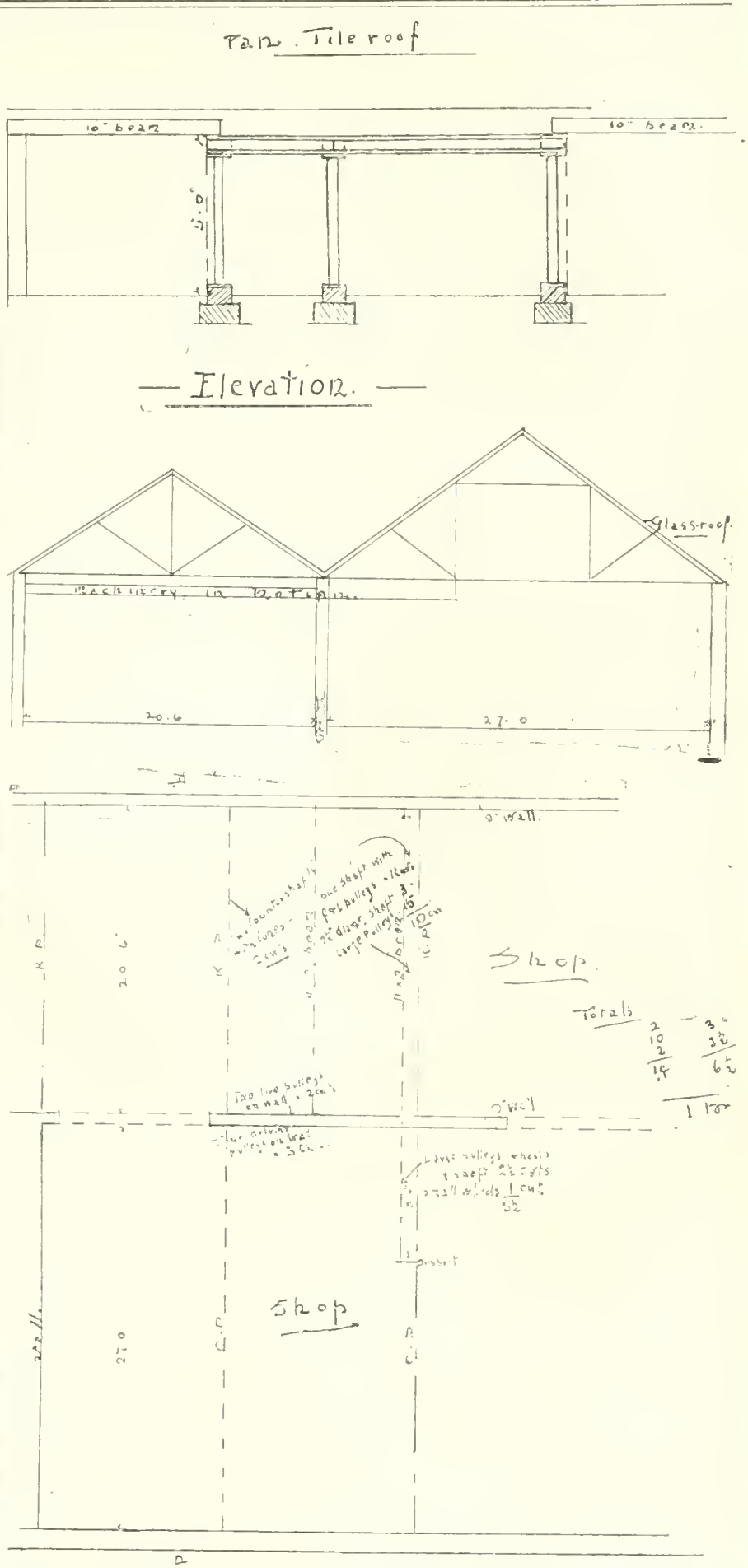
We award the guinea to Mr. G. Newbold, 21, Great Peter-street, Westminster, S.W.

QUESTIONS.

[13040.]—SETTLING TANK.—I want to pump water for a bath, w.c., etc., from a stream which is liable to floods, and runs on a muddy bottom. Can anyone suggest a simple filtering or settling tank to pump from? The normal surface level of stream water is 6ft. below the surface of surrounding soil (clay).—Aqua.

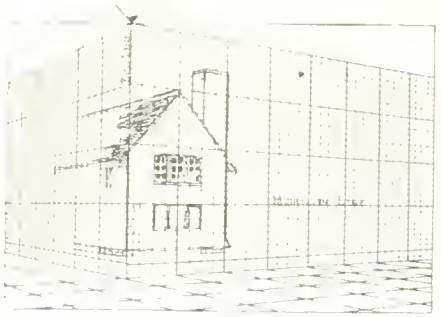
[13041.]—CUTTING THROUGH CONCRETE AND IRON FLOOR.—I have to cut through a concrete and iron floor, 12in. thick, for the purpose of forming a well-hole. It is in a showroom of business premises where it is desirable to save as much noise and vibration as possible. Can you tell me the best way of cutting? Is the oxygen and acetylene gas process available for the purpose, and does it disintegrate concrete as well as cutting the steel?—N. J. H.

[13042.] — IRON-FOUNDRY. — I have a tricky problem to solve and carry out at an iron foundry—a length of 9in. wall to be taken out and iron girder and columns substituted. As shown on drawing herewith, not only is there the usual dead weight above, but also machinery in motion weighing a ton. Will some reader state approximate weight in bottoms to carry, and size girder recommended?—H. C. R.



REPLIES.

[13036.]—EFFLORESCENCE IN BRICKS.—This is caused by a process known as "saltpetring," showing chiefly on new walls, and old walls where they are



CHIPS.

The foundation-stone of the new Church school has been formally laid at Worksop. The architect is Mr. E. G. Lucas and the contract has been taken by Messrs. Bowes Bros., of Worksop.

The King of Italy laden Monday the foundation-stone of the new building of the National Library at Florence. The architect is Signor Cesare Bazzani, the designer of the Fine Arts Palace at the Rome Exhibition.

At a special meeting of the Thirsk Rural Council held on Monday the post of surveyor, at which the salary is £150 per annum, was given to Mr. Edward Annakin, aged 30, of Chesterfield, New Laswick, York.

The foundation-stone of the new Congregational chapel to be erected in Victoria-road, Southsea, at a cost of about £3,500, has been formally laid. The architect is Mr. C. W. Bevis and the contractor Mr. J. Cockerell.

The Walmer Corporation adopted at their meeting on Friday plans and a report prepared by the borough surveyor, Mr. W. H. Travers, for the provision of ornamental gardens, shelter, a pavilion, bandstand, and lavatories upon land between the Marine Park, the Palace Yard, and Victoria-road, New Brighton, at a cost of £9,000.

The death occurred unexpectedly on Monday night of Mr. William Wood, aged 76, of Hartford, Northwich, who was one of the best-known builders and contractors in the North of England. He built, among other places, the Northwich free library and the Northwich secondary schools. His contracts included big undertakings in London, the South of England, Wales and Scotland.

The contractors for the work of restoring the Church of St. Margaret, Somersby, in memory of Lord Tennyson, are making rapid progress with the work. Part of the memorial scheme consist of placing in the church a bust of Tennyson, to be executed by Mr. T. Woolner, R.A. The church is to be opened on Sunday, August 6, the anniversary of the late Poet Laureate's birth. The architect is Mr. W. Bond, of Grantham.

Our Illustrations.

ST. JOHN'S ROMAN CATHOLIC CHURCH, NORWICH.

The church was designed by the late Mr. G. G. Scott, and the nave, including the west arch of the crossing, and part of the west walls of the transepts, also the rectory in use adjoining, were carried out under his supervision. Mr. J. Oldrid Scott has had charge of the work for the last fifteen or sixteen years, during which time the whole of the eastern part of the church has been built. Mr. Oldrid Scott has carried out the work according to his brother's design to a very great extent; but various alterations have been made in the original scheme from time to time, and besides the details of the whole of the work, Mr. Oldrid Scott is responsible for the treatment of the transepts and the sacristy on the south side. The nave was built in a somewhat severe Early English manner; but in the eastern part the style has been allowed to grow to a rather later phase of the period. The internal arrangements and fittings of the choir and sanctuary are only temporary. Except during the last two or three years the work has only been allowed to progress at a very slow rate. No general contractor has been employed, a clerk of works being in charge and arranging for the supply of labour and materials. A number of the windows have been filled with stained glass with good effect, the great eastern windows and those of the two transepts, as well as other smaller ones, having been carried out by Mr. Dunstan Powell, of Birmingham, and the windows of the apsidal chapel in the north transept by Messrs. Clayton and Bell.

THE CANON GREENE MEMORIAL CHURCH, CLAPHAM COMMON, S.W.

In our review of the Architectural Gallery at the Royal Academy last week we specially referred to the two excellent drawings of this proposed church, of which Mr. H. P. Burke Downing, F.R.I.B.A., is the architect, and we now reproduce both pictures, including the plan, which consists of a nave with a wide aisle, terminating in a morning chapel alongside of the choir. The canopied pulpit is on the Epistle side of the church, and the font stands adjacent to the western entrance-lobby. There are also two entrances on the north side, and there is a bell turret at the western end of the building. Over the entrance to the choir a carved beam carries the rood, and by way of reredos a tall, testered dossal, with wings, gives dignity to the high altar, the eastern triplet window sill being carried well up, to permit of this adequate arrangement, which has a very handsome effect in Mr. Gascoyne's water colour.

A brass tablet has been placed upon the north wall of the nave of the Cathedral at St. Alban's, as a memorial to the late Mr. F. W. Sylvester. It was executed by Messrs. J. Wippell and Co., of Exeter and London.

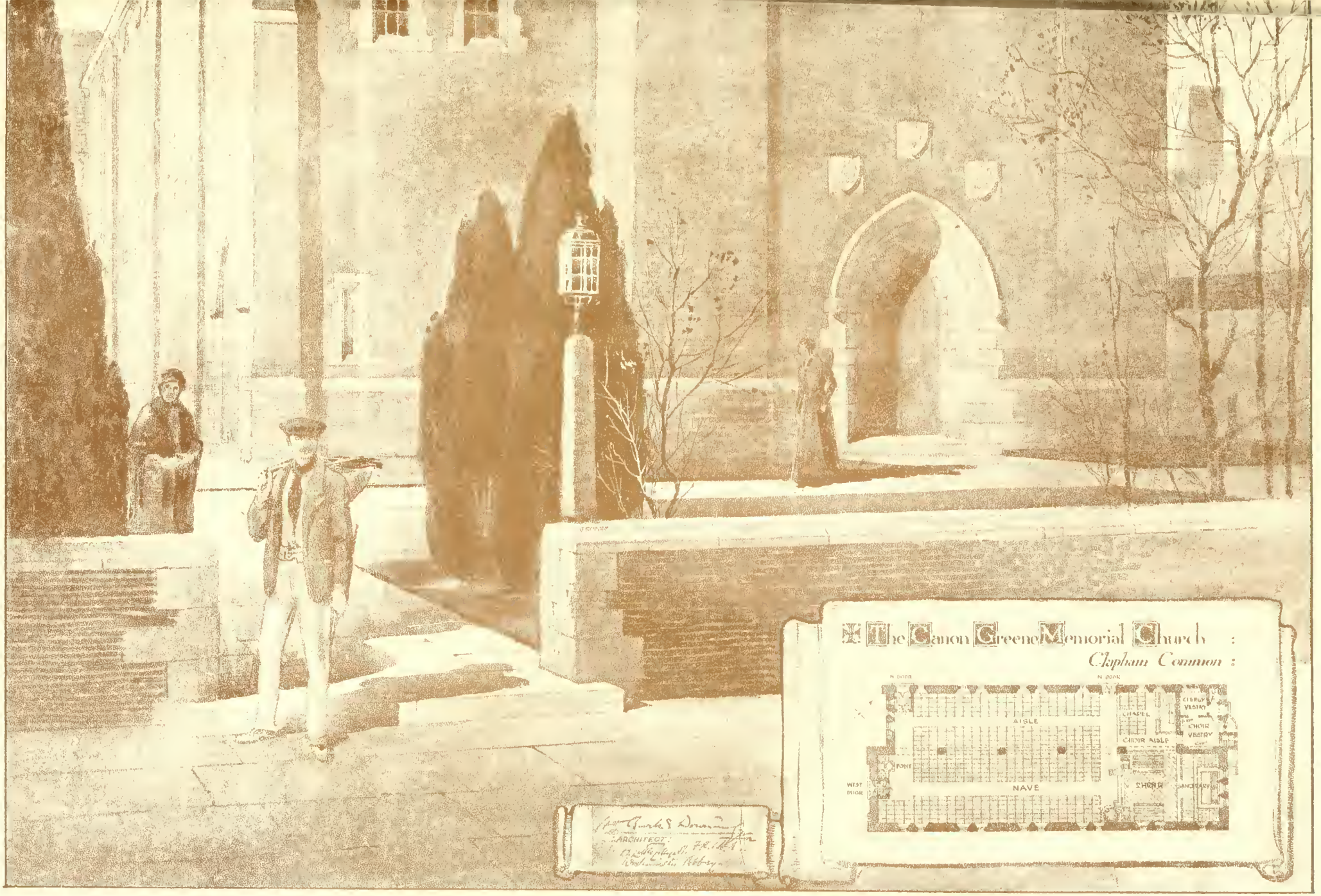
The foundation-stone of a vicarage-house for St. Peter's parish, George-street West, Birmingham, was laid on Saturday. The architect is Mr. Charles E. Bateman, of Birmingham, and the builder Mr. Bishop, of Kings Heath.

Members of the Yorkshire Architectural and York Archæological Society paid a visit to Selby on Friday, where they were met by the vicar, who acted as guide. On Tuesday the foundation-stone of the new south transept now being added to the abbey from Mr. J. Oldrid Scott's plans on the lines of the work destroyed in the 15th century, was laid by Mrs. Liversidge, whose husband has undertaken to defray the cost, estimated at £8,000, of the new work.

Under the will of the late Miss Ashton, of Kenilworth, a new carved oak pulpit standing on four columns and having around it six statuettes representing SS. Nicholas, Barnabas, Paul, Luke, Mary, and Cecilia, has been placed in the parish church of St. Nicholas, Kenilworth. The dedication service took place on Friday evening. The design of the pulpit is by Mr. J. Oldrid Scott, F.S.A., and the work has been executed by Messrs. John Thompson and Co., of Peterborough.

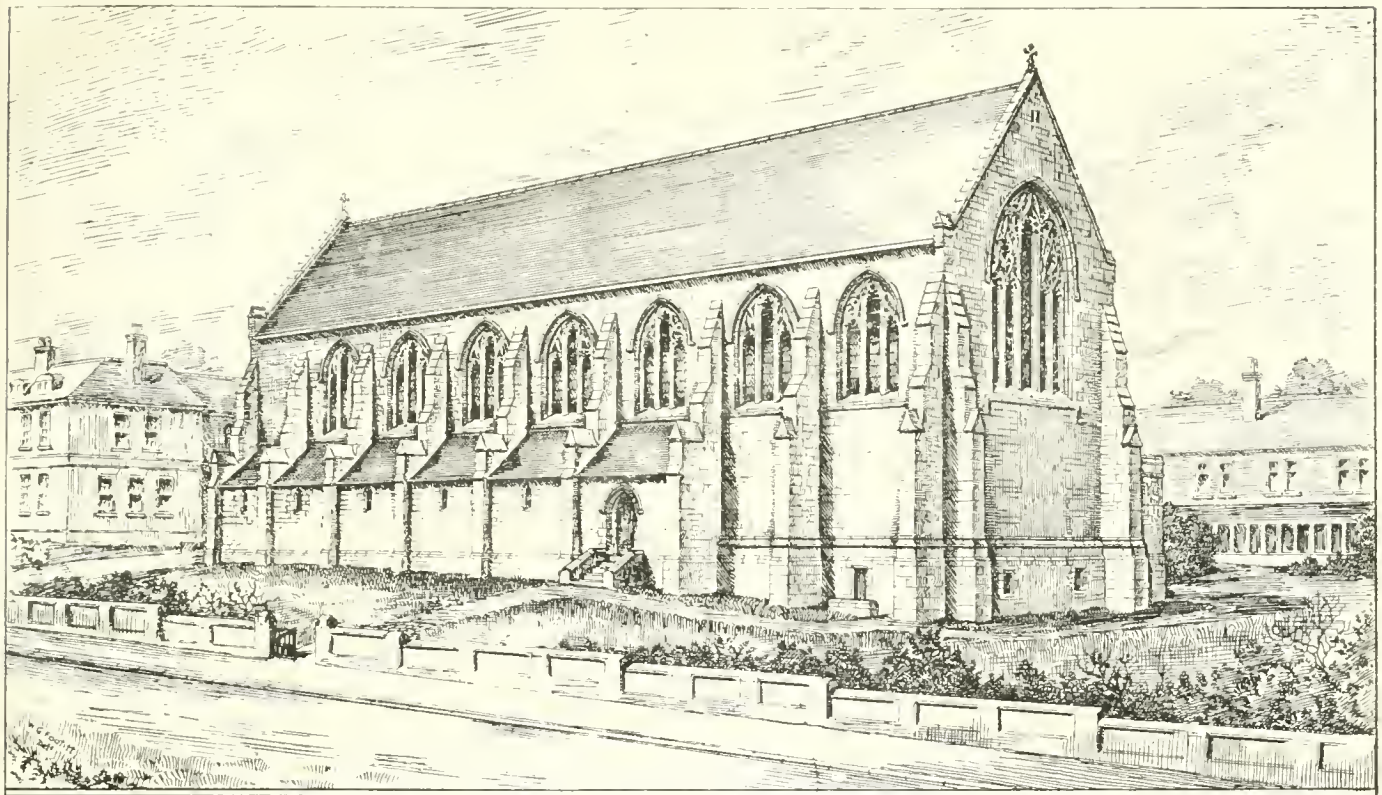
"PHOTO-TINT" by James Akerman, Leed Square, W.

THE CANON GREENE MEMORIAL CHURCH CLAPHAM COMMON · H P BURKE DOWNING · F R I B A ARCH^T



"PHOTO-TINT" by James Akerman Queen Square

THE CANON GREENE MEMORIAL CHURCH · CLAPHAM COMMON · H P BURKE DOWNING · F RIBA ARCH[T]



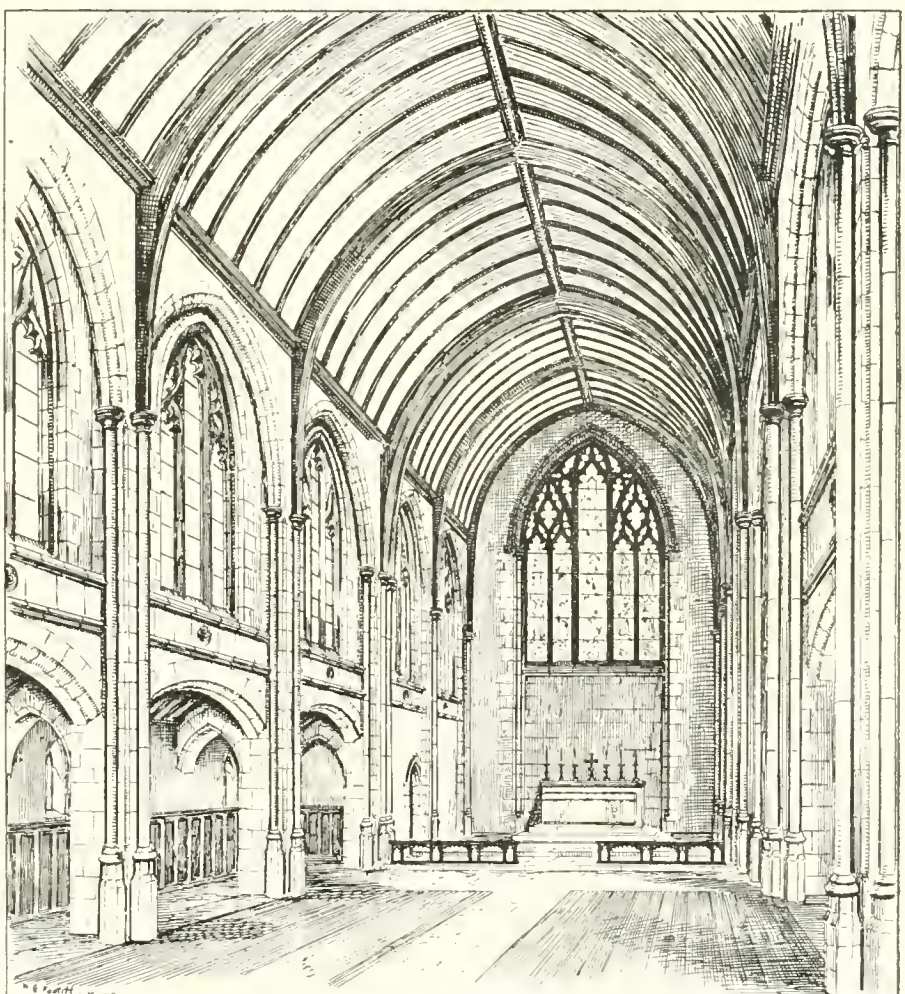
WOODARD SOCIETY. GIRLS' SCHOOL, HARROGATE. THE CHAPEL. Designed by the late C. Hodgson Fowler, F.S.A. and being carried out by W. H. Wood, F.R.I.B.A., his successor

SCHOOL CHAPEL, HARROGATE, FOR THE WOODARD SOCIETY.

The foundation-stone of the chapel of the Girls' School at Harrogate was laid on Monday last, May 8, by the Archbishop of York.

The plan of the chapel consists of continuous nave and chancel, with narrow passage aisles to the nave, and a sacristy on the north side of chancel. A stair turret gives access to the western gallery, where the organ will be placed. The north aisle is connected by a corridor with the school buildings (now in course of erection from the design of Mr. W. Gilbee Scott, F.R.I.B.A., of London).

The walls are to be of stone, with green slates on the roof; the floors throughout will be of wood-blocks. The chapel will accommodate 338, and is the gift of Lord Mountgarret, the work being carried out by Messrs. Bowman and Sons, builders, of Stamford, from the designs of the late Mr. C. Hodgson Fowler, F.S.A., under the supervision of Mr. W. H. Wood, F.R.I.B.A., of Newcastle and Durham, his successor.



DESIGN FOR CHAPEL, GIRLS SCHOOL, HARROGATE. C. Hodgson Fowler F.S.A. Architect
Being carried out by W. H. Wood, F.R.I.B.A., his successor

A noteworthy building project in British Columbia is the extension of the Parliament buildings at Victoria, upon which the Provincial Government will spend a million dollars. Mr. F. M. Rattenbury, architect, Victoria, B.C., is at work on the plans.

The members of the York Architectural and Archæological Society paid a visit last week to the historic church of St. Cuthbert, on Peaseholm Green, which has become greatly dilapidated. The rector, the Rev. R. G. Pyne, claimed that the church was founded about 687, and stated that Roman coins had been found in the churchyard. He recalled that the church was mentioned in the Domesday Book and enumerated several noteworthy figures of the past who had taken a personal interest in the church as parishioners, these including William de Bowes, who was Lord Mayor of York in 1427 and 1428, and represented the city in four Parliaments. His tomb, with a well-preserved inscription on brass, is inside the church. After William de Bowes, Sir Martyn de Bowes played a prominent part in the history of the church. Sir Martyn, who presented the well-known civic sword to the corporation of York in 1549, was born in the old mansion on Peaseholme Green, and in time made his way to London, where he gained much fame and was made Lord Mayor. General Wolfe was also known at St. Cuthbert's. The visitors were conducted round the church and churchyard. They subsequently inspected the plans for restoration, which had been prepared by the late Mr. C. Hodgson Fowler, F.S.A.

Engineering Notes.

COMPETITIONS.

LEGAL INTELLIGENCE.

ALLEGED COLLUSION BETWEEN BUILDING OWNER AND ARCHITECT. HOUSE OF LORDS. Before the Lord Chancellor and Lords Atkinson, Ashbourne, Shaw and Gorell. Hearing: Lords heard to appear for Messrs. Hickman & Co. to maintain the judgment of Mr. Justice Hamilton in favour of the plaintiffs, and to oppose the appeal from the judgment of the Court of Appeal in favour of the defendants. The action was brought by Messrs. Holden & Co., trading as C. P. Roberts & Co., to recover £339 9s. 4d. due under a contract made in December, 1905, between himself and the appellants, Messrs. Hickman & Co., he agreed to erect and complete a warehouse, then known as No. 13 Chapel-street, at the north side of St. Luke's Church, Old-street, London, for the sum of £3,750. Certain extras were subsequently entered into between the parties. By the contract Mr. Robert W. Holden, of Finsbury-square, was to act as architect, the contract sum to be paid by instalments, the amount of each instalment was to be certified by the architect, and the final balance of the contract sum was to be paid within one month after the completion of the work. The plaintiffs had completed the work, and had received all the instalments except £1,000, which was withheld by the defendants on the ground that the architect had refused to grant a certificate for the payment of that sum. The plaintiffs contended that the architect had refused to grant the certificate because he had been improperly influenced by the defendants, and that the refusal was therefore not binding upon them. Mr. Justice Hamilton found that the plaintiffs were entitled to recover the £1,000, and the Court of Appeal reversed his decision.

Mr. Hugh Young, K.C., and Mr. Alan Mendelsohn (instructed by Greenwood, Higham, and Co.) appeared in support of the appeal. Mr. Vachell Kc., Mr. Boydell Houghton and Mr. Marson (instructed by Whitelock and Son) were for the respondents. The Lord Chancellor, briefly stating the circumstances of the case, said that the question was whether the architect, in refusing to grant a certificate for the payment of the £1,000, had been influenced by improper motives. The learned judge then read the letters which had passed between the parties, and said that there was no turpitude on his part, and nothing in his conduct that made him unfit person to be allowed to settle any further dispute between the parties. No doubt Mr. Roberts, on becoming aware of this fact, might have refused to be further bound by certificates of the architect, but he had waived such right, and he could not thereafterwards say, when a certificate was given by Mr. Holden for £339 9s. 4d., that he would not be bound by it, and would continue the action for payment on its own merit. The learned counsel then referred to a great many of the letters. From these, he said, it was clear if there was any interference by the appellants, or any yielding to such interference on the part of the architect which caused delay in the giving of the interim certificate, Mr. Roberts was fully informed of the circumstances, both by the architect and by the appellants. He knew what his exact position was; he decided not to rely on such interference, and continued to ask for and accepted Mr. Holden's certificate, and sued on it as such, and afterwards pressed him to give his final certificate. In conclusion, he pressed their Lordships to allow the appeal, and to follow the decision of the judge of first instance, and give judgment for the defendants.—Mr. Murphy briefly addressed the House on the same side.

JUDGMENT.

The Lord Chancellor said they did not desire to hear counsel for the respondents and in discussing the appeal, delivered the following judgment. My Lords, in this case I do not think that any of your Lordships are in doubt that we ought to affirm the judgment of the Court of Appeal. I will not enter upon the story at all, but will merely put my reasons for concurring with the Court of Appeal. I think the defendants must rely upon this certificate either as a condition precedent or as an adjudication binding upon the other party. The architect, Mr. Holden, did I think place himself in a position in which he deprived his certificate of the value which otherwise it would have had. Lord Justice Moulton, after referring to what he had long says, "He is no longer to be a judge, because he has been acting in the interests of one of the parties and by their direction." That takes the whole of his acts, and makes them invalid, whatever subsequent matter his decision is directed to." I agree with that, but I should like to say this: it is not in my opinion a case to which the terms "turpitude" or "fraud" are apt. I think the real error of Mr. Holden's was that he mistook his position; that he meant to act as a mediator, that he had not the firmness to recognise that his true position was that of an arbitrator, and to rope unworthy communications made to him by the defendants. It is undoubted that the defendants' Messrs. Hickman tried on this ground to lead him astray in their own interests. It is argued by Mr. Young that knowing the attitude taken up by Mr. Holden the plaintiffs should have waived his immediate with a full disclosure of the facts. I will not enter upon it, but I do not think there was full disclosure of the facts. I think that if the whole letters had been shown to Messrs. Roberts they would then have instantly taken a stronger line than they did, but Mr. Holden was not independent. I also think that he misconducted duty after June 17 in doing what was his duty as regards his certificate was also due to the mistaken view he had taken of his being required to procure the assent of the defendants before he discharged his duties under the contract. My Lords, as to Messrs. Hickman, I will only say that they seem to have been trifling with a just claim for a long time and that they would be properly punished by having to pay the costs of this action, as well as whatever may hereafter be adjudged to be due from them. Lord Ashbourne gave a short judgment to the same effect. Lord Atkinson dealt with the case at greater length. He said it was very important that it should be clearly understood that when an architect was appointed by both sides to act as arbitrator between the building owner and the contractor for the work, that the architect must maintain as to any material position. Mr. Justice Hamilton, who fully recognised this established principle of law, decided against the plaintiffs solely on the ground that he was aware of no circumstances on the part of the architect, and yet did not at once raise objection and stand upon his rights. He thought in the circumstances the plaintiff could bring the action as the decision that a certificate for this part of the work done had not been given could not be sustained. No certificate given under such circumstances would be binding, and therefore the giving or withholding of it was immaterial, so that the plaintiff's right to sue was emerged. For himself he desired to adopt the judgment of the Lord Chancellor as to the

conduct of the architect. He would merely say that it seemed to him to be quite clear, upon the correspondence, that the architect here had forgotten his duty to act strictly judicially, and it could not be said that the plaintiff had had such notice of that fact as prevented him raising the question in the action.—Lord Atkinson agreed. He thought it quite clear, on the correspondence, that Mr. Hobden had forfeited his independence as an arbitrator, and had allowed himself to be under the control of the building owner as to the granting of certificates. He thought, however, that such words as "corrupt collusion" or "fraud" were too strong, or, rather, "extravagant" words to use.—Lord Shaw, in concurring, said that the position of an architect under a building contract was one of great delicacy, and the Courts had held that he must act strictly in accordance with his judicial capacity. He must maintain entire independence and impartiality. He thought Mr. Hobden had not acted in accordance with that standard. He would only refer to one letter as evidence of this, written by Mr. Hobden to Roberts, dated April 24, 1908. It was as follows: "In reply to yours of the 22nd, had you not better call and see my clients, because, in face of their instructions to me, I cannot issue a certificate, whatever may be my own private opinion in the matter." In his judgment, the action was properly raised. The subsequent giving of the certificate was too late to stay proceedings. He thought the Court of Appeal had adopted the proper course in sending the case to an independent referee, and this appeal should be dismissed.—The appeal was therefore dismissed with costs.

SUNDERLAND ARCHITECT'S CLAIM AGAINST A NEWCASTLE BUILDER.—In the King's Bench Division, on Saturday, Mr. Justice Coleridge heard an action by Mr. Clare Arnold Clayton Greene, an architect, of Sunderland, against Mr. Jas. McEwan, a builder, of Newcastle-on-Tyne, for professional services rendered in connection with a scheme for the erection of a skating-rink and assembly-rooms at Newcastle. The defence was that plaintiff was employed, if at all, on the terms that he should get a commission of 5 per cent. of the value of the work carried out, but not otherwise.—Mr. Rayner Goddard, for the plaintiff, said that when Mr. McEwan first discussed the scheme for the rink he told Mr. Greene that, as he had not yet acquired all the necessary land, anything that Mr. Greene did at that time must be gratuitous. Plaintiff got out sketch plans on those terms. Gradually the scheme evolved into something larger, and it was finally proposed to include in the plan an assembly-hall, a dancing-hall, and a billiard-room. Later the land was bought, and then Mr. Greene's services as architect began. He got out contract drawings, and it would not be suggested that down to the time of the digging of the foundations he omitted to do anything an architect should have done. In the letter stating the terms on which he was willing to do the work, plaintiff said he wanted 2½ per cent. on the value of the building on the starting of the work. The work was commenced, but was ultimately abandoned, and Mr. Greene claimed commission of 2½ per cent. on £13,080, which he estimated to be the value of the completed building.—Mr. Ralph Bankes, K.C., for the defendant, remarked that he estimated the building would cost £18,000 to erect, and that was why the work was not proceeded with. Plaintiff had been informed that the expenditure on the building was to be limited to £10,000.—Mr. Rayner Goddard did not accept this.—Plaintiff denied that there had been any agreement that he should be paid only on work done. The rink was to have been built in Westgate-road.—For the defence, Mr. Jas. Critchley, an architect and surveyor, of Newcastle, said that plaintiff's plans were handed to him to take out the quantities, and the cost came out at £18,000. Defendant asked him to cut it down, but after taking out the decoration and elaboration the cost came out at £13,500. He told Mr. McEwan that he could not bring the cost down any lower without taking away the stonework. In his judgment, plaintiff was not entitled to 2½ per cent. Another plan, costing about £9,000, had now been carried through.—Cross-examined by Mr. Goddard, witness agreed that by taking away the stonework the cost worked out at £11,800.—Mr. Joseph W. F. Phillipson, another Newcastle architect, gave similar evidence. The defendant, in evidence, said that when this matter was first under discussion he took Mr. Greene up to the proposed site in Westgate-road. He said he gave plaintiff's scheme up because he could not raise the £11,800 which was necessary. He had paid plaintiff £100 on account; but that was before he found out what the value of the work done was, and when he decided to abandon the scheme he made up his mind to pay no more. Cross-examined by Mr. Goddard, defendant said he was at present building a picture palace on this site.—Judgment for the plaintiff for £223 and costs.

BUILDER AND BANK. At Manchester Assizes, on Friday and Saturday, Mr. Justice Eldon Bankes and a special jury heard an action brought by Messrs. William Brown and Sons, who carried on business as builders and contractors at Salford, against the Union Bank of Manchester to recover damages for libel in dishonouring a bill of exchange and cheques which, the plaintiffs alleged, they had agreed to meet, and in this asserting that the plaintiffs had made no provision to meet them. Mr. F. E. Smith, K.C., M.P., and Dr. Atkinson appeared for the plaintiffs, and Mr. Langdon, K.C., and Mr. Sutton for the defendants. Formal evidence was given of the presentation of the bill of exchange in question for £453, accepted by Messrs. Brown, the plaintiffs, on August 4 1909, and its not being met. The bill was ultimately paid.—Examined by Mr. F. E. Smith, Mr. William Brown, senior partner of the plaintiffs' firm, said that up to the time the bill and cheques were dishonoured he had never carried on his business for any single year except at a profit. His business was solvent at the time the bill was dishonoured. The firm owed the bank nothing if they deducted the securities. Cross-examined by Mr. Langdon, Mr. Brown said the difficulties with the bank began in 1907. He had been in business forty-seven years. Witness agreed that opinions might differ as to the value of securities, and that in case of stoppage, if the realisation was bad, there was a poor look-out for the bank. Further questioned by Mr. Langdon, the plaintiff said that if he had known the position, Mr. Frank Brown, in his absence, could have drawn a cheque on the Manchester and Liverpool District Bank on August 3 to meet the bill. The cross-examination of Mr. W. Brown was not concluded when the Court rose. The trial of the action will be resumed on May 17.

MEASURES BROS., LTD.'S FORMER MANAGING DIRECTOR SUMMONED.—ACCUSATION OF FALSE BALANCE-SHEET.—At Bow-street Police-court, yesterday (Thursday), before Mr. Marsham, Robert Herbert Measures, formerly managing director of Measures Brothers, Limited, the well-known firm of engineers and iron merchants, of Southwark-street and Croydon, appeared to an adjourned summons charging him with having made, circulated, and published a profit-and-loss account and balance-sheet for the year ended December 31, 1905, which account he knew to be false in a material particular, with intent thereby to deceive the members and shareholders of the said company, and to induce divers persons to become shareholders therein. The previous hearings of the case were fully reported in our issues of March 31 and the 14th inst., pp. 470 and 545, and April 28 (p. 613). Mr. W. H. Leycester and Mr. A. F. Rowe conducted the case on behalf of the Director of Public Prosecutions. Mr. C. F. Gill, K.C., and Mr. J. R. Randolph appeared for the defendant. Mr. Walter Frampton and Mr. Gray Phillips held watching briefs for interested parties. Much technical evidence was given as to details of accounts, and the case was adjourned until to-day (Friday).

Mr. E. R. Groves, of South Molton, has been appointed surveyor to the St. Austell Urban District Council. The salary is £150, rising by annual increments of £10 to £200.

The text of a Bill, introduced by Lord Carrington into the House of Lords, to repeal Sub-section (3) of Section 41 of the Small Holdings and Allotments Act, 1908 (which prohibits the compulsory acquisition for the purposes of small holdings or allotments of holdings of 50 acres or less in extent), was issued on Saturday.

The final meeting of the subscribers for the erection of a new town-hall and market-hall for Bethesda was held at Bethesda on Friday night. The contract for the work was let to Messrs. John Roberts and Owen Williams, Bethesda, for £1,200. Of this amount £620 has been subscribed already, and the work will be proceeded with at once.

At the meeting on Friday of the county council of Durham, the works committee reported that out of 149 applications for the office of assistant road-surveyor they recommended the appointment of Mr. H. S. Kaines, now district surveyor for the East Suffolk County Council, at a salary of £220, rising to £250, a year, including all travelling expenses, and to be under the direct control of the county surveyor. The recommendation was adopted.

PARLIAMENTARY NOTES.

ST. PAUL'S BRIDGE.—The Corporation of London (Bridges) Bill, the objects of which have been approved by Mr. Mooney's House of Commons Committee, was again before the Committee on Friday for the purpose of settling clauses, particularly with reference to protection for Messrs. Lever Brothers, whose premises on the north side of the river will be disturbed by the carrying out of the scheme. Messrs. Lever were given clauses providing that if any portion of their land and property known as Sunlight Wharf, Upper Thames-street, were taken, compensation should be paid by agreement, or, in default, in accordance with the Land Clauses Act, that six months' notice to treat for the company's rights and interests should be given by the Corporation, and that the company should not be required to give up possession of its property until three years have elapsed. Other clauses were adjusted, and the Bill authorising the reconstruction of Southwark Bridge and the construction of St. Paul's Bridge was ordered to be reported for third reading.

THE LONDON WATER-SUPPLY BILL.—The Joint Parliamentary Committee which has been considering this measure sat again on Monday, when the chairman said it was common knowledge that the Water Board had decided to withdraw what remained of their Bill. He suggested that an immediate decision on the matter should be postponed. Counsel for the Water Board asked that the Committee should adjourn to enable the Board to consider the matter, and an adjournment to May 17 was agreed to.

IMPORTS AND EXPORTS OF CEMENT.—In reply to Mr. Kellaway, Mr. Buxton has stated that the value of the cement imported into the United Kingdom for home consumption (imports less re-exports) was £408,000 in 1903 and £77,039 in 1910. The value of the cement of domestic production exported from the United Kingdom was £677,000 in 1903 and £1,062,000 in 1910.

ROAD BOARD GRANTS.—Mr. Hobhouse, replying to Mr. Spear, states that the total grants made by the Road Board, with the approval of the Treasury, to highway authorities towards work of road-improvement amount to £141,568. In addition, grants amounting to £425,000 have been indicated, and the details are now in course of settlement between various authorities and the Board. The estimated cost of carrying out the improvements, to which the Board have contributed £141,568, is £246,231.

A Local Government Board inquiry has been held at Chadderton, Lancs, into an application of the urban district council for sanction to a loan of £12,705 for the erection and furnishing of a new town-hall and public offices at Belton-place.

The Huntingdon Rural District Council have instructed Mr. Harry W. Taylor, A.M.I.C.E. (Messrs. Taylor, Wallin, and Taylor, of Newcastle-upon-Tyne), to examine and report upon the proposed scheme of waterworks for Hartford.

Mr. J. L. Venables, of Buckhurst Lodge, Wadhurst, East Sussex, has generously consented to carry out at his own expense the building of the fire-station for that village, plans and specifications of which have been prepared by Mr. C. W. Ashby, of Wadhurst.

Councillor Robert Mascall, a former Mayor of Middlesbrough, slater, of Middlesbrough and Bishop Auckland, and owner of slate quarries in Wales, died at his home, Grove Hill, Middlesbrough, on Friday night, from pneumonia. Mr. Mascall was in his seventy-third year.

At a meeting of the finance, property, and law committee of George Heriot's Trust, Edinburgh, it was resolved to recommend acceptance of estimates for various works in connection with the erection of the new science laboratories at George Heriot's School, the total sum amounting to £9,640.

Archbishop Bourne on Saturday laid the foundation-stone of a new Roman Catholic church at Victoria Park-square, Bethnal Green. The cost of the new church, which will seat 350 persons, is £16,780, most of which is being provided by Mrs. Cottrel Dormer. Mr. E. Goldie, F.R.I.B.A., of Kensington, is the architect.

At Albion-square, Dalston to-morrow (Saturday), at one o'clock, the Mayor of Hackney, representing the Borough Council, will formally receive from the Metropolitan Public Gardens Association a granite drinking-fountain, the gift of the late Mr. J. Passmore Edwards. The ceremony had been postponed for two months in the hope that the donor might be able to attend.

Our Office Table.

At a [illegible] assembly of Academicians and Associates held on Thursday evening in last week Mr. Frank Bramley, A.R.A., was elected a Royal Academician. Born at Keighley, Yorks., in 1857, and educated at Lincoln, Par[illegible] Mr. Bramley has been a resident [illegible] Barbizon House since 1884 [illegible] pictures show ing purely [illegible] since then Light pe[illegible] to be occupied by [illegible] A.R.A. in 1891. [illegible] pictures are the [illegible] Dying," bought by the Chantrey Bequest Trustees in 1888, and "For Such is the Kingdom of Heaven" (1891), and "While There is Life There is Hope." In this year's Academy he is represented by a [illegible] portrait, "Helen, daughter of Charles Chalmers," and "When the Blue Evening Slowly Falls," a study of a woman seated at a window. From 1885 to 1895 Mr. Bramley worked in the West Cornish fishing village of Newlyn; but he has now settled at Grasmere.

An influentially signed memorial has been sent to the *Times* protesting against the scheme for erecting a large two storied building which will cover practically the whole of the ground now occupied by the ornamental gardens on the west side of the Natural History Museum, facing Queen's gate. If this proposal is carried out, it will, it is urged, not only ruin the architectural effect of the late Mr. Alfred Waterhouse's masterpiece, erected at a cost of over £700,000, but will also entirely destroy the beautiful surroundings of that popular institution, which is the only large public building in London standing in its own gardens. In 1899 the boundary line to the north of the Natural History Museum was, the memorialists explain, definitely fixed by his Majesty's Government, and the trustees of the British Museum were given land to enable them to complete, when necessary, the original plans for the building, and to provide for the future expansion of the collections. On part of the ground to the rear of the Museum a large one story building for specimens in spirits was erected in 1883, and this has since been greatly extended and altered. The total cost of this spirit museum and its fittings amounted to £30,000. Under the present scheme of H.M. Office of Works it is proposed to pull down this building, and also the Museum lodge in Queen Anne's-gate, and to erect a new and much larger spirit museum on the western gardens facing Queen Anne's gate. This plan would not only destroy the symmetry of the Museum gardens, but would take away from the trustees most of the ground to the north of the Natural History Museum, given them in 1899 for urgently needed extension. It would entirely cripple the Natural History Museum for all time. The trustees of the British Museum are absolutely opposed to the proposals, and the British Entomological Society and important scientific bodies deprecate the scheme. On the other hand, it should not be overlooked that the spirit museum constitutes a grave fire risk to the Museum collections and neighbouring property, and it would be a prudent measure to remove a building with such highly-inflammable contents to an isolated site in the country.

The council of the Institution of Civil Engineers have made arrangements to hold a conference on the subject of the education and training of engineers, at the Institution, on June 28 and 29. They are of opinion that the present is a desirable time to consider the methods of preparation to be adopted by those who contemplate entering the engineering profession, in compliance with conditions laid down by the by-laws for election into the Institution. The requirements of the by-laws are: "A sound general education developed upon lines suited to subsequent scientific study; a competent knowledge of those branches of science which form the basis of engineering; and practical training under actual engineering conditions, adapted to quote from the last report of the Council to fit persons to take part in the design as well as in the control and direction of engineering works. The report of the committee on engineering education and training, adopted and published by the Council in 1906, made it abundantly clear that the broad principles of training indicated in the report are applicable to every kind of engineering. There are, however, questions of detail and of method involved in the realisation of those principles, which are of great consequence, both to students and to those under whom their education and professional knowledge is acquired. It is mainly for the consideration of important questions of this kind, which experience has shown to deserve careful attention, that the Council have arranged the conference. Its subject matter will be dealt with in three groups, viz.: — (1) General education; (2) scientific training; (3) practical training. The organisation of the respective sections has been carefully drafted, and the names are given of those who have consented to form the general committee, whose promised influence and assistance afford an assurance that the conference will be widely supported by those who are interested in the difficulties and uncertainties which are experienced by aspirants to membership of the engineering profession.

On August 1, 1905, the London County Council authorised expenditure on capital account of £30,763 for the erection of permanent buildings at Banstead Asylum to take the place of temporary buildings. The work, which was carried out under the supervision of the asylums engineer, involved much demolition of buildings and the utilising of existing foundations, joinery work, sanitary fittings, gas and water services, heating system, rainwater pipes, drains, etc. This circumstance considerably complicated the work of preparing an estimate of the cost. The asylums engineer's cube estimate of the cost of the work (on the basis of 7¼d. a foot cube) was adopted and put forward to the Council, although an estimate prepared by quantity surveyors from the specification and plans, after inspection of the existing buildings, amounted only to £25,933, on the basis of 6½d. a foot cube. The asylums committee, however, were of opinion that, having regard to the nature of the work, the asylums engineer's estimate was most likely to approximate to the cost of the work to be done, and they submitted the estimate of £30,763 on the understanding that an independent valuation of the work would be made, on completion, by a firm of quantity surveyors. The work is now completed, and the asylums committee have forwarded the valuation. The quantity surveyors' valuation of the work carried out is £26,759. Its actual cost, after crediting the proceeds of the sale or transfer of certain materials, has been £22,351, which is £4,408 below the valuation and £3,582 below the original quantitative estimate of £25,933. The Finance Committee point out that the result has proved, therefore, that it would have been safe to adopt the quantitative estimate in the first instance.

The Stockport Town Council have unanimously authorised the housing committee to prepare a scheme for the laying-out of the undeveloped land in the borough and adjoining districts. The town-planning scheme will embrace a great portion of North, Mid, and South Reddish, Reddish Vale, a portion of Denton outside the borough, a portion of Brinnington, a small portion of Heaton Norris, Cheadle and Gatley, and a larger portion of Hazel Grove and Bramhall. The committee had not scheduled any land belonging to Manchester, but had written to ask that the city should co-operate with Stockport in the widening of Nelstrop road. They did not expect a considerable extension on the Manchester side. Stockport was not seeking a further extension of its boundaries. The borough was only just getting over the difficulties incidental to the last extension, and it had quite enough land to go on with. The scheme might take fifty years to develop.

During the past seven years the baths committee of the Manchester Corporation have opened seven new bathing establishments in the city. The last two, which were opened on Friday by the Lord Mayor, mark improvement, and are Armitage-street and a street near to Hulme Hall-lane. Both buildings have been designed by the city architect, Mr. H. Price, and are equipped with the best appliances for clothes washing and with wash baths. In the Armitage-street building there are forty two wash-baths and thirty-one washing stalls, each section being fitted with boiling trough, washing trough, and steam jolly; thirty two drying horses, each horse containing seven rails six feet long; four steam-driven hydro-extractors, four driven mangles; also ironing-stove, iron-stands, and irons. The bathhouse at Miles Platting is similarly equipped, but it is distinguished by a novelty in the form of a washing-room in which school children can get a wash free of charge.

MEETINGS FOR THE ENSUING WEEK.

Saturday (To-morrow.)—Association of Engineers in Charge. Visit of Inspection to the Connecting Tunnels under construction between the Bank and Liverpool-street. 3 p.m.

Monday.—Royal Society of Arts. "Rock Crystal: its Structure and Uses," Cantor Lecture No. 3, by Alfred E. H. Turton, M.A. 8 p.m.

Wednesday.—Quantity Surveyors' Association. Annual Dinner at the Connaught Rooms, Great Queen-street, W.C. 6.30 for 7 p.m.
Royal Society of Arts. "Les Basses Temperatures," by Professor Raoul Pictet. 8 p.m.
Institute of Sanitary Engineers. "The Mechanics of Municipal and Sanitary Engineering," by G. W. Chilvers. 8 p.m.

Thursday.—Royal Photographic Society's Exhibition, Prince's Skating Club, Knightsbridge.
"Lordly Lincoln" (illustrated), by E. W. Harvey Piper. 8.30 p.m.

Saturday (May 20).—Society of Architects. Visit to Lambeth Palace.
Edinburgh Architectural Association. Visit to Aberdour.

The will of the late Mrs. Mary Anne Routledge, of York, contains a bequest of £5,000 to the fabric fund of York Minster.

Auchengray Church, N.B., which has undergone restoration under Mr. Macgregor Chalmers, I.A., Glasgow, was reopened on Saturday afternoon.

It was decided at the meeting of the Bradford City Council on Tuesday night to increase the salary of Mr. Joseph Garfield, the sewage engineer, from £655 to £750, with two further annual increases of £50 each.

Estate of the value of £4,138 has been left by the late Colonel Eustace James Anthony Balfour, V.D., F.R.I.B.A., brother of Mr. A. J. Balfour, formerly Lieut.-Colonel commanding the London Scottish, and A.D.C. to the King.

At a meeting of the sub-committee formed for promoting a memorial in Derbyshire, held at Derby on Wednesday under the presidency of the Duke of Devonshire, it was decided to erect a statue of Miss Nightingale in the grounds of the Royal Infirmary at Derby. It was stated that the cost would be £1,500.

The Board of Trade have recently confirmed the undermentioned Order made by the Light Railway Commissioners:—Doncaster Corporation Light railways (Extension) Order, 1911, authorising the construction of a light railway in the Rural District of Doncaster, in the West Riding of the County of York, in extension of the existing and authorised light railway undertaking.

The new Army recruiting-office in Great Scotland Yard, just off the upper end of Whitehall, was used for the first time on Monday. The new building is cheerful and airy, with walls of glazed tiling, and every convenience, including billiard-rooms, a recreation-room, a restaurant, with separate tables, and a glass-covered courtyard, surrounded with garden-seats. Instead of the old barrack system of beds, 147 cubicles have been provided here, each man having a cubicle to himself.

The industrial development committee of the corporation of Aberdeen have instructed the burgh surveyor to have the survey plan of the city brought down to date, and, in conjunction with Mr. Arthur Clyne, F.R.I.B.A., of Union-street, Aberdeen, to prepare and submit for the consideration of the committee a survey plan in skeleton form, showing lines of proposed new streets and other features of town planning, and also improvements on existing thoroughfares within the city.

LATEST PRICES.

IRON.

Steel Joists, Belgian and German (ex steamer, London)	Per ton	£5	12	6	to	£5	17	6
Steel Joists, English		6	10	0	,,	6	15	0
Wrought-Iron Girder Plates		7	0	0	,,	7	6	0
Steel Girder Plates		7	2	6	,,	8	2	6
Bar Iron, good Staffs		6	5	0	,,	6	10	0
Do., Lowmoor, Flat, Round, or Square		20	0	0	,,	20	0	0
Do., Welsh		6	16	0	,,	5	17	0
Boiler Plates, Iron—								
South Staffs		9	0	0	,,	8	15	0
Best Snedshill		9	0	0	,,	9	10	0

Angles 10s., Tees 20s. per ton extra.

Builders' Hoop Iron, for bonding, &c., £8 15s. to £9.

Builders' Hoop Iron, galvanised, £14 to £16 10s. per ton

Galvanised Corrugated Sheet Iron—

	No. 19 to 20.	No. 22 to 24.
6ft. to 8ft. long, inclusive	Per ton.	Per ton.
gauge	£13 0 0	£13 10 0
Best ditto	13 0 0	14 0 0

Wire Nails (Points de Paris)—

8 to 7	8	9	10	11	12	13	14	15	B.W.G.
£8 3	£8 9	£9 3	£9 9	£10 3	£11 -	£11 9	£12 6	£13 6	per cwt.

	Per ton.				Per ton.	
Cast-Iron Columns	£8	10	0	to	£9	10 0
Cast-Iron Stanchions	8	10	0	,,	9	10 0
Rolled-Iron Fencing Wire	8	5	0	,,	9	10 0
Rolled-Steel Fencing Wire	8	6	0	,,	8	10 0
Galvanised	7	15	0	,,	8	5 0
Cast-Iron Sash Weights	5	0	0	,,	5	5 0
Cut Floor Brads	9	15	0	,,		—
Corrugated Iron, 24 gauge	18	0	0	,,		—
Galvanised Wire Strand, 7 ply, 14 B.W.G.	14	5	0	,,		—

B.B. Drawn Telegraph Wire, Galvanised—

0 to 8	9	10	11	12	B.W.G.
£10 5 0	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.

Cast-Iron Socket Pipes—

3in. diameter	£6	2	6	to	£6	7 0
4in. to 6in.	6	0	0	,,	6	5 0
7in. to 24in. (all sizes)	5	7	6	,,	6	0 0

[Coated with composition, 5s. 0d. per ton extra; turned and bored joints, 5s. 0d. per ton extra.]

Pig Iron—	Per ton.
Cold Blast, Lilleshall	110s. 0d. to 117s. 6d.
Hot Blast, ditto	70s. 0d. ,, 75s. 0d.

Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.):—

Gas-Tubes	76 p.c.
Water-Tubes	72½ ,,
Steam-Tubes	67½ ,,
Galvanised Gas-Tubes	65 ,,
Galvanised Water-Tubes	62½ ,,
Galvanised Steam-Tubes	57½ ,,

OTHER METALS.

Spelter, Silesian	Per ton	£24	0	0	to	£24	5 0
Lead Water Pipe, Town		16	15	0	,,		—
,, ,, ,, Country		17	10	0	,,		—
Lead Barrel Pipe, Town		17	15	0	,,		—
,, ,, ,, Country		18	10	0	,,		—
Lead Pipe, Tinned inside, Town		19	15	0	,,		—
,, ,, ,, ,, Country		19	10	0	,,		—
Lead Pipe, Tinned inside and outside, Town		21	5	0	,,		—
,, ,, ,, ,, Country		22	0	0	,,		—
Composition Gas-Pipe, Town		19	15	0	,,		—
,, ,, Country		20	10	0	,,		—
Lead Soil-pipe (up to 4½in.) Town		19	15	0	,,		—
,, ,, ,, Country		20	10	0	,,		—
[Over 4½in. £1 per ton extra.]							
Lead Shot, in 28lb. bags		24	16	0	,,		—
Copper Sheets, sheathing & rods		70	0	0	,,	70	10 0
Copper, British Cake and Ingot		57	10	0	,,	58	0 0
Tin, Straits		192	10	0	,,	193	0 0
Do., English Ingots		191	0	0	,,	191	10 0
Do., Australian		192	0	0	,,	192	10 0
Do., Bars		192	0	0	,,	192	11 0
Pig Lead, in 1cwt. pigs		14	2	6	,,		—
Sheet Lead, Town		16	5	0	,,		—
,, ,, Country		17	0	0	,,		—
Genuine White Lead		21	0	0	,,		—
Refined Red Lead		19	0	0	,,		—
Sheet Zinc		32	5	0	,,		—
Old Lead, against account		12	0	0	,,		—
Tin	per cwt.	11	0	0	,,		—
Cut Nails (per cwt. basis, ordinary brand)		0	10	8	,,		—

TIMBER.

CONSTRUCTIONAL.

Per St. Petersburg Standard (100—12ft. by 11in. by 11in.)

Yellow Pine Deals, Quebec, 1st quality	£34	0	0	to	£42	0 0
,, ,, ,, 2nd ,,	24	0	0	,,	26	0 0
,, ,, ,, 3rd ,,	15	10	0	,,	16	0 0
Spruce Deals: St. Johns	8	0	0	,,	11	0 0
,, ,, Miramichi	7	5	0	,,	8	10 0
,, Boards: Swag	7	0	0	,,	8	0 0
Red Deals: Archangel 1st quality	20	10	0	,,	21	10 0
,, ,, ,, 2nd ,,	15	0	0	,,	17	0 0
,, ,, ,, 3rd ,,	11	0	0	,,	12	0 0
,, ,, St. Petersburg—						
,, ,, 1st quality	16	0	0	,,	17	0 0
,, ,, 2nd ,,	13	0	0	,,	14	10 0
,, ,, Wyburg & Ulealborg	10	0	0	,,	12	0 0
,, ,, Gefle, Gothenburg, and Stockholm	10	0	0	,,	17	0 0
White Deals: Crown	10	0	0	,,	12	0 0
,, ,, Seconds	9	10	0	,,	10	0 0
Flooring: White and Planed—						
1st and 2nd quality mixed	9	0	0	,,	9	5 0
1st, 2nd, and 3rd quality mixed	6	6	0	,,	8	10 0
Red Planed, 1st quality	11	6	0	,,	11	10 0
Pitch Pine: Prime Deals and Boards	17	0	0	,,	20	0 0
Lignum Vitæ	5	10	0	,,	12	0 0

	Per foot super, as 1in.					
Yellow Pine Logs (waney board)	0	2	9	,,	0	4 3
Pitch Pine Logs	0	1	6	,,	0	1 10
Birch: Quebec Logs	0	2	0	,,	0	2 6
Oak: Austrian Wainscot	0	7	0	,,	0	8 0
Mahogany: Gaboon	0	6	1½	,,	0	6 2

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (60c.ft.)	£20	0	0	to	£21	10	0
,, Java ,, ,,	15	0	0	,,	18	0	0
	Per cubic foot.						
Oak Planks: U.S.A., imported	0	1	9	to	0	2	6
,, Boards ,, ,, Prm.	0	2	4	,,	0	3	0
,, ,, ,, Mdm.	0	1	10	,,	0	2	2
Sequoia (Californian Redwood)	0	3	0	,,	0	3	6
Birch: Quebec logs	0	1	8	,,	0	2	2
,, sawn planks	0	1	0	,,	0	1	2
Oak: Austrian Wainscot	0	6	0	,,	0	7	0
Walnut: Prime boards & planks Mdm. ,, ,,	0	5	0	,,	0	6	0
	0	3	4	,,	0	3	6
Greenheart: Hewn logs	0	3	6	,,	0	4	6
Cedar: Cigar box	0	3	6	,,	0	4	9
Satin Walnut: Imp. sawn boards, prime	0	2	3	,,	0	2	8
Orham: Imp. sawn boards, prime	0	1	10	,,	0	2	2
Mahogany: St. Domingo, Cuba, and Honduras	Per foot of 1in.						
	0	0	5½	to	0	0	6
,, African, Assinee, &c.	0	0	4½	,,	0	0	9
,, Lagos and Benin	0	0	3½	,,	0	0	4½
,, Bekondi and Cape Lopez	0	0	2½	,,	0	0	3½
,, Gaboon	0	0	1½	,,	0	0	0
Satinwood: West Indian	0	0	10	,,	0	2	2
Rosewood ..... Per ton	7	0	0	,,	12	0	0
Lignum Vitæ ,,	4	0	0	,,	11	10	6

STONE.*

Red Mansfield, in blocks ..... per foot cube	£0	2	4			
Darley Dale, ditto	,,	...	0	2	3	
Red Corsehill, ditto	,,	...	0	2	2	
Closeburn Red Freestone, ditto	,,	...	0	2	0	
Ancaster, ditto	,,	...	0	1	10	
Greenshill, ditto	,,	...	0	1	10	
Chilmark, ditto (in truck at Nine Elms)	,,	...	0	1	9	
Beer, ditto	,,	...	0	1	6	
Hard York, ditto	,,	...	0	2	10	
Ditto ditto 6in. sawn both sides, landings, random sizes ..... per foot sup.	0	2				
Ditto ditto 3in. slab sawn two sides, random sizes	,,	...	0	1		

* All F.O.R. London.

Bath Stone, delivered on rail at quarry stations ..... per foot cube 0 1 0

Delivered on road waggons, Paddington Depot ..... ,, ... 0 1 6½

Ditto ditto, Nine Elms Depot ..... ,, ... 0 1 6½

Beer Stone, delivered on rail at Seaton Station ..... ,, ... 0 1 0

Ditto, delivered at Nine Elms Station ,, ... 0 1 8

Portland Stone, in random blocks of 20ft. average:—

	Brown Whit Bed.			White Base Bed.		
Delivered to railway depot at the quarry ..... per foot cube	£0	1	5½	£0	1	7½
Delivered on road waggons at Paddington Depot ...	,, ...	0	2	1	0	2 2½
Ditto, Nine Elms Depot ...						
Ditto, Pimlico Wharf						

SLATES.

	In.	In.	£	s.	d.	
Blue Portmadoc	20 × 10	...12	12	6	per 1000 of 1200 at r.stn.	
,, ,,	... 18 × 8	.. 6	12	6	,,	,, ,,
Blue Bangor	20 × 10	...13	2	8	,,	,, ,,
,, ,,	... 20 × 12	...13	17	6	,,	,, ,,
First quality	20 × 10	...13	0	0	,,	,, ,,
,, ,,	... 20 × 12	...13	15	0	,,	,, ,,
,, ,,	... 16 × 9	... 7	5	0	,,	,, ,,
Eureka unfading green		£	s.	d.		
	20 × 10	...15	17	8	,,	,,
,, ,,	... 20 × 12	...18	7	6	,,	,, ,,
,, ,,	... 18 × 10	...13	5	0	,,	,, ,,
,, ,,	... 16 × 8	...10	6	0	,,	,, ,,
Permanent green	20 × 10	...11	12	8	,,	,, ,,
,, ,,	... 18 × 10	... 9	12	6	,,	,, ,,
,, ,,	... 18 × 9	... 8	12	6	,,	,, ,,

BRICKS.

(All prices net.)

Hard Stocks	£1	6	6	per 1,000 alongside, in river	
Rough Stocks and Grizzles	1	6	0	,, ,,	,,
Picked Stocks for Facings	2	10	0	delivered ,, at railway station.	
Flettons	1	6	0	,, ,,	,,
Pressed Wire Cuts	1	19	0	,, ,,	,,
Red Wire Cuts	1	14	0	,, ,,	,,
Best Fareham Red	3	12	0	,, ,,	,,
Best Red Pressed Rnabon Facing	6	0	0	,, ,,	,,
Best Blue Pressed Staffordshire	3	16	0	,, ,,	,,
Ditto Bullnose	4	0	0	,, ,,	,,
Best Stourbridge Fire Bricks	3	14	0	,, ,,	,,
2¾" Best Red Accrington Plastic Facing Bricks	4	10	6	,, Net, delivered in full truck loads in London.	

	Per 1,000		
3¾" Accrington Best Red Plastic Facing Bricks	£2	10	0
3¾" Ditto Second Best Plastic ditto	2	2	6
Ditto Ordinary Second Bricks	1	11	3
Ditto Plastic Engineering Bricks	1	17	6
Sewer Arch Brick, not more than 3¾" at thickest part	2	0	0
3¾" Chimney Bricks fit for outside work	2	6	0
3¾" Ditto Ditto through and through	2	0	0
3¾" Beaded, Ovolo and Bevel Jambs; Octagons; 2¼" and ½" radius Bullnoses; Stock patterns	3	7	6
Accrington Air Bricks, 9" × 2 course deep, each	0	0	6
Ditto Ditto 9" × 1 course, each	0	0	3

Accrington Camber Arches:—

3 course deep, 4½" soffit, per foot opening					0	1 3
4 ditto 4½" ditto	ditto	ditto	...		0	1 8
5 ditto 4½" ditto	ditto	ditto	...		0	2 1
6 ditto 4½" ditto	ditto	ditto	...		0	2 6
3 ditto 9" ditto	ditto	ditto	...		0	2 1
4 ditto 9" ditto	ditto	ditto	...		0	2 11
5 ditto 9" ditto	ditto	ditto	...		0	3 9
6 ditto 9 ditto	ditto	ditto	...		0	4 6

Net, free on rail or free on boat at works.

GLAZED BRICKS.*

HARD GLAZES. (PER 1,000.)

White, Ivory, and Salt Glazed. Best.	Seconds.	Best. Buff and Cream.	Other Colours.	Second Colours.
Stretchers—				
£10 17 6	£9 7 8	£12 7 6	£16 7 6	£10 17 6
Headers—				
10 7 6	9 17 6	11 17 6	16 17 6	10 7 6
Quoins, Bullnose, and 4½in. Flats—				
13 17 6	12 17 6	16 7 6	19 17 8	14 7 6
Double Stretchers—				
16 7 6	14 17 8	19 7 8	22 17 8	16 7 6
Double Headers—				
13 7 6	11 17 6	16 7 8	19 17 6	13 7 6
One side and two ends, squares—				
17 7 6	15 17 6	20 7 6	24 17 8	17 7 6
Two sides and one end, square—				
18 7 6	16 17 6	21 7 6	25 7 8	18 7 6
Splays and Squints—				
15 17 6	14 7 8	20 7 6	23 7 6	15 17 6

Plinth and Hollow Bricks. Stretchers and Headers—

5d. each	4d. each	6d. each	6d. each	5d. each

Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres—

6d. each	4d. each	8d. each	6d. each	5d. each

Rounded Internal Angles—

4d. each	3d. each	5d. each	5d. each	4d. each

MOULDED BRICKS.

Stretchers and Headers—

8d. each	6d. each	9d. each	6d. each	8d. each

Internal and External Angles—

1/2 each	1/2 each	1/2 each	1/2 each	1/2 each

Cill Bullnose, Stretchers and Headers—

5d. each	4d. each	6d. each	6d. each	6d. each

	Per 1,000
Majolica or Soft Glazed Stretchers and Headers	£21 17 6
,, ,, ,, Quoins and Bullnose	28 17 6

Compass bricks, circular and arch bricks of single radius £8 per 1,000 over above list for their respective kinds and colours } Not exceeding 9in. ×

Camber arch brick, any kind or colour, 1s. 2d. each } 4½in. × 2½in.

Stretchers cut for Closers and Nicked Double Headers, £1 per 1,000 extra.

* These prices are carriage paid in full truck loads to London stations.

	s.	d.	
Thames and Pit Sand	7	0	per yard, delivered.
Thames Ballast	6	8	,, ,,
Best Portland Cement	28	0	per ton, ,,
Best Ground Blue Lias Lime	19	0	,, ,,

Exclusive of charge for sacks.

Grey Stone Lime ..... 11s. 6d. per yard, delivered

Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. stn.

TILES.

	s.	d.	Delivered
Plain red roofing tiles	42	0	per 1000 at rly. stn.
Hip and Valley tiles	3	7	per doz. ,, ,,
Broseley tiles	50	0	per 1000 ,, ,,
Ornamental tiles	52	8	,, ,, ,,
Hip and Valley tiles	4	0	per doz. ,, ,,
Ruabon red, brown, or brindled do. (Edwards)	67	8	per 1000 ,, ,,
Ornamental do.	60	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	0	,, ,, ,,
Selected "Perfecta" roofing tiles:—Plain tiles (Peake's)	46	0	per 1000 ,, ,,
Ornamental do.	48	8	,, ,, ,,
Hip tiles	3	10½	per doz. ,, ,,
Valley tiles	3	4½	,, ,, ,,
"Rosemary" brand plain tiles	48	0	per 1000 ,, ,,
Ornamental tiles	50	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	8	,, ,, ,,
Staffordshire (Hanley) Reds or Brindled tiles	42	8	per 1000 ,, ,,
Hand-made sand-faced	45	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	6	,, ,, ,,
"Hartshill" brand plain tiles, sand-faced	50	0	per 1000 ,, ,,
Pressed	47	8	,, ,, ,,
Ornamental do.	50	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	8	,, ,, ,,

OILS.

Rapeseed, English pale, per tun	£28	15	0	to	£29	6	0
Do., brown	,, ...	26	15	0	,,	27	5 0
Cottonseed, refined	,, ...	29	0	0	,,	30	0 0
Olive, Spanish	,, ...	39	10	0	,,	40	0 0
Seal, pale	,, ...	21	0	0	,,	21	10 0
Cocoanut, Cochin	,, ...	46	0	0	,,	49	10 0
Do., Ceylon	,, ...	42	10	0	,,	43	0 0
Do., Mauritius	,, ...	42	10	0	,,	43	0 0
Palm, Lagos	,, ...	32	5	0	,,	33	5 0
Do., Nut Kernel	,, ...	35	0	0	,,	35	10 0
Oleine	,, ...	17	5	0	,,	19	5 0
Sperm	,, ...	30	0	0	,,	31	0 0
Lubricating U.S. ..... per gal.		0	7	0	,,	0	8 0
Petroleum, refined ..... ,,		0	0	6½	,,	0	0 6½
Tar, Stockholm ..... per barrel		1	8	0	,,	1	10 6
Do., Archangel ..... ,,		0	10	8	,,	1	0 0
Linseed Oil ..... per gal.		0	3	11½	,,		—
Baltic Oil ..... ,,		0	4	3	,,		—
Turpentine ..... ,,		0	4	5½	,,		—
Putty (Genuine Lin-seed Oil) ..... per cwt.		0	11	0	,,		—
,, Pure Linseed Oil, "Stority" Brand ,,		0	10	0	,,		—

GLASS (IN CRATES).

	15oz.	21oz.	28oz.	32oz.
English Sheet Glass:				
Fourths	1¼d.	2¼d.	3¼d.	4¼d.
Thirds	2½d.	3¼d.	4d.	6d.
Fluted Sheet	2½d.	3¼d.	6d.	6½d.

	¼in.	5/16in.	⅜in.
Hartley's English Rolled Plate:	2¼d.	2¾d.	3d.

Figured, Rolled, and Repoussine: White. Tinted. 3½d. ...

VARNISHES &c.

[illegible]

TO CORRESPONDENTS.

[illegible]

TERMS OF SUBSCRIPTION.

[illegible]

ADVERTISEMENT CHARGES.

The charge for **Competition** and **Contract** Advertisements, **Public Companies**, [illegible] Words, the first Insertion, the subsequent charge being 5s. for [illegible].

The charge for **Auctions, Land Sales,** and **Miscellaneous** and **Trade** Advertisements (except Situations Vacant and Wanted) is 6d. per line. Eight Words to a line; the minimum charge [illegible] Words. Special terms for series of [illegible] may be ascertained on application to the Publisher.

Situations and Partnerships.

The charge for advertisements for **Situations Vacant** and **Situations Wanted** and **"Partnerships,"** [illegible] NOT EXCEEDING TWENTY-FOUR WORDS, is 2s. 6d. for every eight words after. *All Situation Advertisements must be prepaid.*

*** Replies to advertisements can be received at the Office, Effingham House, 1, Arundel-street, Strand, W.C., *free of charge*. But if to be forwarded under cover of a letter, an extra charge of Sixpence is made. (See Notice at head of "Situations.")

Rates for **Trade** Advertisements on front page, and [illegible] other positions, can be obtained on application to the Publisher.

Advertisements for the current week must reach the Office not later than 3 p.m. on Thursday. Front-page Advertisements and all Contracts and Special Advertisements should reach the office by Tuesday Morning to secure [illegible].

[illegible]

Trade News.

WAGES MOVEMENTS.

[illegible]

TRADE NOTES.

[illegible]

CHIPS.

[illegible]

PILKINGTON & CO.

(ESTABLISHED 1[illegible].)

DEPTFORD WHARF,
190 & 192, CREEK ROAD, DEPTFORD, S.E.

Registered Trade Mark.

POLONCEAU ASPHALTE

Patent Asphalte and Felt Roofing

ACID-RESISTING ASPHALTE

WHITE SILICA PAVING.

Seyssel Asphalte direct from the Mines.

TELEGRAMS: "[illegible]" TELEPHONE No. [illegible]

FOR

Olivers' Seasoned Hardwoods,

APPLY TO—

WM. OLIVER & SONS, Ltd.,
120, Bunhill Row, London, E.C

TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender; it adds to the value of the information.

BELLINGHAM.—For renovations to Belsher church, Northumberland. Messrs. R. Pickering, F.R.I.B.A., Newcastle-on-Tyne, diocesan architect —

Carse, R., and S. B. Archer	£1,857 1
Brown, R. and G., Acomb *	2[illegible] 11

* Accepted.

[illegible]

BRIDGEND, GLAMORGANSHIRE —

[illegible]	[illegible]
Roberts and Williams, Bridgend *	[illegible]

* Accepted.

BIRMINGHAM.—For the erection of two shops and dwelling-houses, Nos. 1 and 2, Lunch-road, Handsworth, for Mr. Thomas Parkes. Mr. A. E. Edwards, L.R.I.B.A., Newhall-street, Birmingham, architect —

Williams, J. E., Aston Manor *	£[illegible]

* Accepted.

CARDIFF.—For the construction of sewers, Aberbargoed-road, for the corporation. Mr. W. Harper, City Hall, Cardiff, engineer. Quantities by the engineer —

Haymes, H. T., Pontypridd	£[illegible] 19 0
Troglown, W. H. Co., Cardiff	[illegible] 12 6
Hatherly and Co., Penarth	[illegible] 0
Pomeroy, R., and Co., Cardiff	[illegible] 19 6
Barnes, Chaplin and Co., Cardiff	[illegible] 0
Davies, C.	[illegible] 13 0

Accepted.

CARRICK-ON-SHANNON.—For the erection of reinforced concrete bridge, for the Leitrim County Council, Mr. C. Dolan, [illegible], and Co., Carrick-on-Shannon, architect —

Thompson, J. R., Ltd., [illegible] street, Belfast	[illegible] 0
Yorkshire Hennebique Contracting Co., Kirkstall-road	[illegible] 0
Brettell, J. O., Foregate Chambers, The Foregate, Worcester *	[illegible] 0
Stuart's Granolithic Co., Ltd., 4, Fenchurch-street, London, E.C.	[illegible] 0
Moss, W., and Sons, Queen Anne's Chambers, Westminster, S.W.	[illegible] 0

Tender received late. * Accepted.

CHAT TOWN.—For the erection of Burntwood County School, and additions to the [illegible] for the Staffordshire Education Committee —

Cave, G., and Son, Wolverhampton accepted	[illegible] 0

For installation of low-pressure heating apparatus at the old and new [illegible] —

Gough and Fegate, Burton-on-Trent (accepted)	£[illegible] 0

CHELSEA, S.W.—For construction of [illegible] and valve-house at outlet of the Counter's Creek sewers [illegible] Embankment, for the London County Council —

Cochrane, J., Barrhead, near Glasgow	£[illegible] 0
Glenfield and Kennedy, Ltd., Kilmarnock	[illegible] 0
Markham and Co., Ltd., Chesterfield	[illegible] 0
Blakeborough, J., and Sons, Brighouse *	[illegible] 0

* Recommended for acceptance.

CHOPPINGTON.—For the erection of school for 368 places, for the education committee. Mr. [illegible] Williams, The Moothall, Newcastle-on-Tyne, architect —

Douglass, J., Hepscott, Morpeth	£[illegible] 0 0

Twenty-two tenders received.

COLNEY HATCH.—For the supply and erection of iron fencing at the asylum, for the London County Council —

Hoyland and Smith, Brierley Hill	£[illegible] 1 0

(Accepted.)

FAVERSHAM.—For carrying out [illegible] No. 5 connection with the sewerage works, for the town council —

Pethick Bros., Plymouth	£7,489 0 0

(Accepted.)

(*Continued on page* [illegible].)

May 19, 1911. Volume C.—No. 2641.

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House, Strand, W.C.

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OUR ILLUSTRATIONS.

The Royal Academy of Music. Messrs. Ernest George (A.R.A.) and Yeates, Architects.

Columbarium, Golder's Green, N.W. Messrs. Ernest George (A.R.A.) and Yeates, Architects.

No. 17, Grafton-street, W., and No. 24, Albemarle-street, W. Messrs. Ernest George (A.R.A.) and Yeates, Architects.

Studies of Ivories. National Silver Medal Drawings. By Mr. Sydney W. Clatworthy.

"The English Staircase." Dunster Castle, Somerset: Grand Stairs. Details from others at Millerstair House, N.B., and Archbishop's Palace, Maidstone, from Mr. Walter H. Godfrey's book.

Photographs from Some Old Devon Churches.

FITNESS AND UNEMPLOYMENT.

Few of us can have failed to perceive that Mr. Lloyd-George's State Insurance Bill is another step along the road to Communism. The trend of most of our recent social legislation has been thitherwards. And yet hardly any of us are at the pains, as Ruskin bade us just forty years ago, to learn rightly and, once for all, what Communism is. "First, it means that everybody must work in common, and do common, simple work for his dinner." The old Communists knew that quite well; and for his amplification of his maxim Ruskin himself could find no better authority than Sir Thomas More, whose "Utopia" many of us still read, with the smug admission that it is all very pretty and ideal, but that you will never bring human nature into accord with precepts of that sort. Some will admit, of course, that the time may come when the progress of morality and of general solidarity, and the abundance of production, may generalise the application of the Communist principle; but very few see that the ever-increasing inconveniences and difficulties of other as yet tried means of distribution of wealth force us at more or less frequent intervals to coerce egotism, and narrowly personal interests sufficiently to secure a greater maximum of production by social labour. It matters little, as far as the ultimate result is concerned, how few see that; but it matters much how soon the few see it before the many feel that the reverse has become unendurable. Most of all does it matter that all should know that all the State can do is to cultivate such a principle of the wise distribution of wealth as shall secure, at any given moment, the greatest possible expansion of productive forces, and the greatest scope for production, and the activity of the producers as a whole.

That is attempted by Mr. Lloyd-George in the unemployment section of his State Insurance Bill. For the first time, it will become the common business of the State, the employer, and the worker to do all that in them lies to make the burden of the compulsory sustenance of the unavoidably idle as light as possible. For the first time it is the common concern of all of us to limit waste and unprofitable labour, to insure the efficiency of every worker, to compel the willing idler—rich or poor—to work, and to grade the worker according to his capacity. We all know perfectly well that it is the residue of unskilled labour, and the much larger proportion of only half-skilled labour, that make up the always more or less workless. Few of us seem to see that it is the burden of their maintenance, and that of the idle or wrongly-occupied well-to-do "unemployed" that tax the willing worker so heavily. We hinted last week that the provision in Mr. Lloyd-George's Bill that the worker who is unemployed by reason of his own incapacity shall be compelled to submit to training designed to endow him with fitness, or else be transferred to some less brain-taxing but still honest employment, was a departure that, sooner or later, those principally concerned will insist shall be made as well in the case of those who direct his work as in that of the wage-worker. We need not concern ourselves for the moment how that will come about. There are already wholesome signs that its initiation will be the fruit of voluntary recognition of its inevitability.

Hitherto, as architects, we certainly could not say, "Let the galled jade wince; our withers are unwrung." While any charlatan or blockhead could assume the duties, or pocket the wages, with little concern about the duties of the workers on whose skill more depends as regards the health and comfort of mankind than any other, save, perhaps, the food-provider, we had little right to condemn inefficiency elsewhere. While nothing was done to make the architect fit, except to let him find in pupilage or not, as good or bad luck might determine, the opportunity of acquiring the knowledge of his calling, or to test his fitness before admitting him to a duly State-recognised recognition and guarantee thereof, it was as much our blunder as our misfortune that the public failed to perceive any difference between the real architect and the sham. Thanks, mainly, to the Architectural Association and the kindred agencies inspired by its school, there is now little lack of opportunity for real training, or the further improvement of the ordinary opportunities of the student. Very soon, we trust, the Institute, as the adequate and fitting representative of all architects worth the name, will be enabled by the State to become the guardian and guarantee of the fitness of its members, and the embodiment, as far as architecture is concerned, of Ruskin's prophecy fifty-four years ago:—

> "I believe most firmly that, as the laws of national prosperity get familiar to us, we shall more and more cast our toil into social and communicative systems; and that one of the first means of our doing so will be the re-establishing guilds of every important trade in a vital, not formal condition;—that there will be a great council or government house for the members of every trade, built in whatever town of the kingdom occupies itself principally in such trade, with minor council-halls in other cities; and to each council-hall officers attached, whose first business may be to examine into the circumstances of every operative in that trade who chooses to report himself to them when out of work, and to set him to work, if he is indeed able and willing, at a fixed rate of wages determined at regular periods in the council meetings."

Labour Exchanges, in a way, of trades, be it noted. Whether with powers to encourage a careful fitness, and if that is found impracticable, to exclude from unfit, wasteful, and damaging participation, remains to be seen. Surely, presently it will be the duty of all such bodies to train for fitness? Some of the old guilds, in more or less tentative fashion, have already set themselves to do this, and with some effect. But, given this in all the useful trades, where, you ask, is the hope of bringing the unteachable and the lazy into fitness for something? *Why* anyone should ask this when, from slum and gutter, you can coax into submission and training the raw material which drill and due subordination can transform in a year or two into that no mean embodiment of loyalty and endurance and pluck, the British soldier, often teaching him a trade the while into the bargain, it is hard to say. The truth is, in almost every man there is an aptitude that will find scope and purpose if its development is not limited by environment or crushed by care; and it is as true to-day as when Sir Thomas More said it, that "if all those who labour about useless things were set to more profitable employments, and if all who languish out their lives in sloth and idleness (every one of whom consumes as much as any two of the men that are at work), were forced to labour, you may easily imagine that a small proportion of time would serve for doing all that is either necessary, profitable, or pleasant to mankind, especially while pleasure is kept within its due bounds."

It is our conviction—our *delusion*, perhaps some who read this will call it—that of all those who are called to the higher tasks of life, it is our right and business as architects—having insisted on and secured due qualification and fitness in ourselves—to see to it that only the fit shall be employed to carry out our work. To the trades those for whom we act employ we shall say presently. "You, also, as masters of your craft, now that you are asked by the State to contribute to the support of the unemployed therein, are bound also yourselves, as we have done, to qualify yourselves just as your men will have to do. We will not give out work to mere syndicates or aggregations of capitalists who are ignorant, who employ sweated labour, or whose managers are compelled to subordinate every other consideration to the maintenance of the dividend." And those, in their turn, who do honestly discharge these obligations, must be supported by us in their demand from the State of protection against the pernicious and unlawful competition of the unfit. If we do this, we shall at least

VENETIAN ART OF THE XVIII. CENTURY.

The [illegible] occupied by Venice among the Italian States, alike in politics and art, has attracted the notice of many commentators. Always Venetian rather than Italian, her remarkable vitality, and stubborn resistance to decay, cannot fail to impress the student. Just as when, apparently doomed to political extinction, the renewal of public spirit among her people secured for them a further extension of independence, so in the time of decadence elsewhere throughout Italy there flashed out the unlooked for burst of Venetian artistic activity, not merely in painting, but in art and literature generally, which has invested Canale and Tiepolo with the fame as artists that is so deservedly shared by Casanova in literature, and by Marcello and Goldoni, respectively, in music and the drama. In architecture, pre-eminently the Queen City of the Adriatic preserved to the end the influence and traditions of her golden age. Indeed, most of what we know as Venice was never seen by the men of the Renaissance. The Clock Tower, the Bridge of Sighs, the Dogana the Salute, and Longhena's Pesaro and Rezzonico palaces, were all Late 17th-Century works, and still later came the building of the Corna della Regina, and the Labia.

But it was in painting more especially that the traditional characteristic of Venetian art, manifesting itself always in genial and playful materialism, exhibited its vitality and fresh development, and all students will heartily thank the Burlington Fine Arts Club for the most interesting exhibition which is now on view, enhanced as its value is by the appreciative introductions to the descriptive catalogue which are contributed by Mr. Roger E. Fry, Mr. C. F. Bell, F.S.A., and Mr. Tancred Boremus. Of the artists represented, Pietro Longhi leads the van. It is the fashion with some critics to declare Longhi no great artist at all—nothing, in fact, but an inferior Hogarth. That, we venture to suggest, is not true. It is a fact, of course, that his ambitiously attempted "Fall of the Giants" for the walls and ceiling of the Palazzo Sagrado was an artistic failure. He knew it himself, and wisely abandoned efforts of the kind for the more congenial portrayal of scenes of daily contemporary Venetian life. That there is also much of the execution and colour of Hogarth about his work may be admitted; but there is an utter absence of the grim satire that characterises most of that of the English painter. That all that has been attributed to Longhi is his—even of that now to be seen in Savile-row—we should doubt. One of the best is the "Portrait-Painter's Studio" (1), lent by Captain Archibald Stirling, similar to one in the Museo Civico at Venice. In the middle of the picture a lady is sitting for her portrait. She wears a white dress with a heaped petticoat, and pink and blue trimmings on her bodice, while in her lap she nurses a small dog. Behind her stands a gentleman wearing *bauta* and a three-cornered hat. To the left is seated the painter, clad in a long green gown, at work on the portrait on an easel before him. The colour generally is good, the detail is not offensively obtruded, but ease and stiffness alternate noticeably, and not pleasantly. As a portrait-painter, Longhi hardly excelled. Take, for instance (92), "A Procurator of St. Mark," downstairs, in the writing-room, about as wooden and uninteresting as the worst of our own official and Society portraits of to-day. The "Portrait of a Lady," lent by Mr. C. Crews, is better, but its authenticity is doubtful. That and two others of ladies of the same family, which are in a private collection at Venice, have been assigned to Allessandro Longhi. Similarly, we should question the authenticity of "The Ante-Room of the Ridotto at Venice" (4), and "The Parlour of a Nunnery in Venice" (5), both lent by Mr. F. Cavendish-Bentinck.

Antonio Canale (1697-1762) is represented by the entrance to the "Canona Reggio, Venice" (49), lent by Sir Hugo Fitzherbert, Bart., and "A Convent on an Island in the Lagune" (59), lent by Mr. Max Bonn. The former *may* be one of his, though we should hesitate before saying so. It is a bright mid-day sunlight view, looking across the Grand Canal from the quay opposite the entrance to the Cannareggio. The latter is a pen and bistre drawing, with grey wash on white paper. Canale—himself undoubtedly head and shoulders above the rest of his contemporaries—had many imitators, among them his nephew Belotto Bernardino (1720-1780), who spent most of his life out of Venice, and settled at Warsaw in 1768 as Court painter to the King of Poland, dying there in 1780. There are several characteristic examples of his work, which was not of a very high order—"A Scene in Venice" (16), "A View of Dresden" (17), "Venice—The Rialto" (20), another "View of Dresden" (21), all essentially *vieux*, and little else.

Giovanni Batiste Tiepolo (1696-1770) must have been more or less of an enigma. He was a pupil of Gregorio Lazzarini. He was influenced as well by Piazzetta, by Sebastiano Ricci, but more especially by Paul Veronese. Of his genius there is no question. Of his equal apparent delight and facility in depicting magnificent pageants, or endowing the most commonplace subjects with the most brilliant colour and style, there is no explanation. Some of his best works shown are: "Cleopatra" (40), lent by Mr. W. C. Alexander, and "The Horse Dragged into Troy" (42), lent by Mr. F. A. White. We hardly think "The Virgin and Infant Christ" (15) is his. His son, Giovanni Domenico Tiepolo (1727-1804) imitated his style, but with no great success, his crude scarlets and blues being distracting—"The Virgin and Infant Christ" (15), for example. Piazzetta (1682-1754) is said to have been influenced by Guercino—why, we do not quite understand. "Abraham's Sacrifice" (30), lent by Mr. Roger Fry, is an unfinished work of which there are many versions by him. There are also some good drawings by him lent by Mr. Barclay Squires.

G. B. Pittoni (1687-1767), little known to-day, was one of the ablest of the Venetian 18th-century figure-painters. Many of his best works, however, have been attributed to others. His "Miracle of the Loaves and Fishes" (13), lent by Mr. Palmer-Morewood, has been ascribed to Ricci. The latter is represented by several works, none of which seem to justify the estimation in which he was undoubtedly held by his contemporaries. Francesco Guardi (1712-1793), whose extraordinary feeling for the picturesque is manifest in his renderings of contemporary fêtes and festivities, may be adequately appreciated in "The Ball in the Theatre of the Benedetto" (19). Michele Marieschi (1711-1794), whose somewhat fantastic combinations of Venetian art and classic ruins dominate his views of Venice, has several examples—one of the most characteristic, perhaps, "An Architectural Capriccio" (37), lent by Mr. Fred A. White. Giuseppe Ghislandi—or Fra Vittore Ghislandi, as he became known after he took orders at the age of twenty—though for some twenty-five years a student and painter in Venice, was born at Bergamo, whither he returned at the beginning of the 18th century, dying there in 1743. His portrait of a "Young Man" (32), lent by Lord Wimborne, is bold and free, as was most of his work. It is said that during his last years he used to do all the flesh-painting on his portraits with his fingers. Giuseppe Nogari (1699-1763) is best known by his half-lengths in the style of Rembrandt and Denner, of the sort of his "Head of a Monk" (29), lent by Captain Drury-Lowe. Francesco Zucarelli (1702-1788) was a Tuscan, and spent many years in England, becoming, indeed, one of the foundation members of the Royal Academy in 1768. Abandoning historical subjects, he became a popular landscape artist of the mild and pleasing sort, seen in his "Landscape with Figures" (50), lent by Sir Julius Wernher, and another "Landscape" (62) lent by Mr. Max Rosenheim.

The only woman painter represented is Rosalba Carriera (1675-1757). Her pastel portrait of Horace Walpole is not of much artistic value. As we are told Rosalba's price for a portrait was thirty sequins, probably her numerous sitters were satisfied. Anyhow, she had the patronising approval of the wealthy foreigner, for the Countess of Hertford, who was in Venice in 1741—the same year in which Horace Walpole sat—records that "she went to see the paintress Rosalba, who is now old, but certainly the best (if not the only) artist in her way. This her excellence does not, however, make her the least impertinent, her behaviour being as good as her work."

REINFORCED CONCRETE DESIGN. IX.

By Richd. Coulson, Licentiate R.I.B.A., and Richd. Coulson, jun., Assoc.R.C.Sc.I.

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As in the case of rectangular beams, so with T-beams, it will sometimes happen that the space available for depth is limited by head-room required or other considerations, and compressive reinforcement may consequently have to be introduced.

This being so, the total depth D would be known, and by deducting the value of c, d can be ascertained; but in order to provide the necessary lateral cover for increased area of the tensile reinforcement, the breadth of web, b, will vary inversely as d, and will therefore have to be specially calculated; otherwise the same general principles apply as in single reinforced T-beams; but it follows as a matter of course that the cost is greater, and they should be used only in cases of necessity.

For Table of Notation see page 268, Feb. 24, 1911, to which should be added: A_c = equivalent resistance area for maximum compressive stress in concrete, o = diameter of reinforcing rods in compression or tension, O = the number of rows of rods, and o' = diameter of transverse rods for shear

reinforcement at junction of beam with slabs.

THEORY AND SYMBOLIC FORMULÆ FOR T-BEAMS WITH COMPRESSIVE REINFORCEMENT.

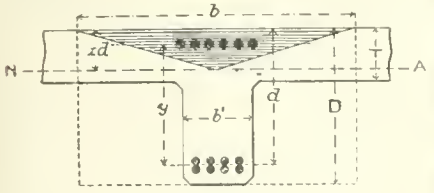


FIG. 16.

POSITION OF NEUTRAL AXIS.

D being known, $d = D - c$, and —

$$x d = \frac{d r f_c}{r f_c + f_s} \quad \ldots\ldots\ldots\ldots (40)$$

If this be less than T, the neutral axis will be in the slab, as shown by Fig. 16, it equal to T at underside of slab, and if greater than T below the slab or in the web, as shown by Fig. 17.

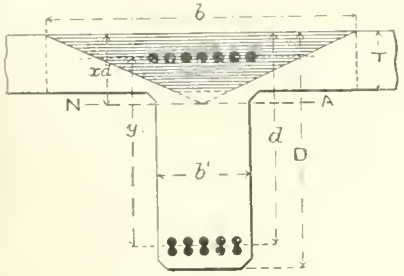


FIG. 17.

ARM OF RESISTANCE COUPLE.

This may, in all cases, be taken as for a rectangular beam, the difference when neutral axis is below the slab being extremely small, and always on the side of safety. Therefore —

$$a = d (1 - x \ 3),$$

or, substituting for x —

$$a = d \frac{(2 r f_c + 3 f_s)}{3 (r f_c + f_s)}$$

AREA OF TENSILE REINFORCEMENT.

As $R = A_s f_s a$, and R must equal M, then on the foregoing hypothesis, for any relation of neutral axis to slab—

$$A_s = \frac{M}{f_s a}$$

or— $$A_s = \frac{3 M (r f_c + f_s)}{d f_s (2 r f_c + 3 f_s)} \quad \ldots\ldots\ldots (41)$$

AREA OF COMPRESSIVE REINFORCEMENT.

Moment of resistance to compression must equal moment of resistance to tension, and the total amount of the former will be the *sum* of the moments due to the concrete and the compressive reinforcement. Therefore if A_c = equivalent resistance area of concrete for maximum f_c —

$$A_c f_c a + C_s f_s' y - C_s f_c y = A_s f_s a.$$

Assuming, however, as in the case of double reinforced rectangular beams, that the centre of gravity of the compressive reinforcement coincides with the centre of gravity of the equivalent resistance of the concrete, or $y = a$, then total compression will equal total tension, or—

$$A_c f_c + C_s f_s' - C_s f_c = A_s f_s$$

also— $$f_s' = 2 \ 3 . r f_c.$$

but for convenience of calculation, f_c is taken over the total area of A_c, and the correct nominal value for f_s' will therefore be—

$$f_s' = 2 \ 3 . f_c (r - 1),$$

or the difference between the intensity of stress in the steel and in the concrete, and consequently—

$$A_c f_c + C_s f_s' = A_s f_s.$$

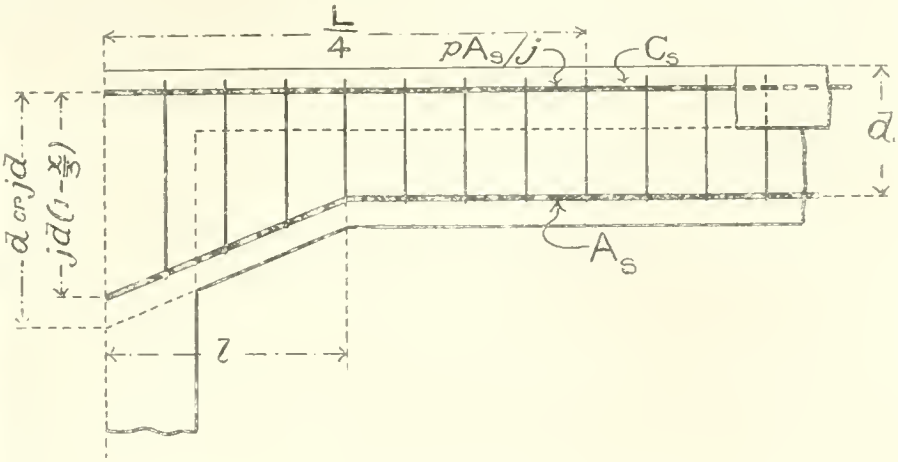


FIG. 18.

This being so, when the neutral axis is either in or at underside of slab —

$$C_s = \frac{3 A_s f_s}{2 f_c (r - 1)} - \frac{3 b d r f}{4 (r - 1) (r f_c + f_s)} \quad \ldots (42)$$

If, however, the neutral axis is below the slab or in the web, then—

$$A_c f_c = b T \frac{[2 r f_c d - T (r f_c + f_s)]}{2 r d}$$

and—

$$C_s = \frac{3 A_s f_s}{2 f_c (r - 1)} - \frac{3 b T [2 r f_c d - T (r f_c + f_s)]}{4 r f_c (r - 1) d} \quad \ldots (43)$$

BREADTH OF WEB.

Before the increased depth to resist negative bending moment at supports of continuous beams can be calculated for, it is necessary to fix on some relative value for breadth of web b, and this can be conveniently done as follows. By equation (41) —

$$A = \frac{3 M (r f_c + f_s)}{d f_s (2 r f_c + 3 f_s)}$$

so that if O the number of rows of rods, the collective area of the rods in one row will be—

$$\frac{3 M (r f_c + f_s)}{O d f_s (2 r f_c + 3 f_s)}$$

Then if o be their diameter, the area of each rod will be $\pi o^2 \ 4$, and the number in each row—

$$\frac{12 M (r f_c + f_s)}{\pi o^2 O d f_s (2 r f_c + 3 f_s)}$$

The value of o will usually lie between 1¼in. and 1½in., so that if the number of rods in a row multiplied by twice their diameter be taken as the breadth of the web b, this will allow for the spaces between and cover at each side, and—

$$b = \frac{24 M (r f_c + f_s)}{\pi o O d f_s (2 r f_c + 3 f_s)} \quad \ldots\ldots (44)$$

INCREASED DEPTH OF BEAM WHERE CONTINUOUS OVER SUPPORTS.

The conditions for negative bending moments are precisely the same as in single reinforced T-beams; but, owing to the different relations of b, b', and d, the formulæ necessarily vary. Assuming as before that—

Negative R = $p \times$ positive R,

that the increased depth of beam at centre of support = d' or $j d$, and that the distance between centres of upper and lower reinforcements = $d (1 - x \ 3)$, then the compressive resistance of concrete web at centre of support —

$$\tfrac{1}{2} b' d' x f = f \frac{6 M r f^2}{\pi o f_s (2 r f_c + 3 f_s)}$$

and the compressive resistance of reinforcement at centre of support—

$$2 \ 3 . A_s f (r - 1) = \frac{2 M f_c (r - 1) (r f_c + f_s)}{d f_s (2 r f_c + 3 f_s)}$$

As the sum of these must be—

$$p \frac{A_s f_s}{f}, \text{ or } p \frac{3 M (r f_c + f_s)}{f d (2 r f_c + 3 f_s)}$$

Then—

$$\frac{6 d r f^2}{\pi o f_s} \quad \frac{2 f_c (r - 1) (r f + f_s)}{f_s} = 3 p (r f_c + f_s) \quad \ldots (45)$$

POINTS AT WHICH INCREASE IN DEPTH MUST COMMENCE.

The combined moment of resistance of the concrete web and the lower reinforcement acting in compression will be—

$$R = \left[\frac{6 M r f^2}{\pi o f_s (2 r f_c + 3 f_s)} + 2 \ 3 . A_s f_c (r - 1) \right] d (1 - x \ 3)$$

and, substituting for x and A_s, the increase in depth must commence at the points in the span where the negative M is—

$$2 M \frac{f_c}{f_s} \left[\frac{d r f_c}{\pi o (r f_c + f_s)} + 1 \ 3 . (r - 1) \right] \text{ tons in. } (46)$$

NEGATIVE TENSILE REINFORCEMENT OVER SUPPORTS.

The upper reinforcement will be in tension where continuous beams pass over supports, and its area must be—

$$A_s = p A_s \quad \ldots\ldots\ldots\ldots (47)$$

so that at the quarter points the area of the positive compressive reinforcement C_s must be increased or reduced to satisfy this, as shown by Fig. 18.

It is taken for granted that the depth of double-reinforced T-beams will always be increased at any intermediate supports, and therefore no formulæ are given on the assumption that the tensional reinforcement will ever be continued straight through.

Diagrams will be given with the reduced working formulæ for finding A_s, C_s, and f, also l for uniformly distributed loads, and an example will be worked out to compare with the single-reinforced main beam in Example 12, Article VIII., page 652.

(To be continued.)

WORKSHOP FLOORS.

By WALTER J. MAY.

Usually what is required is a level floor of a non-slippery character, and which shall carry weight while standing the vibration set up by running machinery, and it should not be dusty or accumulate débris naturally, although it often occurs that, through want of cleaning, a floor assumes an objectionable condition. And beyond all it is necessary that the floor shall afford a good foothold for the workmen: otherwise accidents have to be paid for.

Usually a paved floor of some kind is put down in the workshop, and if this is chosen with some view of being suited to the work to be done, then some chance of getting good results may be obtained. Of course, discrimination between the machine-rooms, the forge, and the foundry has to be made, and a uniform

Fig. 1

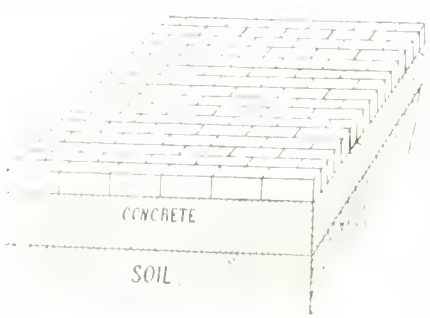


Fig. 2

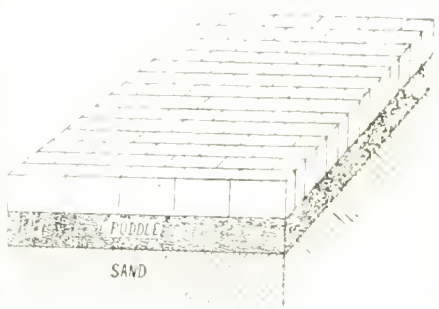


Fig. 3

model of what is required in any particular case, it being necessary to work out what is required, as it is only a waste of time to work out problematical floors which might not meet the requirements of any actual case. Such floors, however, can be finished off with a smooth, fine surface with less fear of cracking and disfigurement than can ordinary concrete floors, as the metal bonding gives a tensile strength which, under ordinary conditions, prevents cracking of the material.

Suspended floors for workshops in the upper parts of factories can be of timber and boards, the boards being preferably of Lombardy poplar, as this has considerable fire-resisting qualities when tongued and grooved to prevent under draughts. Metal floors of rolled steel girders bearing cast iron plates, or fairly thick rolled steel sheets, or "chequer-plates," may also be used, or they may be of ferro concrete, the space between the girders being reinforced with expanded metal. Properly put in, concrete floors would be about the best that could be used, owing to their being fireproof; but where machines have to be fixed, their positions should be previously decided on and proper provision made for their fixing when erecting the floors.

In regard to concrete floors, it is well to note, however, that unless good material, properly mixed and wetted, is used, there is certain to be a loss of strength and it may very well happen that a floor designed to carry 1 wt. or 2 wt. per square foot will actually only carry half the calculated weight, owing to faulty material or manipulation, this rendering careful supervision necessary.

The floors of many workrooms where light work is done may be of concrete with a boarded surface, and where this is the case it is not desirable that the small additional strength of the boarding be too much taken into consideration, because in nine cases out of ten such overlaying boarding does not add much to the resistance of the main

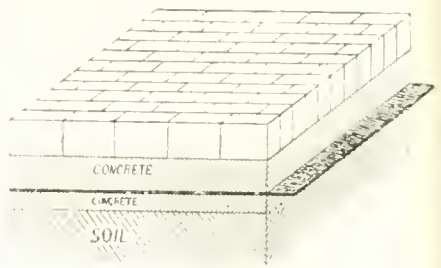


Fig. 4.

floor to the load imposed on it. Such boarded floors are more for comfort than the giving of any additional strength, although at times they take up shock which perhaps would damage the concrete or other material underlying them.

With all workshop floors the question of machinery has to be considered, as the shocks or vibrations set up have a great deal to do with their durability. Anything in the shape of heavy blows on a concrete or stone floor tends to cause disintegration, and it may very well happen that if machines of this kind are not on independent beds, the floors will suffer seriously. With some machines—lathes, for instance—wooden floor supports are desirable, and where such are used they largely reduce the vibrations communicated to the floor itself—in this case, of course, heavy shocks being absent.

Where boarded floors are used, their strength must be in accordance with the weight they have to bear, rather erring in regard to providing an excess of strength, if anything. The joists should be of sufficient depth, and fairly close together, while the boarding should be from 2in. to 3in. thick, and well nailed to the joists. The general construction is shown in Fig. 6 in section; but to some extent there will be variation in construction of this class of floor. Great care must be taken to give the joists a sufficient bearing at the ends, and intermediate support must be afforded where the spans are of any length,

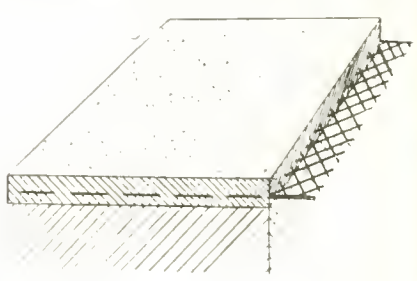
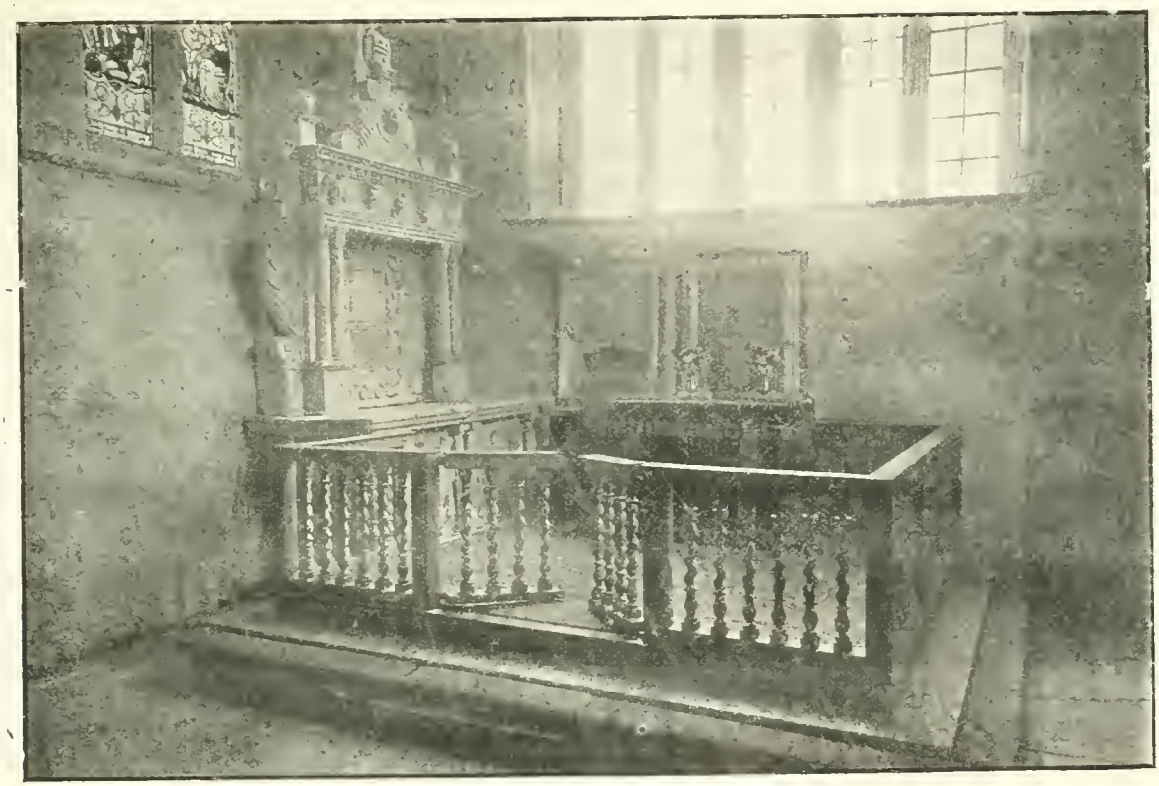


Fig. 5.

as wooden floors deflect greatly with weight. Bright, sound, and well-seasoned timber, as free from sapwood as possible, should be chosen, and, as a matter of general knowledge, knots considerably reduce the tensile strength. For considerations of space, rolled steel girders and pillars may be used as the intermediate supports for wide spans, or girders and hollow cast-iron pillars may be used if preferred, the cast pillars having an advantage over rolled metal in case of fire,



BRANSCOMBE: THE ALTAR RAILS.

These details are pretty well known, though, and often fire results are quite the reverse of what might reasonably be expected, so-called fireproof buildings at times being more greatly damaged than

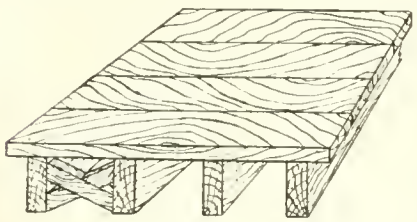


Fig. 6.

ordinary brick and timber erections when the latter are well constructed, the contents of the building largely determining the extent of the fire.

SOME OLD DEVON CHURCHES.*

Mr. John Stabb, of Torquay, whose architectural photographs are well known, is doing admirable service to students and admirers of the woodwork and masonry in the churches of Devonshire by the well-written and admirably illustrated volumes he is issuing in rapid succession. Some two and a half years ago Mr. Stabb published a delightful book, entitled "Some Old Devon Churches" (Vol. I.), which was reviewed in our columns September 11, 1908 (pp. 356-7); within nine months a second work of similar scope, "Devon Church Antiquities" (Vol. I.), followed, and was noticed by us in our issue of June 18, 1909 (pp. 896-7); and now the second volume of "Some Old Devon Churches" appears, the trio forming together the most complete and by far the most sumptuously illustrated guide which has yet been published to the ancient churches of Devonshire. The whole of the illustrations in the three volumes are from photographs taken by the author, and are accompanied by tersely-written descriptions of the various edifices shown.

The present book—Vol. II. of "Old Devon Churches" — contains considerably more reading matter than the first volume and thirty-six more illustrations, all admirably clear and taken from well-selected standpoints. Some one hundred and eight churches are described and pictured, a large proportion of these being in South Devon, the subjects ranging over the whole period of English art, from Norman to Early Renaissance, and including many detailed fittings and monuments not previously made known by reproductions. As in the previous volumes, most of the views are interiors or internal details; but there are a few exceptions of much interest, including the rich Late Norman doorways at Axminster, Axmouth, and Bishopsteignton, a ruder example at Loxbeare, the grand three-storied and pinnacled tower at Chittlehampton (the finest in the county), and the elaborately-carved south porch at Tiverton. The arrangement of the book is excellent, each church being described in alphabetical order, while the same sequence is observed in the photographs, which are placed together at the end of the volume, thus providing easy reference, while an index of parishes put midway between the text and pictures shows at once whether a sought-for church figures in the volume.

By the courtesy of the author we are able to reproduce several of the admirable illustrations, serving to show their high technical qualities and the variety and wealth of subject in the book. The cruciform and happily unrestored village church* of Branscombe, on the southern coast, some five miles west of Seaton, contains in the nave a three-decker pulpit, probably the only one remaining in Devonshire, and pews of the "horse-box" type. The altar has, it will be seen, old railings in the front, on the south side, and partially at the back and on the north side. Mr. Stabb conjectures that the altar had at one time been placed further west, and been entirely surrounded by railings. An illustration of the central Norman tower, and of some of the Saxon details of this remarkable church, would have been welcome additions to the plates.

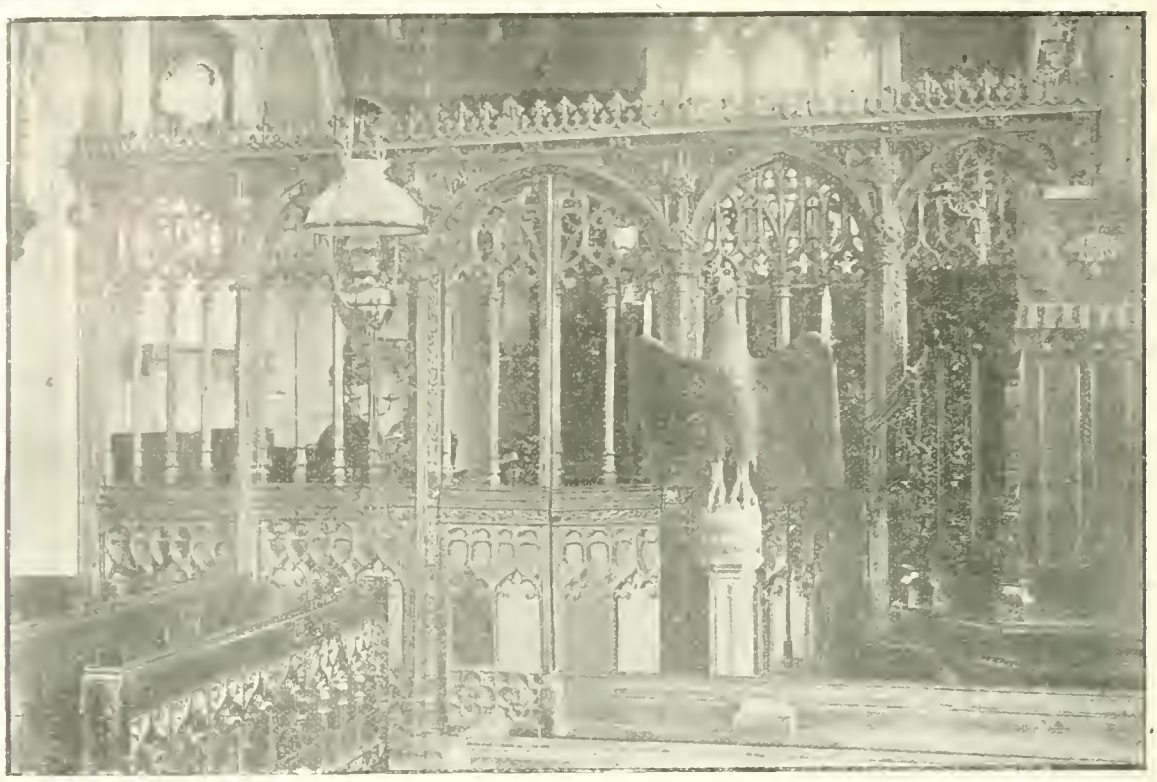
The rood-screen at Christow, a little village church on the Teign Valley line, is without groining, and consists of four bays, in addition to the doors. It is coloured and gilt, and the lower panels are painted in blue and red, ornamented with gilt stars. The small moulding on the main mullions and around the arcade consisted of interlaced tendrils, executed with great delicacy, and apparently unique in pattern for work of the 15th century. Part of the screen which once ran across the south aisle is now fitted beneath the tower and at the west end of the church.

Of quite a different class is the screen across the chancel and aisle at Powderham, some two miles from Starcross Station. The first church on the site was consecrated by Bishop Bronescomb in 1259; two hundred years later the church was to a large extent, if not entirely, rebuilt by Sir William Courtenay and Lady Margaret, his wife. The chancel portion of the screen consists of three bays and two half-bays fitted in between the pillars; in the aisle there are three bays. Both portions retain the doors. The author is dubious as to whether the screen was made for the church, and, if so, it is certainly not, in his opinion, in its original position. Parts may be remains of the original Powderham screen; but of the rest it is difficult to give the origin, as the eleventh Earl of Devon (better, perhaps, remembered as the Lord Courtenay who sat for South Devon in the forties of the last century) was a collector of old oak, and it might have come from more than one place. The upper part of the screen was restored in 1853; the groining is gone, and the spandrel spaces filled in with carving. There is a modern cross over the central doorway. The lower panels have paintings of saints which are obviously insertions; but from whence they came there is no evidence to prove. Mr. Bligh Bond, in his great work on "Rood-screens and Rood-lofts," p. 344, suggests that the small tracery panels in the spandrel spaces are made up of fragments of the old canopy work from the rood-loft.

Another illustration shows the remains of a monument, usually regarded as that of a dean or precentor, at the back of the sadly-mutilated triple sedilia in the great cruciform parish church of Crediton. The base of the monument, which appears to be part of the original structure, has a rail arcading with crockets; the recess above the tomb has a

* Some Old Devon Churches: their Rood Screens, Pulpits, Fonts, &c. By John Stabb, Vol. II, Demy 8vo., 186pp., with 162 full-page illustrations from photographs by the author. 7s. 6d. net. London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd.

* A full-page illustration of interior of the nave of this little church, looking east, reproducing a water-colour sketch by Walter Rossiter, to which a prize was awarded in the National Competition last year, appeared in the Building News for October 28, 1910.



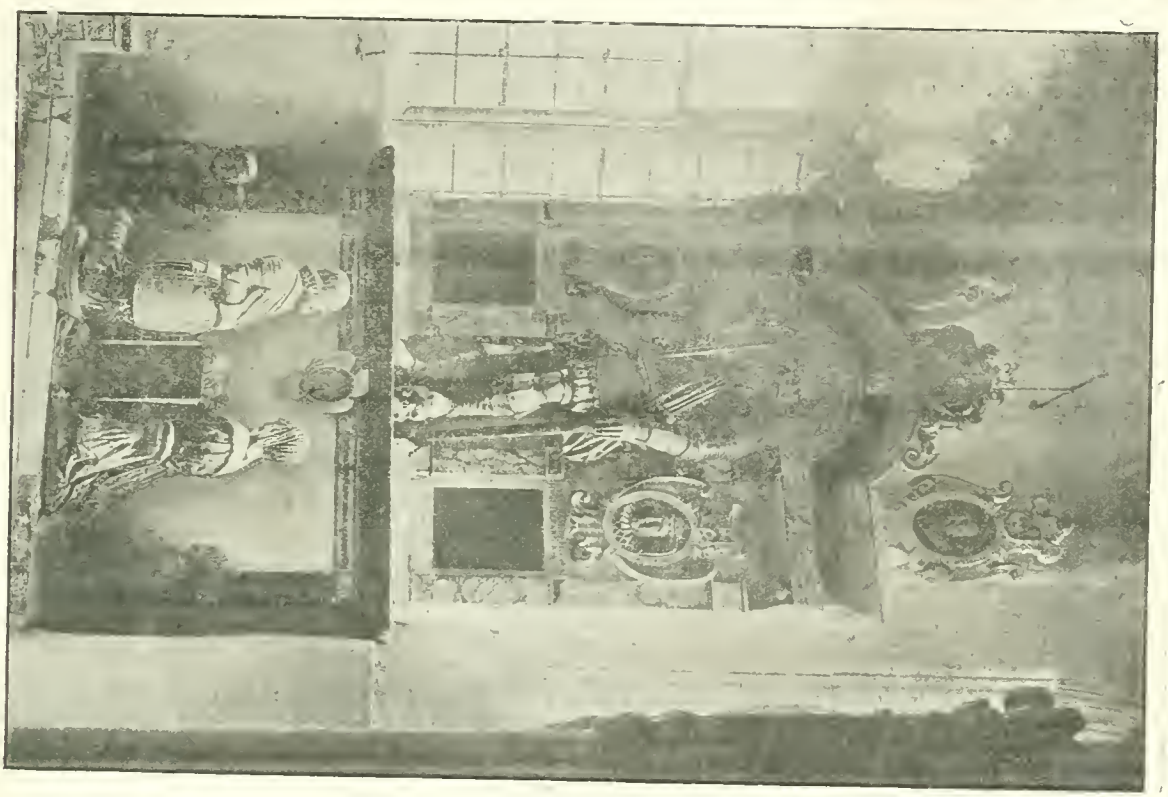
THE ROOD SCREEN, CHRISTOW.

THE ROOD SCREEN, POWDERHAM.

[illegible] elaborately carved and crocketed. Above the top is a fine cornice with groups of [illegible] and in the centre is our Lord's [illegible]. The carving at the east end [illegible] represents the Annunciation and Adoration of the Magi. At the west end the carving is supposed to show the soul of the [illegible] supported by angels. There is no [illegible] inscription.

The last illustration shows the monument [illegible] church of Newton St. Cyres to the [illegible] family, whose present head is the Earl of Iddesleigh. It is placed against the [illegible] at the end of the north aisle of the [illegible], and was erected in memory of John Northcote of Hayne, who was born in 1570 and died in 1632. In the centre is the figure of a warrior with a truncheon in his right hand and resting his left on a sword; beneath his foot is a skull. On the top of the monument to the right is a medallion portrait of his father, John Northcote, a serge merchant of Crediton, and on the left side is a similar medallion portrait of his grandfather, another serge merchant of Crediton. On either side of the central figure are medallion portraits of ladies; that on the right side is a representation of his second wife, Susannah, daughter of Sir Hugh Pollard, knight, and has the inscription around it:—"My Jacob had by Mee as many sonnes as Hee. Daughters twice Three." The medallion on the left side is a portrait of his first wife, Elizabeth, daughter of Sir Anthony Rose, with the inscription, "My Fruite was small. One sonne was all—that not at all." At the base are the figures of a son and his wife kneeling before a prie-Dieu. The son is in armour, and behind him kneel three boys; behind the wife kneels one girl. At the base of the prie-Dieu is the figure of an infant, and another in front of the girl. In the quaint inscriptions, which are in English, Latin, and French, some of the letters are capitals coloured red; these

CREDITON: MONUMENT AT THE BACK OF THE SEDILIA.



NEWTON ST. CYRES: THE NORTHCOTE MONUMENT.

letters form chronograms giving the respective dates of death.

It says much for the wealth of material still existing in the five hundred and six ancient parish churches of Devonshire in the form of well-worked examples of rood-screens, parcloses, pulpits, fonts, and monuments, despite the destruction wrought by fires and restorations, that, notwithstanding the profuse illustrations in the three volumes already published by Mr. Stabb, sufficient work worthy of reproduction remains to justify the production of yet another volume of this charming series. We trust that the author will see his way to completing his undertaking by the publication of this book. No good Devonian should be without these works, all of which can be obtained from Messrs. Simpkin and Marshall, or direct from the author at Clanmarina, Torquay.

SPECIFICATIONS FOR SCRUBBED CONCRETE SURFACES.*

For all surfaces of concrete that are to be exposed to view, face forms shall be straight, smooth, evenly matched, and watertight, and so framed and fastened together at corners and angles with screws or clamps as to be detachable and removable without the necessity of jarring or of prying against the concrete. Any offsets that may appear at joints shall be dressed off flush, and any openings at joints or corners, or any known holes or other voids, shall be plugged flush with some stiff plastic substance, such as clay mixed with plaster of Paris or sand. Before placing the concrete, the whole surface of the face form shall be coated with petroleum, or other water repellant, to prevent adhesion of the concrete.

The concrete shall be thoroughly mixed, be wet enough to finish, and be spaded against the face form to the point of being completely flushed against the form—that is, until the cement soup or grout follows and envelops the spade. Then the spade is to be used to ram the concrete near the face, so as to push the aggregate of the concrete forward to the face, care being taken to obtain a uniform mix and texture at the face.

The work of placing concrete shall be continuous throughout definite stages, so that joints between different days' work shall be at some feature line, or be made truly straight and level.

On the day after placing concrete, or later, as will be determined according to the temperature and the weather and so

* Presented to the American National Association of Cement Users.

[illegible] removed and the [illegible] immediately scrubbed until the surface [illegible] is removed and the aggregate exposed to a certain degree and then rinsed off with water and kept moist for several days. If [illegible] had been painted with [illegible] under the [illegible] and smoothed [illegible] hours [illegible] days.

If [illegible] method, it [illegible] cover the face [illegible] concrete a fine [illegible] composed of [illegible] Portland cement, 12 parts sand, [illegible] granite, or crushed granite, or [illegible] as may be selected, to pass ½ in., and be retained on [illegible] thoroughly mixed and soft [illegible] for full flushing. This granolithic [illegible] maintained between the body concrete and the face form in a thickness of [illegible] in., care being taken that the body concrete is rammed into and perfectly united [illegible]. If iron or wooden mould boards [illegible] to retain the granolithic against [illegible] while placing the body concrete, care must be taken that the board is not permitted to remain until initial set takes place, but be frequently jarred and raised [illegible] at short intervals, to prevent the formation of shrinkage cracks and seams and air spaces between granolithic and concrete.

For rubbing the surface, ordinary fibre brushes with a light stream of water from [illegible] will be sufficient if the set is not too hard. If set is harder, wire brushes followed by fibre brushes and rinsing may be used.

If for any reason a portion of the face [illegible] cannot be, or fails to be, removed [illegible] the concrete has become too hard for removing the surface film by scrubbing, the hard face shall be treated by sand blasting or tool dressing to a texture matching the scrubbed portion. If it be tool dressed, it shall be cleaned after tooling by washing it with a 1 by 10 solution of muriatic acid and water, then thoroughly rinsing with water to remove all traces of the acid.

In scrubbing, or sand blasting, or tool dressing, care must always be taken to avoid roughening or blunting corners of the work, and to maintain all edges sharp.

THE SOCIETY OF ARCHITECTS

The monthly meeting of the Society of Architects was held on Thursday evening in last week at 28, Bedford square, W.C., the President Mr. G. E. Bond, J.P., in the chair. The following were elected by ballot:—As Hon. Member, the Right Hon. Lord Monkswell. As Members, John Albert Adams, Devonport; Henry Watkins Banman, Philpot lane, E.C.; Montague Alfon Bazeley, Plymouth; James Albert Bowdon, Queen Anne's Chambers, S.W.; Frank Jermyn Bowhill, Lawrence Pountney Hill, E.C.; Albert Edward Bryon, Devonshire road, South Lambeth, S.W.; Martin Joseph Burke, Dublin; Arthur Cole, West Norwood; Leonard Henry Collier, Birmingham; John Harold Dean, Doncaster; Lewis Frazer, Pall Mall, S.W.; John Douglas Fyvie, Victoria street, S.W.; Frank George, Dartmouth street, S.W.; John Browne Dick Gorman, Montreal; John Egbert Griffiths, Cirencester; John Martin Hatfield, East Sheen; Edgar Horace Heathcote, M.A., Cannon street, E.C.; William Hoe, Wardour street, W.; Alfred Ernest Holbrow, Hanwell; Harold Rogers Honchin, Fleet street, E.C.; John Graham Johnson, Gerrard's Cross; Walter Kirk, Tunbridge Wells; Albert Edward Lambert, Nottingham; Philip C. Ve Newcombe, Newcastle-on-Tyne; Joseph Parkinson, Windermere; Frederic Cavendish Pearson, Ealing; William Petch, Buckingham Palace road, S.W.; Joseph Wilfrid Phippen, Newcastle-on-Tyne; Arthur Ray [illegible] and Percy Seaker, Derby; Edward William Griffyd Richards, Merthyr Tydvil; Frederick Andrew Roberts, Mold; Malcolm Hubble Saunders, Palace street, S.W.; Joseph Edgar Shaw, Harrogate; Ernest Edward Shepherd, Nuneaton; John Walker Smart, Perth; Fred Thorpe, Oldham; William Billington Walton, Blackpool; Arthur Frederick Webb, Blackwood, Mon.; Oswald White, Huddersfield; Stephen Wilkinson, Calcutta; Ernest Williams, Bristol; Robert Sydney Wood, Winnipeg; Albert Waring Vernier, Redhill. Thirteen students were also enrolled.

HOSPITALS.

Mr. W. Saxon Snell, F.R.I.B.A., read a paper on this subject, which was fully reported in our last issue, pp. 661-3.

In proposing a vote of thanks to the lecturer, Mr. H. Freyberg, F.S.I., said Mr. Saxon Snell has spoken of the advisability of having the air admitted to the wards slightly warmed at the hot water coils; he would ask whether there was any means of cleaning the system, for in the English climate the air was not only very cold, but was impregnated with dirt and fog. Was there any form of filtration of the air as admitted, and, if so, on what lines it was carried out? The way in which many suburban hospitals were cramped in air space was deplorable.

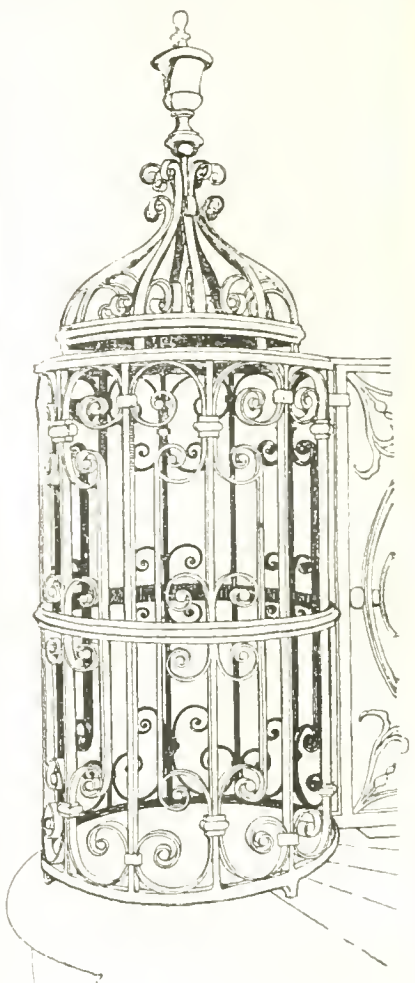
Mr. Charles Watkins, in seconding the vote of thanks, remarked that the lecturer made no reference to a disinfector, which was an absolute necessity in a hospital; nor had he stated whether the flues were ever cleaned.

Mr. G. A. T. Middleton, A.R.I.B.A., and Mr. Charles W. Ball, of Southsea, supported the vote of thanks, the latter speaker mentioning that many architects made the mistake of placing the sanitary conveniences at the extreme south end of the walls, so blocking out much of the most valuable light. By raising the ward floors, it was possible to place the hot water pipes and electric wires underneath, thus obviating the necessity to provide manholes. He thought it unnecessary to provide a separate room for ward sisters, whose place when on duty was in the ward itself; but a sisters' writing-table in the ward was desirable.

In replying to the vote of thanks, which was carried by acclamation, Mr. Saxon Snell said he entirely concurred in the observations of Mr. Ball as to ward sisters. The regulation of the temperature of the air was a very difficult matter; the only way seemed to be by one of the mechanical systems; but he thought the evil of them was so great that it was far better to adopt the rough and ready method he had described, and by making the inlets a little smaller and keeping up the fires they could get almost any temperature they wanted. The filtration of the air was a thing they could very gladly do with; but he resolutely refused in his practice to put in any kind of filter, because he knew quite well from the day he did so the filters would commence to collect all kinds of dirt, and would never be cleansed, however easy the process of cleaning might be. A dirty filter was worse than no filter at all. Every hospital, of course, should have a disinfector—a full-sized one if it could be afforded; and, if possible, a small destructor should be provided for destroying surgical bandages. He had himself tiled a ward at Charing Cross Hospital; but theoretically he thought tiled surfaces were wrong, because they provided so many open crevices. The main point in their favour was that they were very easy to keep clean.

THE ENGLISH STAIRCASE.*

Photographic illustrations of characteristic types, with a descriptive historical account of old staircases up to the end of the 18th century, capably furnish a handy and excellent work on this interesting subject, written by Mr. Walter H. Godfrey with camera studies by Mr. Horace Dan and others, including plans and measured details to a useful size by many draughtsmen. Mr. B. T. Batsford is the publisher, and the work is uniform with the Old English Houses and Doorways series of artistic canvas-bound volumes issued by him during the last few years. There is a distinct gain in such a book well observed by excluding foreign examples, and we are glad that no attempt has been made to produce "an exhaustive treatise"; neither are we sorry because the writer has not endeavoured to embody any practical or theoretical data for the building of spiral stairways. What he has done, however, is to emphasise the importance of the plan of the staircase as recorded in various types of historic planning, and naturally the period

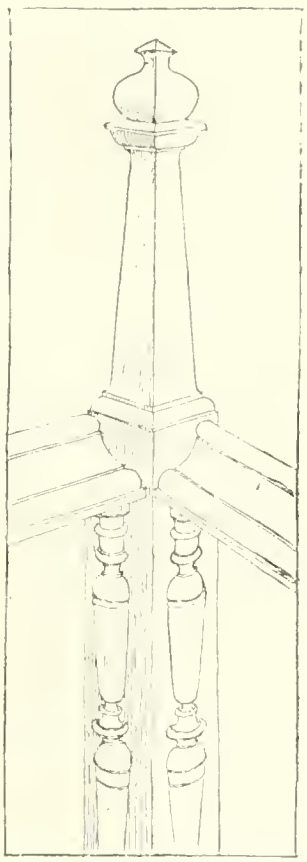


The Millerstair House, Scotland, Staircase.
(From "The English Staircase," by Walter H. Godfrey, Architect.)

when English Domestic design obtained its most thoroughly indigenous expression comprehends the best of the examples which he has chosen, dating as they do from 1500 to 1800 inclusive, ecclesiastical stone examples of Mediæval date hardly coming within the scope of Mr. Godfrey's programme. Hexham Priory, and Castle Rising, and Hedingham Castle, Essex, however, as well as Linlithgow Palace, with its vaulted newel stair, and Fyvie Castle stair (recalling Billing's Scottish Examples), sufficiently serve as an introduction to the essay now before us. Eastbury Manor House, at Barking, built in 1572, exemplifies how this kind of circular stair firmly retained its influence, and this particular plan from Essex is specially opportune, showing how the two stairs influenced the whole of the interior general arrangements, while externally their turrets are charmingly managed in the corner of the courtyard—a feature sometimes continued much later, as at Blickling in 1620. There were no less than seven of such little stairways included in Sir Robert Cecil's plan for the

* The English Staircase. By Walter H. Godfrey. London: B. T. Batsford, 94, High Holborn. Gilt top. Crown 4to, art canvas. 18s. net.

DUNSTER CASTLE STAIRCASE, SOMERSET.
(From "The English Staircase," by Walter H. Godfrey, Architect.)



Newel, Archbishop's Palace, Maidstone.

rebuilding of Chelsea House, 1590, besides the grand staircase. All kinds of newel finials obtained inventors and imitators, from the simple ball to the vase shape and other varieties. We reproduce Mr. Stratton's sketch of the admirable specimen of what became much like the standard type for newel terminals, and it is taken from the Archbishop's Palace at Maidstone. Our second marginal drawing, from Mr. Dan's photograph rendered in line by Mr. E. L. Wratten, is a delightful example of wrought ironwork, covering the newel block top of the circular staircase at Millerstair House, Scotland. These amply serve to show the manner of the minor illustrations which enliven these historic pages, and our third example is given to afford the reader of this notice an idea of the photographic plates, which are collotype reproductions printed on special paper, and arranged following on pretty much in chronological sequence. We have chosen the exquisite photograph, by Mr. T. Lewis, of the noble Stewart staircase at Dunster Castle, Somersetshire, which is among the finest examples left, dating from the days of Charles II. Others of similar character are to be seen at Durham Castle, Eltham Lodge, Sudbury Hall, Wentworth Castle, Cassiobury, Tythrop, and Tredegar Park. Downholland Hall, near Ormskirk, has a very uncommon raking wooden balustrading, pierced with trefoil openings, set out at right angles with the top rail of rake to the stairway. This is given as Plate II., and it is uncommon and peculiar, though we mention it specially as it is new to us; but it would exceed our space and serve no particular end to enumerate all the sixty-three plates, which include most charming samples from Oakwell Hall; Restoration House, Rochester; Great Wigsell, Essex; Great Nash Hyde, Herts; Hatfield; Oundle; Aston Bury, Herts; Aston Hall; 25, High street, Guildford, Surrey; The Close, Winchester; 4, Crosby-square, E.C.; House, Botolph-lane, E.C.; Hopetoun House, Scotland; the King's Staircase, Hampton Court, and the Adamlike stair at Sheen House, Richmond, typical of the last touch of 18th-century work of its kind. We have left many gaps. Mr. Godfrey has left very few, and his book will fit a space till now left vacant on the bookshelves of most architectural libraries.

QUANTITY SURVEYORS' ASSOCIATION DINNER.

The ninth annual dinner of the Quantity Surveyors' Association was held in the Crown Hall, Connaught Rooms, Great Queen-street, W.C., on Wednesday evening. Mr. S. Chatfeild Clarke, F.S.I., occupied the chair, and was supported by Mr. Arthur Keen, F.R.I.B.A., President of the Architectural Association; Mr. W. Woodward, F.R.I.B.A., Mayor of Hampstead; Mr. Horatio Porter, M.A., A.R.I.B.A., Mayor of Holborn; Mr. Alfred W. S. Cross, V.P.R.I.B.A.; Mr. G. Bird Godson, President of the London Master Builders' Association; Mr. A. A. Hudson, K.C.; Messrs. H. T. A. Chidgey and Walter Lawrence, Past-Presidents; C. W. Ball and Henry Riley, Vice Presidents; Arthur G. Cross, Hon. Secretary; J. Dixon Butler, Leonard Horner, H. H. Bartlett, T. Costigan, T. C. Mansfeld, H. England, S. A. Stanger, Dendy Watney, Lieut.-Colonel A. Sutherland Harris, H. J. West, T. E. Barr, F. R. Betenson, H. Shepherd, R. S. Ayling, H. H. Addiscott, H. M. Hodgson, F. W. Harrison, C. A. Kennett, O. E. Parratt, P. C. Blow, etc. A musical programme was effectually rendered by Miss Florence Barrow and Messrs. Frank Hicks, Arthur Helmore, and Ralph Norris.

The toast of the evening, "Success and Prosperity to the Quantity Surveyors' Association," was proposed in a humorous and breezy speech by Mr. William Woodward. The association began in a very small way, he said, so recently as 1903, with eighty members, and had now an enrolled list of 250 names, an excellent record of progress. All architects, and he hoped all clients, regretted that owing to fierce competition amongst quantity surveyors the rates of commission accepted by many offering to do the work, redounded neither to the credit nor the prosperity of a profession which demanded of its members very great talent, scrupulous care, and untiring assiduity. Under the circumstances, it was the duty, and also for the manifest advantage, of quantity surveyors to band themselves together to remedy this deplorable state of things. He believed that quantity surveyors were under no legal obligation to recompense those who suffered in pocket by their errors; but the Association proposed, he understood, to undertake responsibility for all mistakes in the bills of quantities, and

it was obvious that those who involved themselves in such responsibilities should be adequately remunerated. He hoped that those who had the opportunity of serving on public bodies would endeavour to secure fair rates of payment for quantity surveyors, and would discourage inviting competitive tenders for work which demanded the utmost care and skill. They had all heard of the Society of Architects, which had existed more than a quarter of a century, doing excellent work in waking up the Royal Institute of British Architects, feeling that in addition to promoting Registration was being carried out by the senior body, which also amalgamated with the Incorporated Society, thought that the Society had done well in yielding to the overtures made by the Institute—applause, and some expressions of dissent—and he ventured to make the suggestion that the interests of the quantity surveyors' profession would be promoted, and their cause strengthened by amalgamation with the central body, the Surveyors' Institution. He believed that such a step would be for the benefit of all.

In response to the toast, which was received with great heartiness, the President observed that the past year had been a very uneventful one for the Association. The Council had aimed to further the threefold objects for which the Association was founded—namely, to raise the status of the profession, to insure the accuracy of bills of quantities, and to obtain for members a living wage. The Council had been in correspondence with a great many public bodies during the year, and in many cases municipalities had adopted the scale brought before their notice. Whenever they had learned of tenders for bills of quantities being advertised for, they had protested against the proposal, and this had often had a beneficial effect. The great trouble was that in the early days of the Association those then directing affairs issued a scale of charges which it was expected would be accepted by quantity surveyors as a maximum; unfortunately, that proposed scale had been seized upon by public bodies and other clients as a maximum one. The Council had recently been asked to frame and issue a scale of charges on claims for fire damage; but after the experience of the working of a general scale of charges, they decided that it would be inadvisable to comply with the request. The Council had been endeavouring to bring about a uniformity of procedure in the preparation of bills of quantities. An agreement upon a model bill had been arrived at within the profession after much discussion, and they had since approached the various federations of master builders with a view of securing their approval to the suggestions. They had come to something like an understanding, and would soon be in a position to issue a form which, they trusted, would be generally adopted throughout the kingdom. If surveyors as a body worked on such a model form of bill, there would obviously be a general uniformity in bills, and builders would find everything set down which was of real pecuniary value. They had also been revising the Association's By-laws, the chief alteration being a proposal to form a fresh class, that of Licentiates, for men who had passed the examinations of the Association, but did not propose to confine themselves to independent practice in quantity-surveying. These new By-laws were about to be submitted to the Board of Trade for approval. The Council had also tackled the thorny and stormy subject of accepting responsibility for the accuracy of quantities. Some members had complained that such a course would be going beyond their obligations under the common law. They had just redraughted the wording of the form, and trusted that as revised it would be acceptable and satisfactory to all parties concerned. As to the suggested amalgamation with the Surveyors' Institution, advocated by Mr. Woodward, he did not think that the proposer of the toast had quite realised the situation. Many of their members were, like himself, Fellows of the Surveyors' Institution; but the quantity surveyors only numbered three to one hundred of that body which totalled over three thousand members. The quantity surveyors, therefore, had felt that in so large a body, where land and estate claims were overwhelmingly predominant, their special interests could not be properly protected, and, with no spirit of hostility, they had founded the Association. As to the future, he could see that when they were strong enough they must eventually follow the good lead of the architects and promote a Registration Bill for quantity surveyors. In conclusion, he expressed their indebtedness to their indefatigable honorary secretary, Mr. Arthur G. Cross.

Mr. Henry Riley, London, Vice-President of the Association, proposed the health of "The Architects," remarking that if there was one thing worse than an architect's quantities, it was a quantity surveyor's architecture. He trusted that one result of the Copyright Bill which appeared likely to be added to the Statute Book before long, with far-reaching issues, would not result in public bodies issuing stock pattern-books of plans, sections, elevations, specifications, and bills of quantities for schools, churches, and other great institutions at a cost barely sufficient to cover the outlay upon reproduction.

In reply, Mr. Arthur Keen, F.R.I.B.A., pointed out that with the increasing branches of knowledge required of architects, specialisation had become necessary, and he could no longer give the time or skill necessary to take out his own quantities. If there were no quantity surveyors nowadays, London builders would find themselves in the Bankruptcy Court, and the architects would be in the lunatic asylum. Just now town planning and education were the most prominent topics with architects. Mr. Burns's Housing and Town Planning Act had given the legal recognition with the public to architects which they had failed to obtain hitherto. He did not think garden cities were likely to multiply in an old country like this, but garden suburbs promised to give great results, and the building speculator had already grasped their possibilities from his point of view. Touching upon architectural education, he referred to the spade-work carried out by the Architectural Association for more than sixty years, observing that the teaching given to young architects would have in the future to be of a much higher grade and quality than hitherto, so that men would be more fully equipped for their work.

The concluding toasts were "The Contractors," proposed by Mr. S. A. Stanger and acknowledged by Mr. G. Bird Godson, and "The Visitors," proposed by Mr. Walter Lawrance and responded to by Mr. Arthur A. Hudson, K.C., who remarked that there was no body of men whom lawyers could rely upon more securely than quantity surveyors, who were pre-eminently men of accuracy, and men always ready to give dependable help and assistance.

AN ASYMMETRIC MODERN CHURCH.

Professor W. H. Goodyear contributes to the current issue of the *American Architect* an illustrated article describing and analysing the architectural refinements introduced by the architects, Messrs. Heins and La Farge, into the Cathedral Church of St. John the Divine on Mornington Heights, New York. This edifice was begun in 1892, and has been under active construction since 1901; it is now so far advanced that the first section, consisting of the crossing (now covered over the four great piers for the proposed tower and spire by a temporary flat dome) and the entire choir, with its circular-ended ambulatory and chevet of chapels beyond.

The choir of the cathedral has an asymmetric plan, its arches and pier spaces are asymmetric, and the pavement is laid to slope upward toward the eastern end of the church. Messrs. Heins and La Farge are believed to be the first architects in modern days to revive those intentional asymmetries of dimension and plan which are so frequently present, but have only recently been detected in Mediæval architecture. It may be mentioned that the same firm have already planned and seen built an earlier irregularly designed church, that at Methuen, Mass. As devised by the late Mr. G. L. Heins, and carried out by his surviving partner, Mr. C. Grant La Farge, the pavement of the choir at St. John the Divine has a rising slope toward the east of 6in. The arches are of discrepant sizes, with variations in the heights of the capitals. There are also variations in the spacings of the piers. The lines of the piers converge in plan toward the east, to the amount of 19in. in 57ft. They diverge, to a corresponding extent, from the outer walls. Mr. La Farge writes: "It is with the desire to avoid to some extent the banal aspect of mechanical regularity that certain refinements are practised in the cathedral. The choir arcades are not parallel, but converge slightly. Their springings are not level; the spacings of the arches of choir and ambulatory are unequal; the floor slopes upwards to the east, and the great columns are unequally spaced."

The lifting of the effect of the choir by these successive rises has precedents in S. Paolo Ripa d'Arno at Pisa, and in the Cathedral of Monreale. In spite of the large amounts of the variations in the unbuilt part of St. John the Divine, it may be confidently said, says Professor Goodyear, that the eye will note the effect without noticing the means by which it is produced.

Lest visitors to the cathedral should anticipate the possibility of easily detecting the variations in the completed choir, it may be pointed out that the pavement of Santa Maria Ara Coeli, on the Capitol Hill at Rome, a church which is well known to every tourist, has a rising slope of 2.90ft. between entrance and choir-rail, which will probably never have been noticed by any visitors. Few architects will have noticed a rising slope, at Chartres, of 3ft. 7in., between entrance and choir-rail. Instances in Italy might be multiplied indefinitely, but it is sufficient to say that the Brooklyn Museum research has records for levels of pavements with a rising slope toward the choir in eighty-five Italian churches, and observations for a much larger number, although no history of architecture has ever mentioned a single instance of this constantly recurring arrangement in Mediæval churches. The slope in St. John the Divine will, therefore, certainly not attract attention, although the levelling of the floor of the choir-stalls resting on the slope makes it more apparent than it would be otherwise. As to noticing a convergence in plan of 19in. in the alignment of the piers, it may be mentioned that a convergence of 17ft. in the walls of S. Giorgio in Velabro at Rome, or of 23ft. in S. Stefano at Venice, is absolutely inconspicuous.

As to the varying heights of the capitals in St. John the Divine, the late Mr. Heins was himself authority for the point that this variation cannot be detected. Thus it appears that the architects of the most imposing church in America have taken the trouble to give variations to the dimensions which they cannot themselves detect from the floor of the church.

Professor Goodyear raises the pertinent inquiry, Is the choir of St. John the Divine destined to be an exceptional and sporadic instance of revival of Mediæval methods, or does it mark the beginning of a new movement in modern architecture? The chief difficulty that the architect would experience in applying subtle refinements to modern buildings lies in the fixed habits of the clerks of works and masons' foremen, who would flatly refuse to discard spirit-level and plumb-line, and it is quite possible the average architect's assistant, not to name the pupil, would need careful drilling before he could perceive the beauty of such infinitesimal optical corrections to their drawings.

The fall of a small piece of masonry from the south-west spire of Peterborough Cathedral has led to an examination. The stonework has been found to be split in all directions, and 15ft. will have to be taken down and rebuilt.

The "Omnibus" Bill of the London and South-Western Railway Company has been reported for third reading in the House of Lords. Under the Bill the company seek power to extend and improve Waterloo Station and to construct a new road between York-road and Waterloo-road for the purposes of the station.

CURRENTE CALAMO.

Mr. Lloyd George told the House of Commons on Tuesday, in the course of his exposition of the Budget, that, whereas the rate of unemployment in the building trade in April, 1909, "which was then said to be marching to its doom," was 11.4, it is now 5.1—the lowest for eight years. That is probably true, though in many cases, as yet, the workman only is the better off. The improvement, moreover, is not generally evident. In some branches it is obvious. No one, for instance, can have failed to notice the much larger amount of painting and general renovation that is being done this spring in the suburban districts in comparison with either of the last two years. A good deal, possibly, is slopwork of the sort we see advertised for in the suburban papers —"House-fronts repainted, from thirty shillings"—but not all. That better times are dawning for the thousand-and-one industries the welfare of which is bound up with architecture and the building trades we are certain, and equally so that in some cases only a little more enterprise in the way of letting architects and builders know through the right channels that their requirements can be met is needful to bring about a revival that will astonish some of us.

One thing is evident: if the State Insurance Bill passes, there will be a million and a half spent on sanatoria, and there will have to be a Central Insurance Office in London larger by a good deal than the largest insurance office yet erected. Hundreds of clerks, accountants, actuaries, and others will have to be housed. There will also have to be branch offices in different parts of the kingdom. One hopes that the head office may be one in which architectural character is not ignored, and that architects may have a chance of designing it, and soon. It is no extravagance to provide promptly the accommodation required by the creation or expansion of public services. More money is wasted on the rental of scattered and inadequate offices than in reasonably early building, to say nothing of the lives sacrificed and health ruined of valuable civil servants of all grades compelled to work amid insanitary and unsuitable surroundings which a private employer would be promptly compelled to ameliorate.

We illustrated and fully described the National Memorial to Queen Victoria, which was unveiled by the King on Tuesday, in our issue of May 28, 1909. We need do little more now than remind readers that the central feature stands upon a raised circular plateau 104ft. in diameter, approached at the front and back by wide flights of steps. On either side are fountains from which water falls into large marble basins. On the retaining walls of the base are reliefs, carved in marble, showing Tritons and Mermaids, and above the fountain arches there are to be large reclining figures, symbolising Naval and Military power, Science, and Art. Flanking the steps are pedestals on which will stand four bronze groups, figures, supported by lions, typifying Peace, Progress, and Labour (Agriculture and Manufacture). In the centre is a pedestal, surmounted by a figure of Victory, with wings outstretched. On the side of the pedestal facing the Mall is a figure of Queen Victoria in her robes of state, enthroned with Orb and Sceptre in her hands. The figure is wrought to a scale of 18ft. 6in. At the back and on the other sides of the pedestal are large groups representing Truth, Justice, and Motherhood. Above the main cornice, and below the figure of Victory, are seated figures representing Courage and Constancy. More than 2,000 tons of marble and about 800 tons of Aberdeen granite have been used in the work, which has been designed and executed by Sir Thomas Brock, K.C.B., R.A. Each basin measures 190ft. in length by 24ft. in width and 2ft. in depth. Shallow wells in the gravel at the end of the lake in St. James's Park and the lake itself supply the water for the cascades, the quantity required being 108,000 gallons an hour. Engines erected at the pumping stations in St. James's Park provide the power, and after the water has passed through the cascades and basins it returns to the lake. The chief engineer to his Majesty's Office of Works is responsible for these arrangements. The centre architectural portion of the work was executed and erected by Messrs. J. Whitehead and Sons, Ltd., of the Imperial Works, Kennington Oval, S.E.

King Edward's remark, "Why, we shall all be in our graves by then!"—most regrettably true enough as far as he himself was concerned—when Sir Thomas Brock stated it would take ten years to complete the Memorial, was hardly made with due remembrance that the monument at Rome to King Victor Emmanuel II., which is to be inaugurated on June 4, had then been nearly twenty years in progress. It is now thirty years since it was begun. It has cost £1,600,000, is even now not completed, and its author, Count Sacconi, died nearly ten years ago. How long, again, had we to wait for Landseer's Lions? Sir Thomas Brock may fairly claim that he has been fully up to time, and that he has succeeded, on the whole, in satisfying all expectations. It is alleged, we notice, by one critic that some of his figures are disappointing; but we fail to see it. There may possibly be more in the contention that while, when viewed from the front, the statue of the Queen is in perfect scale with the groups of Truth and Justice on either side, yet when beheld from the north and south the figures seem actually nearer to the eye than the Queen, and unity of design suffers, so much larger is her figure in proportion. Anyhow, this much may be said that the whole design has a power and quality none too frequently inherent in British monumental sculpture, and that it appeals powerfully, and yet not vainglorously, to all the legitimate natural associations with the glory of the great Queen whose fame it will hand down through the generations to come.

The Honourable Roderick McKenzie, who is the Minister for Public Works and Mines for New Zealand, "is not concerned about the Royal Institute of British Architects in the slightest degree," and does not intend to consult it in reference to the conditions with regard to the competition for the new Parliament Buildings for New Zealand. As "no Britisher need apply," the Institute will probably leave the Honourable Roderick severely alone, and as the New Zealand Institute of Architects has been unable to knock sense into his head, the competition will most likely prove a fiasco. The New Zealand Minister for Public Works appears to be built very much on the elegant lines of the ever-lamented Mr. Ayrton, and his reception of a strong deputation of Christchurch architects, headed by Mr. S. Hurst Seager, F.R.I.B.A., on April 2, was characterised by ignorance of the invincible sort that defies enlightenment.

The New Zealand Institution of Architects, which has accepted the R.I.B.A. competition conditions, and whose members therefore are bound not to compete, tried to make Mr. McKenzie understand that a professional assessor, or assessors, should be appointed before the designs were sent in, so that he might answer competitors' questions; that the amount named for the new Parliament House, £110,000, is totally inadequate—the Wellington Post Office cost £100,000; that the conditions were vague and unsatisfactory; that competing architects should be asked to vouch for the fact that the designs were their own, and prepared in their own offices; that civil servants should be debarred from competing; that the drawings might be to a sixteenth scale instead of one-eighth, and for an extension of time. The last two requests, it was grudgingly intimated, might be considered, but as regards the rest, Mr. McKenzie was adamant.

He meant bringing in "a man from outside to make the award, and not till the designs were in." Architects usually wanted to have approximate areas given them, and to know whether certain rooms were to be upstairs or downstairs—did they? Well, "there was the site, the amount of money, and a certain number of rooms wanted, and the competitors would have to design the rooms as the money allowed them. The size of the rooms depended on the amount of money allowed for the building. Regarding the size of the Chamber, he could only give a personal opinion. Allowance would have to be made for the increase of population and increase of members. They would have to exercise their own ingenuity as to the size of the public gallery."

We have no personal knowledge, of course, but we gather from the discussion that it is evident the New Zealand Government is going to perpetrate a blunder. The selected site is an undesirable one, as the building will have to be erected over a gully, which will increase the cost enormously. We do not say for a moment that the conditions are purposely being made as unsatisfactory as possible in order that some secretly-favoured person may get the job. It seems simply another of the long list of cases where ill-informed Ministers and officials are allowed to waste public money, and in which the architect is subsequently blamed for not finding out what it was impossible for him to get to know. Whether the Honourable Roderick accompanies the Premier of New Zealand to the Coronation festivities, we do not know; but if Mr. Leonard Stokes can get hold of one or both of them, it ought to be easy to convince either that really members of the R.I.B.A. are not yearning to cut their brethren in New Zealand, and that the Institute competition conditions are but the fruit of bitter experience of competitions rendered futile by ignorance or unfairness.

We have all reason to be thankful that the recent catastrophe at Edinburgh, calamitous as it was, will form matter for no such record

BURMANTOFTS MARMO AND TERRACOTTA

The Leeds Fireclay Co., Ltd. have just issued an album illustrating a number of buildings recently erected in their Burmantofts "Marmo," Faïence and plain terra cotta and faïence. The book is excellently produced, and is interesting as showing the varied uses to which terracotta is put nowadays. Not the least striking feature is the reproduction in colours of the new building in Fulham-road, Chelsea, where M. E. Bagnasse, a French architect, has ventured with excellent effect upon a colour scheme which most English architects would have thought shy of. The introduction to the album is a crisp resume of the possibilities and advantages of various types of Burmantofts terracotta, and its claims as to the adaptability of the material are fully borne out by the photographs. In addition to the contracts illustrated, the whole of the elevation of the new buildings for the Armourers' Co., in Coptehall-court and Drapers-gardens, is executed in Burmantofts white "Marmo," Mr. Alexander Graham being the architect. The new premises in Fleet-street for J. Lyons and Co. are also executed in Burmantofts "Marmo." Brown and Barrow being the architects. The Leeds Fireclay Co. have also executed the lavatories, dressing rooms, etc., at Waterloo Station for the L. and S. W. Railway Co.

The great advantages of hard fired terracotta are well known to all architects, and there is no doubt that now that the prolonged depression which has existed in the building trade appears to be nearing conclusion, many architects will eagerly seize upon this material for new buildings.

The parish church of Gravesend, Kent, is to be restored from plans by Mr. W. D. Caröe, F.S.A.

Mr. Henry Scott Tuke, A.R.A., has been elected a member of the Royal Society of Painters in Water-colours.

Mr. George Smith, of Ivydene, 11, Salisbury-terrace, Devonport, builder and contractor, who died 1st October, left estate of the value of £14,484.

Mr. Richard Caulfield Orpen, B.A., F.R.I.A.I., of South Frederick-street, Dublin, a member of the council of the Royal Institute of Architects of Ireland and past president of the Architectural Association of Ireland, has been elected an Associate of the Royal Hibernian Academy.

A new golf house and pavilion at Portobello, Edinburgh, was inaugurated on Thursday of last week. It is built of red brick, with roof of pantiles. It has been built from plans by Mr. J. Anderson Williamson, A.R.I.B.A., city architect to the Edinburgh Corporation.

At Friday's meeting of the Edinburgh Water Trustees a letter was read from Professor Patrick Geddes regarding the frieze on Castlehill reservoir, suggesting its improvement by the execution of "The Procession of Scottish History," a design which Mr. W. G. Burn Murdoch has had in preparation for over twenty years. Professor Geddes asked, on behalf of the Outlook Tower Association, permission to affix the group upon the frieze of the reservoir without expense to the Trust. It was agreed to grant the request.

The first stone of the new Roman Catholic parish church of Upper Killowen, Co. Armagh, will be laid by Cardinal Logue on Sunday, June 11. The church will occupy a site on the Dublin road, about a mile from Newry, and will be in the Romanesque style. Messrs. Ashlin and Coleman, Dawson-street, Dublin, are the architects, and Messrs. Denis Neary and Sons, of Newry, the contractors.

There have just been hung at the National Portrait Gallery the following additions to the collection: Portraits of Samuel Johnson, LL.D., 1709-1784, painted by Sir Joshua Reynolds in 1756, and a gift from the artist to James Boswell; Spencer Compton Cavendish, eighth Duke of Devonshire, K.G., 1833-1908, drawn from life in water colours by Julia Lady Abercromby; John Hampden, 1594-1643, painted about 1642 by Robert Walker; Thomas Phillips, R.A., 1770-1845, painted by himself in 1802; Elias Ashmole, 1617-1692, antiquary, herald, and founder of the Ashmolean Museum, after the painting by J. Riley at Oxford; and John Keats, 1795-1821, an engraved miniature by Joseph Severn.

OBITUARY.

Mr. James Demaine, a well-known ecclesiastical architect, of Thornby Lodge, St. Peter's grove, York, died on the 6th inst., aged 68 years, at his residence. Mr. Demaine was articled to the firm of Messrs. Wm. and John Atkinson, architects, then of Lendal, York. He took a prominent part in the business when one of the members of the firm died, and on the death of the surviving partner he successfully carried on the connection. He held the position of diocesan architect and ecclesiastical surveyor for twenty-four years, and carried out many restorations of old churches, and designed not a few new ones. Mr. Demaine took into partnership Mr. W. H. Brierley, F.S.A., F.R.I.B.A., of Bishopbarns, York, the firm being conducted under the style of Demaine and Brierley. Many years ago Mr. Demaine retired, and had lived quietly since. He was one of the founders of the St. Leonard's Club, of which he was a member up to his death. Some thirty years ago he was one of the syndicate of gentlemen who purchased the area of land in Clifton on which part of St. Peter's grove now stands, and he designed several of the villas. Among the works carried out by Mr. Demaine were the new churches of St. Clement's, York, and Thornton-le-Moor, Haxby; the restorations of churches at Wistow, near Selby; Shipton Thorpe, near Market Weighton; Askham Bryan, near York; Crambe, near York; Hollym, near Withernsea; and St. Botolph's at Knottingley; extensive alterations and additions to Yorkshire Insurance Office, and new bank at Goole for the York City and County Banking Co., Ltd.; Cherry-street Schools, York; new school and classrooms for the Yorkshire School for the Blind; alterations and additions to the York Industrial School; York Grey Coat School; St. Mary's Parochial Hall, Marygate, York; Hutton Hall, near York, for Colonel Yorke; alterations and additions to Wighill Park for Lord Hawke; Heslaugh Old Hall, for Mr. E. Brooksbank; Deighton Grove, for Mr. Geo. Whytehead; Nunthorpe Hall, for Sir Edward Green; and many houses in York, Clifton, Nunthorpe, Acomb, Hobmoor, and Scarborough; new parsonages at Acomb, Cantley, Doncaster, Copmanthorpe, Langtoft, Bishophill, York, Carlton-in-Lindrick, and alterations and additions to the Belfry Vicarage, York, Cutton and Gilling rectories, etc. The funeral took place on Wednesday week at York Cemetery.

A very old servant of the Birmingham Corporation has just passed away in the person of Mr. John Fisher, of Long street, Sparkbrook, who eight years ago retired from a post which he had held in connection with the surveyor's department. He went from school as a lad to the office of the late Mr. W. S. Till, borough surveyor, at the old public offices in Moor street. Ultimately he became Mr. Till's chief assistant, in which capacity, prior to the appointment of a building surveyor, he made the examination of all plans for new buildings before they were passed by the chief of the department. He had also a great deal to do with the road-making and sewerage work of the department, and he possessed a fuller knowledge of the depth and size of sewers in Birmingham than any other person. Mr. Fisher was in his seventy-fourth year. He was a bachelor, and had been in failing health for some time. He has left a considerable estate, and among other bequests is one of £1,250 to dedicate a bed at the General Hospital in memory of his mother.

A receiving order has been made in the case of B. G. Ratson, 6, Old Queen-street, Westminster, architect.

The Chester-le-Street Lunacy Board have raised the salary of their surveyor, Mr. G. W. Ayton, from £225 to £270 a year.

The new buildings in extension of the Hulme Grammar School, Manchester, including a large assembly hall with hammer-beam roof, were declared open on Thursday in last week by the Dean of Manchester (Bishop Welldon). The architect is Mr. W. Cecil Hardisty, of Queen's Chambers, Manchester, and the cost has been about £6,000.

Building Intelligence.

GLENCEIRIOG, DENBIGHSHIRE.—Mr. David Davies, M.P., will open on Thursday next, the 25th inst., the "Ceiriog" Memorial Institute, which has been erected at Glynceiriog, near Chirk, to "Ceiriog" (John Ceiriog Hughes), "the Robert Burns of Wales." It consists of a memorial institute (designed by Mr. T. Taliesin Rees, F.R.I.B.A., of Liverpool, who gave his services), and a good five-roomed house for the caretaker, and of a collection of valuable works of art of various kinds—paintings, statuary, stained-glass windows. Included in it there will also be a library of books, the oaken cases for which, as well as the other oak furniture in the institute, are the gift of the Welsh colony in Patagonia.

NEWLYN, WEST CORNWALL.—Newlyn will shortly be equipped with a Deep Sea Fishermen's Institute, at a total cost exceeding £5,000. The plans were prepared by Mr. Edward Warren, architect, of 20, Bedford-square, London, W.C., and the building contract (over £4,000) was entrusted to Messrs. W. E. Blake, Ltd., of London and Plymouth, with Mr. Stephen E. White, of Penzance, as clerk of works. The roof is now in course of construction. The structure, of granite, is 112 ft. long and 28ft. wide. The ground floor will contain a central entrance hall; a common room, 55ft. by 23ft., including a temperance bar, with a bay overlooking the river at the rear; bar kitchen and scullery; caretaker's kitchen (with bay on the river side) and scullery; two staircases, larder, coal store, lavatories, yard, etc.

Mr. Ernest Gunson, Manchester, has been appointed valuer to the Warrington Assessment Committee. There were 23 applicants for the post, which carries with it a remuneration of £250 a year and travelling expenses.

The *Oesterreichischer Zentral-Anzeiger* (Vienna) of May 4 notifies that arrangements have been made to form a company, under the direction of Count Bossi-Fedrigotti, for the purpose of erecting a first-class hotel at Toblach. The cost of the undertaking is estimated at 2,000,000 kronen (£83,300).

A monument to the Right Rev. George Wilkinson (formerly Bishop of Truro) has been unveiled at St. Ninian's Cathedral, Perth. The figure, executed by Sir George Frampton, R.A., is of bronze, and represents the bishop vested in his cope, and kneeling, before a prie-Dieu, on which is an open Bible.

At a special meeting of the Worcestershire County Council, held on Saturday, Mr. C. F. Gettings, surveyor to the urban district council of Teignmouth, was elected county road surveyor, in succession to the late Mr. J. H. Garrett. There were 118 candidates for the post, which is worth £450 a year.

The funeral took place at Cramond Churchyard, on Friday, of Mr. William Campbell, of Dalmeny, who for fifty-four years acted as clerk of works on the Scottish estates of the Earl of Rosebery. He entered the service of the present Lord Rosebery's grandfather in 1857, and continued in active office to the time of his death.

At the annual meeting of the York Archæological Society on Tuesday some discussion arose on the restoration of Foston Church, and several members protested strongly against the manner in which the work was being carried out, and what they alleged was the removal of several most interesting features.

On a site in Levan-road, Poplar, acquired at a cost of £11,500, the London County Council are about to build an additional permanent-way depot and wharf, in connection with the Council's tramways. The Highways Committee recommend an expenditure on plant and equipment of £5,500; but the estimate of the cost of the buildings themselves has not yet been submitted to the Council.

It was reported at the annual meeting of the North Wimbledon Cottage Hospital, on Saturday, that the executive committee had decided to close the present hospital, and to proceed at once with the erection of a new institution, instead of, as originally arranged, building it in three portions. The work of the hospital will be carried on in temporary premises. The total cost of the new building is estimated at about £9,500, and the committee have in hand about £6,700.

COMPETITIONS.

BLACKPOOL.—It having been decided to rebuild on an enlarged scale the Congregational Church, school, and manse in Victoria-street, at a cost of about £10,000, competitive designs were invited from four local architects under noms de plume, and that submitted by Mr. Herbert Wade, of Barley-street, Blackpool, under the motto "Charity," has been adopted. The selected design is Gothic in character, and shows a tower and spire at the east end, that nearest the Winter Gardens, where the chief entrance is found. The church will be seated for a congregation of 1,000. The schoolroom provides eight classrooms on the ground floor, and an assembly or lecture hall 48ft. 9in. by 36ft. 6in., and seated for 340 persons on the floor above. The building of the schoolroom will be the first section undertaken.

SWANSEA.—Mr. S. S. Reay, F.R.I.B.A., nominated by the President of the Royal Institute of British Architects as assessor in the Corporation of Swansea Street Improvement Scheme, has awarded the first place and £250 for the preparation of working drawings to the design submitted by Messrs. Phillips and Vaughan, of Prudential Chambers, Newport, Mon.; and the second premium of £50 to Mr. John Cocker, of Altrincham. The façade of the chosen scheme towards Castle-street consists of a series of arched shop-fronts, with mezzanine floor over the transome, and two floors above resting on the rusticated arcades, the front being divided into bays by quasi-pavilions, relieved by oriels, very quietly and handsomely treated in a good Classic style of excellent detail, enriched by Ionic columns, coupled over the divisional piers. The architects have provided for fascias to be occupied by the names of the tenants of the shops, a provision not always recognised as its importance demands.

YEOVIL.—The corporation have agreed to offer prizes of £20 and £10 for the two best schemes for laying out a plot of ten acres of ground for erecting thereon houses for the working classes, and two prizes of the same amount for plans of the actual buildings.

At a meeting of the ferry committee of Middlesbrough Corporation, on Tuesday, Mr. S. E. Burgess, the borough engineer, was asked how much the Tees transport bridge would cost. He replied that the total cost would be £82,500.

We were pleased to note in Mr. Lloyd-George's Budget speech that he does not share the pessimistic views as to the present condition of the building trades expressed in some quarters, possibly biassed by political views. He pointed out that while in April, 1909, the unemployment in the building trades was very high, 11.4, it is now 5.1, and is the lowest in the trades for eight years.

The death occurred on Friday, after a lingering illness, in his eightieth year, of Mr. Wm. James Boddy, a well-known York artist. Mr. Boddy was a native of Woolwich, and spent the early part of his career in an architect's office. He took up his abode in York in 1853, and since about that time until 1908, when he was obliged to undergo an operation for a serious internal complaint, he had been actively engaged in the teaching of drawing and painting. For fifty years he was art master at Ampleforth College. He has left behind him some delightful views of the interiors of York, Durham, Lincoln, and other cathedrals. He exhibited in the Royal Academy from 1860 until 1890.

A new stained-glass window has, through the munificence of Mr. J. G. Lyon, of Pontefract, been added to the east end of the north choir aisle of Selby Abbey, and is placed there to commemorate the escape of that portion of the church from some of the disastrous results of the fire of four years ago. The subject of the Resurrection has been selected as appropriate. The centre light represents the risen Saviour, with the figure of an angel on either hand. The whole of the composition is surrounded by a frame of canopies and bases of Perpendicular style, with white and gold upon ruby and blue backgrounds. The Three Persons of the Blessed Trinity are also depicted. The work has been executed by Messrs. Ward and Hughes, London, who also restored the great east window. The new window was dedicated on Monday by the Rural Dean.

Engineering Notes.

CATTAWADE BRIDGE.—The Cattawade Bridge, carrying the Colchester and Ipswich highway over the River Stour between Manningtree and Brantham, is now being constructed in reinforced concrete. It measures 142ft. in length between abutments, and has a width of 25ft., of which 20ft. is taken up by the roadway, leaving 2½ft. at each side for a footpath. Fifteen ferro-concrete piles have been driven into the river bed to an average depth of 8ft., these piles being arranged in five sets of three for supporting six arches. There are three arched girders to each arch, and they spring from the pileheads, the ends of the girders and the tops of the piles being bound together by a cross-beam, thus forming a framework to carry the decking. The bridge, which will take the place of an old and picturesque timber structure, is being constructed by Messrs. Stephen Kavanagh and Co. (Ltd.), to the joint designs of Mr. Thomas Miller and Mr. P. J. Sheldon, the surveyors to the East Suffolk and Essex County Councils respectively.

Holy Trinity Church, Southport, is about to be reconstructed from plans by Mr. Huon A. Matear, F.R.I.B.A., of Central Buildings, Liverpool.

The sewerage of Eastrow village has just been completed for the Whitby Rural Council, at an outlay of £970. Messrs. Fairbank and Son, of York, were the engineers, and Messrs Brumby and Robinson were the contractors.

The Earl of Meath, as chairman of the Metropolitan Public Gardens Association, formally handed over to the borough of Hackney on Saturday afternoon a granite fountain presented by the late Mr. John Passmore Edwards at Albion-square, Dalston, the gift being received on behalf of the borough council by the mayor.

The governing council of Bishop's Stortford College have decided to erect a new boarding-house, to be assigned to boys who are in the preparatory school. The building will be built on part of the college land. The sketch of the proposed assembly-hall, designed by Mr. H. G. Ibberson, F.R.I.B.A., is hung in the Royal Academy this year.

Sir James Rankin, Bart., M.P., chairman of the Herefordshire Education Committee, laid the foundation-stone of the new secondary school at Ross on Tuesday afternoon last. The school is being built to accommodate about 100 boys and girls, and it is hoped that it will be ready for use by the end of September next. The architects are Messrs. Small and Ashton, of Ross, and the builders Messrs. W. Powell and Sons, of Hereford. The cost is estimated at £5,000.

A brass tablet to the memory of Sir Thomas Drew, F.R.I.B.A., has been unveiled in Christchurch Cathedral, Dublin, by the Archbishop of that city. It has been executed by Messrs. Sharpe and Emery, under the supervision of Mr. Harold E. Coyle, architect, Clare-street, Dublin. It is in the form of a latten brass plate, surmounted by carvings in Cong stone. The carving over the memorial represents his knight's helm, with the Drew arms, displayed with the acanthus leaf.

New elementary and special schools recently erected at Romford were opened on the 11th inst. The buildings consist of eight classrooms, two assembly-halls, manual-instruction room, teachers' rooms, medical-inspection rooms, and four cloakrooms. The contract price for the building was £5,567, and the work has been carried out by Messrs. Dowsing and Davis, of Romford, the architect being Mr. A. S. R. Ley, M.S.A., of 214, Bishopsgate, E.C., and Frinton-on-Sea, Essex.

The erection of the new fire-stations in Brunswick-road, Bromley-by-Bow, and Parnell-road, Bow, has been completed, and duty at the stations was commenced with motor fire appliances on Wednesday last. On the same date the night fire-escape station at St. Leonard's-road, Bromley-by-Bow, was discontinued, and the existing Bow fire-station in Glebe-road was closed and handed over to the Improvements Committee of the London County Council, together with Nos. 10 and 11, Glebe-road, acquired for firemen's lodgings. The two new fire-stations will be formally opened by the chairman of the Fire Brigade Committee to-day (Friday).

Our Illustrations.

THE ROYAL ACADEMY [illegible]

[illegible] Hall [illegible] Mr. Frederick Mackenzie [illegible] Messrs. First Gothic and Yeates, [illegible] Mr. Walter [illegible] Mr. R. O. [illegible] Mr. Frederick Eagle [illegible] Messrs. Boyce Bros., Ltd., [illegible] Messrs. Doyle Bros., Ltd., [illegible] Messrs. Farmer & Brindley, A.R.A., and Yeates are the [illegible] this drawing is now at the Royal Academy Exhibition.

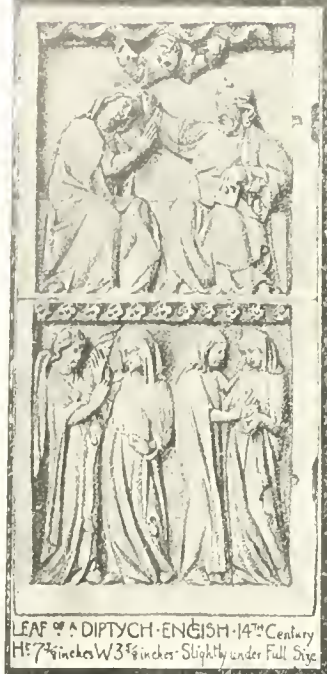
COLUMBARIUM, GOLDER'S GREEN, N.W.

[illegible] Messrs. Garrard and Co. [illegible] for the past hundred years in the Haymarket. The basement floor is given to [illegible] with stone walls and ceilings of [illegible] entered centrally. In addition to [illegible] are two lifts by the Otis [illegible] Co., Ltd., Queen Victoria street. [illegible] reinforced floors, partitions, and [illegible] of Ernest Coutnetto. The safes [illegible] fittings are by Milner's Safe Co., Ltd., [illegible] pavement, E.C. The contractors [illegible] Messrs. Higgs and Hill, Ltd., at [illegible] Lambeth road, S.E., and Mr. W. [illegible] the clerk of works. Messrs. Farmer, George, A.R.A., and Yeates are the [illegible] and our illustration is taken from the [illegible] Burlington House.

NATIONAL SILVER MEDAL DRAWINGS BY SYDNEY W. CLAY, WORTHY ILLUSTRATING HISTORIC ORNAMENT.

[illegible] to appear on [illegible] [illegible] [illegible]

STUDIES OF IVORIES FROM S. K. M. (4TH–14TH CENTURY) SHEET No. 2



LEAF OF A DIPTYCH · ENGLISH · 14TH Century
Ht 7⅝ inches W 3⅝ inches · Slightly under Full Size

STATUETTE. ENGLISH (?) 14TH Century
Ht 7⅞". 7/8TH Actual Size

PLAQUE ANGLO-SAXON Winchester School (?) 11TH Century. Ht of 14" Stone Wth 6½ – 7/8TH Actual Size

Workmanship most delicate and fine throughout design closely connected with illustrated manuscripts of same period, which have some enamel edges to drapery, large heads, and protruding eyes, with marshy accentuated pupil. Rich embroidered dress and tiny feet and hands show Byzantine influence, but arch thoroughly Saxon. Hunting scene clearly shows Art waves, signs intelligently copied from Byz conventional animals, interlaced (?) knot in ornamentation shown in drawing of loop in belt

HEAD OF A PASTORAL STAFF (Back and Front) ENGLISH (?) 14TH CENTURY · Ht 6½" Wth 4½ – 5/8TH Full Size

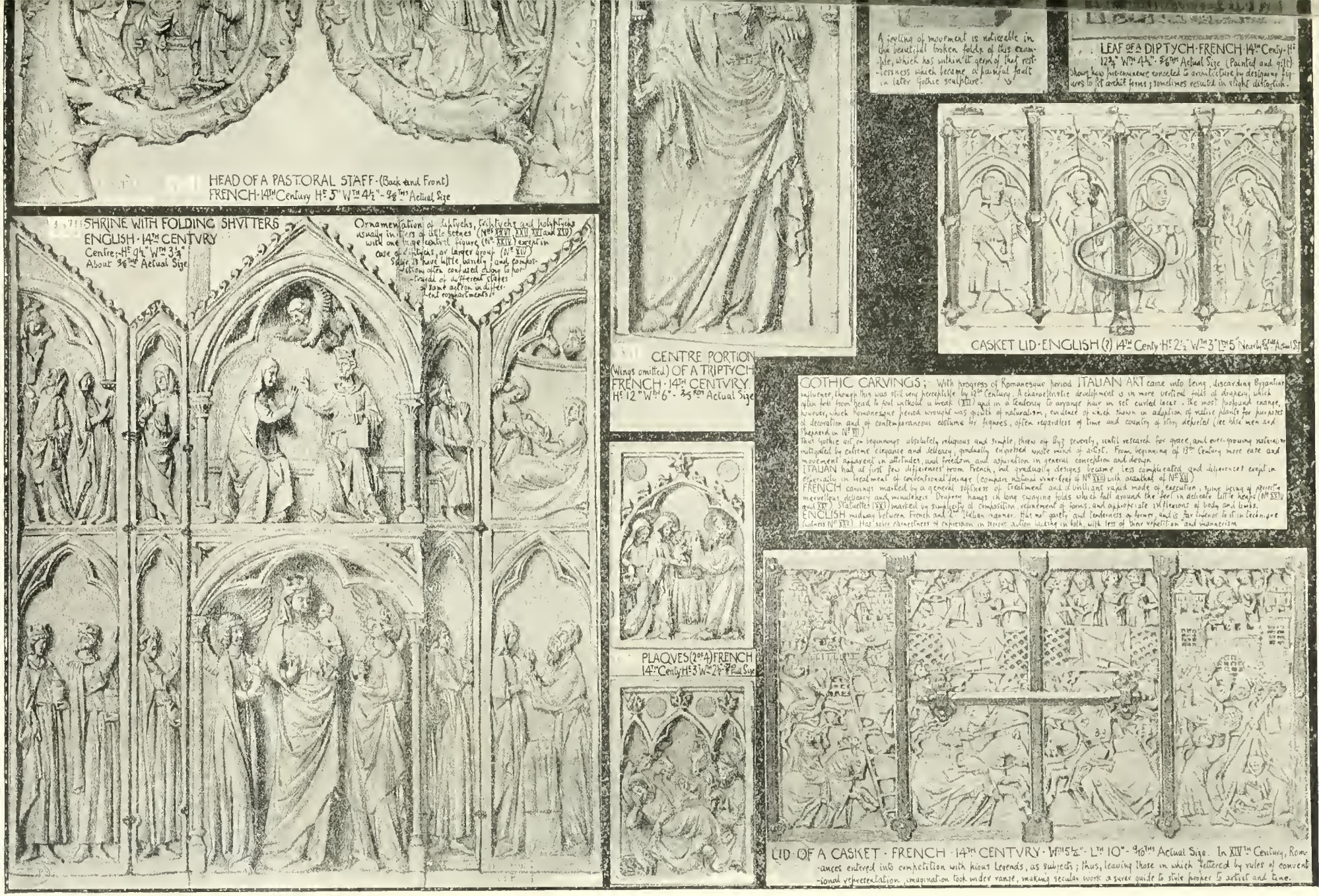
LEAF FROM PAIR OF TABLETS · FRENCH · 14TH Centy · Ht 3¾" Wth 2⅝ – 5/8TH Actual Size

Variations of this scene, together with "Game of Chess" (No XX) "Attack on Castle of Love" (No XXVII) and groups of [illegible] are the most frequent subjects of domestic carvings

MIRROR CASE · FRENCH · 14TH CENTURY.
Diameter 4¼" Slightly under Full Size, (see note fig XVIII)

As a rule, the figures in secular ivories are well proportioned, though with hardly any muscular development, and there is entire lack of manliness in male figures, which can only be recognised by arrangement of hair. 4 basilisks crawl along outer edge for convenience in opening, often worn used.

STATUETTE WITH SILVER CROWN – FRENCH
14TH Centy Ht 7½ inches
⅓RDS Full Size


HEAD OF A PASTORAL STAFF · (Back and Front)
FRENCH · 14th Century H.e 5" W.th 4½" - 9/8ths Actual Size
SHRINE WITH FOLDING SHUTTERS
ENGLISH · 14th CENTURY
Centre; H.t 9¼" W.th 3¼"
About 3/8ths Actual Size
Ornamentation of diptychs, triptychs and polyptychs usually in form of little scenes (Nos XXVI XXII XXI and XVII) with one large central figure (Nos XXIV XXIII) except in case of triptychs, or larger group (No XIV)
Subjects have little variety and composition often contrasted colour to portrayal of different states of same action in different compartments.
CENTRE PORTION
(Wings omitted) OF A TRIPTYCH
FRENCH · 14th CENTURY
H.t 12" W.th 6" - 3/5ths Actual Size
A feeling of movement is noticeable in the beautiful broken folds of this example, which has within it germ of that restlessness which became a painful fault in later Gothic sculpture.
LEAF OF A DIPTYCH · FRENCH · 14th Centy · H.t 12⅜" W.th 4⅜" - 5/8ths Actual Size (Painted and gilt)
Shows how free treatment conceded to architecture in designing figures to fit architectural forms; sometimes resulted in slight distortion.
CASKET LID · ENGLISH (?) 14th Centy · H.t 2½" W.th 3" L.th 5" Nearly 5/8ths Actual Size
GOTHIC CARVINGS; - With progress of Romanesque period ITALIAN ART came into being, discarding Byzantine influence, though this was still very perceptible by 12th Century. A characteristic development is in more vertical folds of drapery, which often fell from head to foot without a break (XII) and in a tendency to arrange hair in set curled locks, the most profound change, however, which Romanesque period wrought was spirit of naturalism, evidence of which shown in adoption of native plants for purposes of decoration and of contemporaneous costume for figures, often regardless of time and country of story depicted (see this men and Shepherd in No VI)
Thus Gothic art, in beginnings absolutely religious and simple, threw off its severity, until research for grace, and ever-growing naturalism mitigated by extreme elegance and delicacy, gradually engrossed whole mind of artist. From beginning of 13th Century more ease and movement appeared in attitudes, and freedom and aspiration in general conception and design.
ITALIAN had at first few sufferances from French, but gradually designs became less complicated and differences crept in especially in treatment of conventional foliage (compare natural vine-leaf of No XVIII with acanthus of No XII)
FRENCH carvings marked by a general softness of treatment and a brilliant rapid mode of execution, using lightness of effect to marvellous delicacy and minuteness. Drapery hangs in long swaying folds which fall around the feet in delicate little keeps (No XXIV and XX) Statuettes (XXI) marked by simplicity of composition, refinement of forms, and appropriate expressions of body and limbs.
ENGLISH midway between French and 2nd Italian manner. Has not gaiety and tenderness of former, and is far inferior to it in technique (subjects No XIV). Has some rareness of expression in tensive action (acting in both, with less of their repetition and mannerism
PLAQVES (2 of 4) FRENCH
14th Centy H.t 3" W.th 2⅜" - 5/8ths Actual Size
LID OF A CASKET · FRENCH · 14th CENTURY · W.th 5½" · L.th 10" - 9/16ths Actual Size. In XIV.th Century, Romances entered into competition with pious Legends, as subjects; thus, leaving those in which lettered by rules of conventional representation, imagination took wider range, making secular work a surer guide to style proper to artist and time.

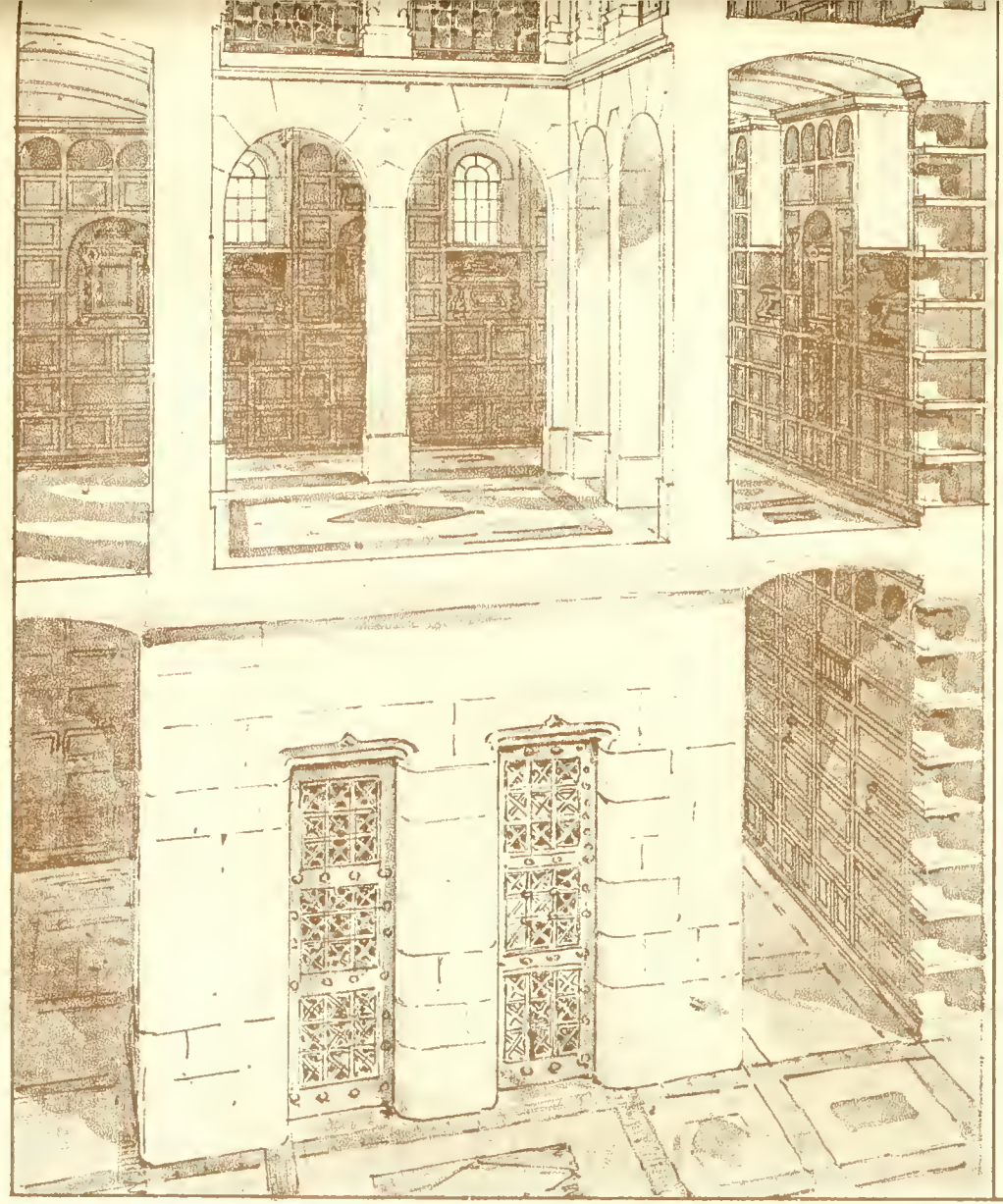
NATIONAL SILVER MEDAL DRAWINGS.—By Sydney W. Clatworthy.

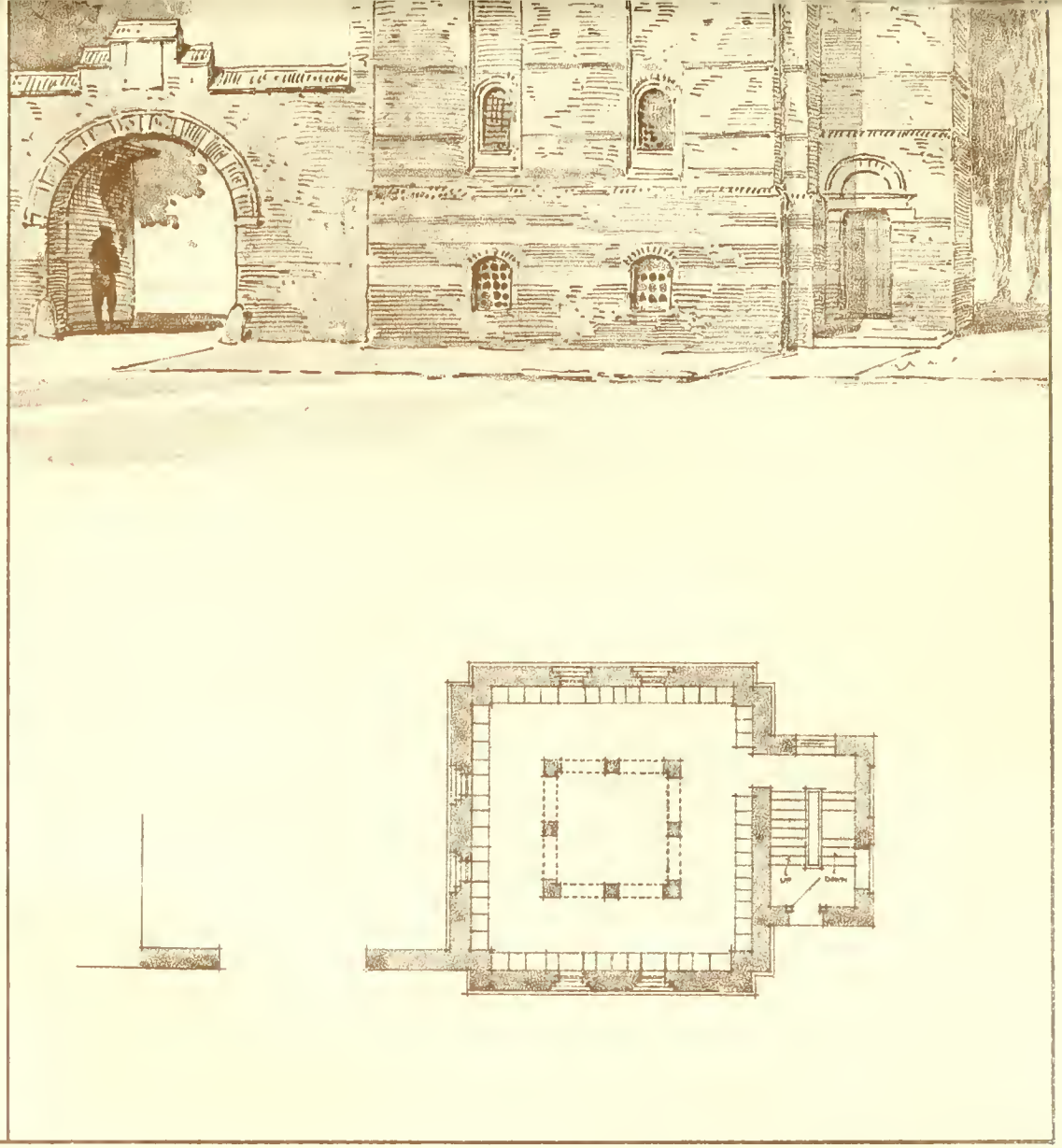
ILLUSTRATING HISTORIC ORNAMENT.

17 GRAFTON STREET
FOR MESSRS. GARRARD
ERNEST GEORGE & YEATES
ARCHITECTS

"PHOTO-TINT" by James Akerman & Queen's Square London W.

COLUMBARIUM
FOR THE CREMATORIUM
GOLDERS' GREEN
ERNEST GEORGE & YATES
ARCHITECTS





"PHOTO-TINT" by James Akerman 6 Queen Square

CONCERT HALL
ROYAL ACADEMY
OF MUSIC
ERNEST GEORGE & YEATES
ARCHITECTS

"PHOTO-TINT"

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. J. W. Cropper, 18, Dale-street, Runcorn.

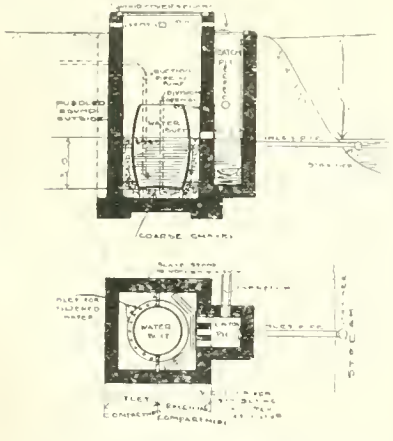
QUESTIONS.

[13043.]—CORONATION STANDS.—Wanted, rough sketch of a temporary grand stand, constructed of timber. Only timber obtainable 6in. by 3in. by 16ft. and 4in. by 2in. by 13ft. and 1in. to 1½in. boarding. The stand to accommodate 500 people. Also an idea of the strains set up when the stand is full.—E. C. L.

[13044.] — STORAGE TANK FOR GEYSER.—Respecting a bath service supplied with hot water by a geyser which comes off the rising main, and has done so for over twenty years, can the Metropolitan Water Board compel my client to put in a storage tank for that geyser, the premises being in the occupation (and are still) of my client the whole time? There is a tank in the house at a lower level, in accordance with the Public Health Act.—Hot Water.

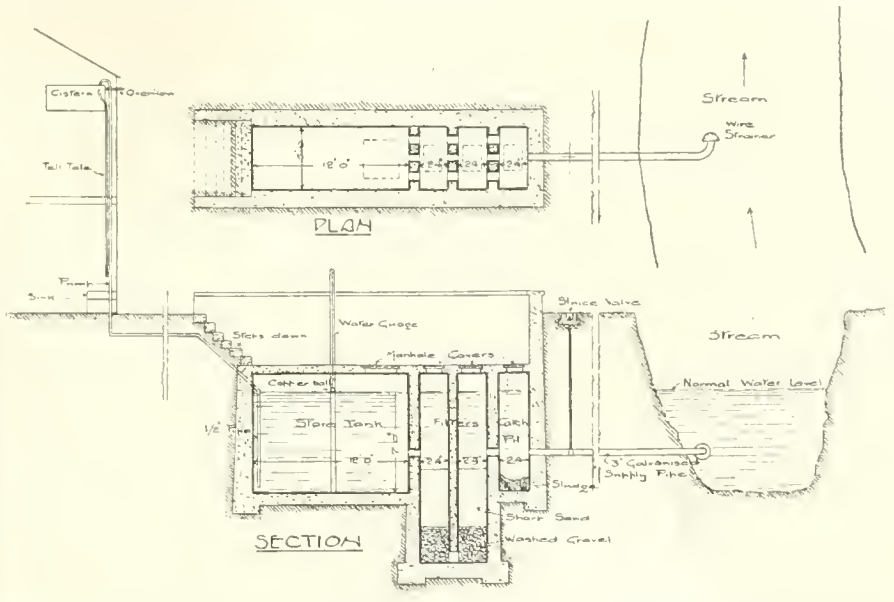
REPLIES.

[13040.]—SETTLING-TANK.—The drawings show a very simple filter, which I think will suit the querist, as I take it he does not want to go to the expense of constructing a separate filter and tank. The filter to be constructed of brickwork or concrete, and rendered inside with Portland cement, and surrounded externally with clay puddle and divided



into two compartments by a division open at the bottom. In this chamber a waterbutt is placed, which the division must be made to fit round, and be made watertight; the division in this case I should suggest being of wood, as it would be more easy to fit round and make watertight. The waterbutt to be well pitched inside and outside, also the division. The side of the waterbutt in the outlet compartment to have holes bored in at the normal water-level, so as to let the filtered water into the waterbutt. From the butt a suction-pipe is taken to the pump. The filtering material to be composed of coarse gravel about 9in. deep, and over this put sand, then over the whole a floor of tiles or bricks is laid, making a surface that will retain any leaves or débris. The filter should be above the ground, as shown, and ventilated, and a manhole-cover provided. A common C.I. spout, with a strainer at the end, is taken from the stream into a catch-pit; where it enters the catch-pit, a pen-stock is placed over, so as to regulate the inflow of water. An overflow-pipe from catch-pit should be taken lower down, and entered into the stream or a ditch.—J. W. Cropper, 18, Dale-street, Runcorn.

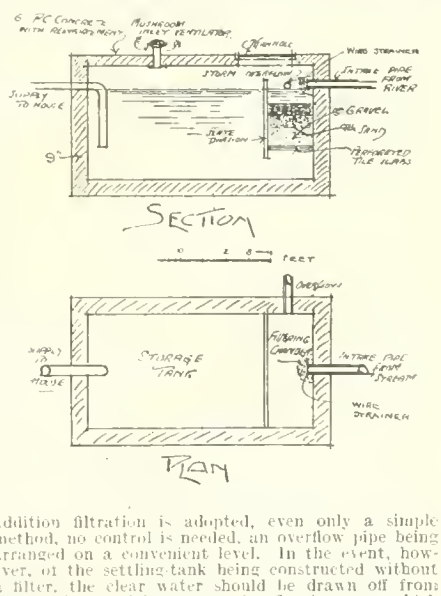
[13040.]—SETTLING-TANK.—"Aqua" does not state if the water is required for ordinary domestic purposes or for cleansing purposes only, but simply for a bath, w.c., etc., which the latter, I presume, to include water for drinking and culinary purposes,



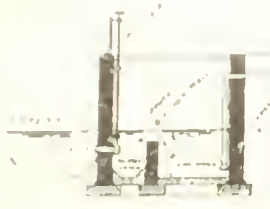
and make suggestions accordingly. Arranging such a supply for an average family of five persons, with an allowance of 20 gallons per head per day, we shall require a cistern in the house holding 100 gallons for every day that supply is required for, and I should suggest 400 gallons as being the size selected, this necessitating the use of the pump twice a week. From the description, the stream is evidently liable to fluctuation, and, possibly, at times of drought runs sluggishly and with little water. It would therefore be advisable to provide a considerable storage tank, to insure a proper and efficient supply of water at all times. A tank holding sufficient water for 25 days' supply will hold 2,500 gallons, and as 6¼ gallons occupy 1cu.ft., the holding capacity will require to be 400cu.ft. The dimensions are figured upon the sketch, which shows the whole of the work constructed in concrete, mixed to a proportion of 5 of clean river ballast to pass a 1½in. screen, 1 of sharp sand, and 1 of English Portland cement, filled in and well consolidated between proper shuttering. The inner faces of tank, filters, and catch-pit to be rendered 1in. thick in cement and sand, mixed to a proportion of 1 and 2 respectively, and finished with a finely-trowelled surface. The catch-pit will tend to keep the filters clean by obstructing certain matter that passes through the strainer, at the mouth of the 3in. galvanised or coated supply-pipe, in the stream. The filters to be filled to the level shown with coarse, well-washed gravel and sharp sand, and should be cleaned out at intervals of, say, once a quarter, or as required, which will depend upon the density of the water in the stream. All the compartments, as shown, to be fitted with a heavy galvanised manhole cover that can be locked to prevent an abnormal height of water from displacing same. A sluice-valve to be fitted in the supply-pipe, which can be shut when the storage-tank is filled, and the stream is rising to flood. The height of water in the tank can easily be ascertained by a hollow copper ball, working in a 3in. perforated tube inside the tank, having a stout steel wire connected to the top of the ball and running through roof of tank, attached by means of brass screw-eyes to a painted board above the tank, lined and painted to give the desired information, by the rise and fall of the ball. I do not think anything quite like this is on the market; but I found it answer quite satisfactory for gauging the height of the liquid in a sewage pot, and any smith or plumber can fix it up. When the water in the stream is above the normal, the sluice-valve to be shut when the gauge registers full, and kept so until the supply in the storage-tank runs low, as also indicated by the gauge. Without something of this sort, trouble will be caused by the flooding of the system. The delivery-pipe to the pump to be 1½in. galvanised water-tube, and laid not less than 2ft. below ground. The pump to be of the lift-and-force pattern, with 3in. barrel, and it is an advantage to have a draw-off cock fixed thereon, so that the water can be drawn off direct from the delivery-pipe without passing into the cistern. A ½in. lead tell-tale to be fixed to cistern immediately below the overflow, having its outlet in view of the operator of the pump, so as to avoid flooding of the house by overfilling. If the normal height of water were not so much below the level of ground, a hydraulic ram might be used to raise the water with much less trouble than with the ordinary pump; but not knowing the distance of stream from the house, actual height of same with regard to cistern, and other local conditions, it is difficult to advise this. The scheme indicated can be greatly modified by varying the bulk of water treated.—Gordon L. Thorne, 10, Atherley-road, Southampton.

[13040.]—SETTLING-TANK.—A well should be sunk a few feet away from the stream, about 12ft. deep and 4ft. in diam. This should be lined with 6in. of concrete, or 9in. of brickwork set in cement mortar. Fix a stoneware or iron pipe 4in. in diam. between the stream and the well, below the average water-level of the former. At the stream end of pipe attach a fine galvanised wire mesh, and at the well end fix a disc-valve similar to those used on sewer works. About 18in. below the level of the pipe at the well, fix some iron bars across, or a timber framing, leaving spaces between the bars about 3in. square. A layer of flat roofing tiles should be placed over the holes, then level over with clean gravel 3in. thick, and cover up to the underside of the pipe with clean washed sand, which will form a filter-bed. Pass the suction-pipe of pump through the sand-bed to within 6in. of the bottom of the well, and also pass a 2in. pipe through the sand-bed to allow the air to escape from under the filter-bed when the water flows in. The sand will require to be removed and replaced by clean sand periodically.—S. C. Bailey.

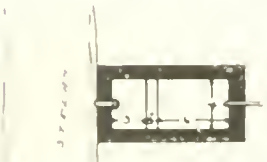
[13040.]—SETTLING-TANK.—Water derived from a stream or river should be subjected to three processes—straining, settlement, and filtration. It should be strained at the intake, to arrest floating leaves and the coarser matters in suspension; it should then be passed into a settling-pond, where it should be kept in a state of perfect quiescence, to allow as much of the matters held in suspension to subside, after which, if it is intended that the supply is to be depended upon for domestic uses, other than only to supply the bath and w.c.'s as stated, it should be subjected to filtration. A system which is operated in one tank only cannot be satisfactory unless the settling-pond is either (1) of considerable area, as to afford the necessary time required for subsidence, which will depend upon the amount of turbidity in the water; or (2) unless, when the tank is full, it is controlled by a shut-off valve placed on the intake-pipe. On the other hand, if in



addition filtration is adopted, even only a simple method, no control is needed, an overflow pipe being arranged on a convenient level. In the event, however, of the settling-tank being constructed without a filter, the clear water should be drawn off from the settling-pond by means of a floating arm, which takes the water only from the surface, the joint being so arranged that the water is not drawn down lower than 12in. or 18in. from the bottom, so as to avoid disturbing the sediment. The accompanying diagram shows a tank 10ft. by 5ft. by 5ft. deep, constructed of concrete, with reinforced-concrete roofing, and arranged with a filter, to give the best results; the size will, of course, be commensurate with the requirements, 25 gallons per head per day being the allowance, if to include all domestic purposes; but if the river can be relied upon for a steady supply the tank need be only of small dimensions. The intake-pipe first discharges into a filter-shelf partitioned off by a slate division, the filtering material—sand and gravel—being carried on perforated tile slabs, supported on light concrete beams, the gravel at the bottom being about the size of walnuts, and the sand varying from grains 1-20in. to 1-50in. in diameter, the finer grains on top. Great care should be taken that the sand is not too fine, or the filter



SECTION.



PLAN.

[illegible] CUTTING THROUGH CONCRETE AND IRON FLOOR. This method advocated by querist will give the results anticipated. The oxy [illegible] found useful for cutting away [illegible]. The better way, and one the writer has used in connection with a reinforced concrete floor, is to cut out the well hole, both on the floor and ceiling, by a chalk line; this forms the cutting line. Now cut long dead bores of 6in. by 6in. material from ground floor showroom to ceiling, with wedges and head pieces and wedges, one at each corner, and set back about 1in. When fixed in position and plumbed, tighten up by driving home the wedge, and cover the space in by Willesden paper, or other suitable non-conducting material [illegible] the shores and quartering. Now the work can be proceeded with, causing but little annoyance to the business going on in the showroom. The concrete around the steelwork should be cut away gradually by cold chisels, piece by piece, leaving the [illegible] work exposed. The latter may be cut and bolted to bed trimmers, the oxy-acetylene jet being used for this work. Due precaution, however, must be taken to ascertain upon site and on referring to the drawings of any of the design of the floor, so as not to cut away part of the main members without the necessary provisions. This point, being of the utmost importance, requires very careful consideration throughout. All the vibration set up [illegible] cutting away is thus transmitted to the ground by the shores, which helps materially to add to the security, and lessens the damage likely to occur if these precautions are altogether omitted. Noise and dust are thus prevented, and all parties can proceed with their work without interfering with one another.—Chas. A. Longley, Denmark Park, London.

[illegible]—CUTTING THROUGH CONCRETE AND IRON FLOOR. In answer to "N. J. H.," the 9in. wall may be removed and a girder, supported on three columns, as shown in his sketch, substituted. The calculations are as follows:—

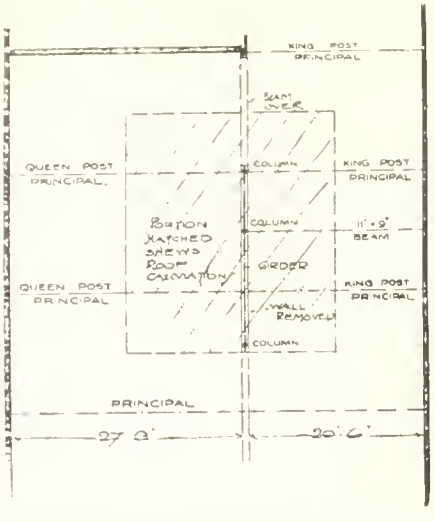
The [illegible] side of queen post truss	2,476lb.
" king "	1,710lb.
The machinery carried by beam = 6cwt.	
To reduce weight of machinery 6 × 2	
=	1,344lb.
Total load to be carried by girder	6,436lb.

Another [illegible] is taken by the column on the left-hand side of the [illegible] after the calculations [illegible] to carry the load. The maximum [illegible] of 6,436 lb. is 17·7ft. [illegible] by 7·52 in. [illegible] Sutcliffe.

[illegible] CUTTING THROUGH CONCRETE AND IRON FLOOR. The [illegible] with the oxy-acetylene apparatus, with a metal cutting [illegible] will probably require to be [illegible]. The heat from the gases [illegible] the surrounding concrete, and it [illegible] like coal to [illegible] under the flame, but [illegible] water and crack in various directions.—R. [illegible], The Laurels, Banstead-road, Ewell.

[illegible] IRON FOUNDRY.—The actual dead [illegible] to be carried on the proposed girder will be [illegible] lb. per foot, supported at both ends and [illegible] by the wall and two columns respectively [illegible] at 18ft. centre to centre. This gives [illegible] 18 = 1. A towing load, per foot [illegible] the girder for the weight of [illegible] half-ham[illegible] cwt., and in [illegible] and other stores, which are [illegible] and partly both by other [illegible] could be [illegible] 7 cwt., which [illegible]. Now, taking into consideration the [illegible] roofs at 6lb. per foot super., this [illegible] additional load of 4cwt. (18 × 7 × 56), [illegible] the three together the combined, or total [illegible] cwt., or 17·7 tons, and over a span [illegible] will require a British Standard Beam 24, [illegible] 114lb., or a 9in. × 7in. × 45lb. rolled [illegible] joist would also be a suitable section. The [illegible] work should be underpinned and cut away in the usual manner, and the girder hoisted and fixed in position with a 9in. bearing on the wall, and [illegible] of a 9in. × 9in. × 1in. York stone template, and bolted to the caps of two 8in. steel columns of 7in. diameter, one at the end, and the other placed [illegible] the centre, that is, 13ft. centre to centre. These columns should rest upon blue brick piers 18in. square, with 6in. base stones, and 12in. × 12in. steel bases grouted in neat cement. Note.—No provision has been made for any hoisting tackle, jibs, etc., to be fixed to the above girder, and as these appliances are often fixed to overhead girders in a foundry, the writer calls attention to this point.—Chas. A. Longley, Denmark Park, London.

13042.—IRON FOUNDRY.—In reply to "H. C. R.," inquiry re weight to be carried, as per sketch, and size of girder required, the following calculations, I think, will suffice. No. 2, King post trusses 20ft. 6in. span, weighing each 390lb., total weight 780lb., one half being carried by wall to be removed = 390lb. No. 2, Queen-post 27ft. span, weighing each 1,020lb., total weight 2,040lb., one half being carried by wall to be removed = 1,020lb. Assuming that principals are 14ft. apart, according to sketch, weight of roof



carried on wall to be removed (as hatched portion indicates), 28ft. × 24ft. 6in. = 686sq.ft. Taking weight of roof, including wind pressure, snow, etc., at 2cwt. per foot super., then weight of roof 686lb. + 1,020lb. + 56lb. = 686 square feet 390 + 1,020 + 38,416 = 39,826lb. = 14 tons 14cwt.; add for machinery 1 ton, making a total weight to be carried of 16 tons over a span of 22ft. Girder required to carry safely 16 tons over a span of 22ft. will be 14in. × 6in. × 57lb. Strength of columns, 6in. diam. × ½in. tapering to 7in. at base. Note.—The girder is calculated to carry over the full width, so intermediate column will add to strength.—T. Conrad Lekstein, 32, Newport road, Stafford.

13042.—IRON-FOUNDRY.—

Distributed dead load from small roof = 12ft. 6in. by 13ft. by 40lb.	lb. = 6,500
Distributed dead load from large roof 12ft. 6in. by 17ft. 6in. by 40lb.	= 8,750
	15,250
Distributed dead load from roofs 15,250lb. = 136cwt. = 7 tons	
Live load from machinery = 1 ton = 2 tons dead load	
4 tons dist. load =	4 tons
Total distributed load =	11 tons

Standard list of R.S.J.s (Dorman, Long, and Co.) gives for a 12ft. span to carry 12 tons = 10in. by 5in. by 39lb. Note the present joists are 10in. deep.—Frank Wilson, 225, Nottingham-street, Sheffield.

13042.—IRON-FOUNDRY.—Sufficient information has not been given, so that accurate calculations cannot be made. The joists which are to take the place of the wall appear to be 8ft. and 15ft. in span respectively. The weight of the roofing per square foot will be approximately as follows:—Principal 4·5lb., purlins 2·8lb., boarding 3·3lb., battens 0·8lb., and tiles 8·0lb.—a total of 19·4lb., say 20lb. per square foot. Add for wind 13lb., and for snow 2lb. The weight of the roofing, &c., will therefore be 35lb. per square foot. The load on the 15ft. joist will be—

	tons
From small roof—½ (20ft. 6in. by 15ft. by 35lb.)	= 2·4
From large roof—½ (27ft. by 15ft. by 35lb.)	= 3·1
Beam to be carried by joist	= 0·3
Weight of joist	= 0·2
Weight of machinery	= 1·0
	7·00
Add 25 per cent. for vibration	= 1·75
	8·75

The greater part of the load rests nearly at the centre of the joist, at the bearing of the roof principal. The safe load

$$= \frac{I \times C \times K}{Y \times L}$$

Where—

I = moment of inertia of joist in inch units = 370 for a joist 12in. by 6in. by 54lb. per foot.
C = safe stress per sq. in. on steel = 6·5 tons.
K = 4 for a central load.
Y = 6in. = half the depth of the joist.
L = 180in. = span of joist in inches.

$$\therefore \text{safe load} \quad \frac{370 \times 6.5 \times 4}{6 \times 180} = 8.8 \text{ tons.}$$

A joist 12in. by 6in. by 54lb. will be sufficiently strong and can be continued over both spans.—S. C. Bailey, The Laurels, Banstead-road, Ewell.

PARLIAMENTARY NOTES.

THE DURABILITY OF GRANITE.—Mr. Fell asked the First Lord of the Admiralty if the Norwegian granite to be supplied for the dockyard at Rosyth stands the British weather and climate as well as Aberdeen or Cornish granite, if there was any evidence of the durability of this granite, if there were any works in Britain of 100 years old of Norwegian granite, or any other conclusive proofs of its lasting qualities. Mr. McKenna replied that it was rather early to say whether Norwegian granite would stand the weather as well as British granite, but the Admiralty were quite satisfied with its quality.

STATUES, MEMORIALS, &c.

ADDINGTON.—The memorial raised by the present Archbishop of Canterbury to his five predecessors buried in Addington Churchyard was unveiled on Monday. It consists of a cross 20ft. high, standing on an octagonal base, placed upon a platform of three steps. In five of the eight panels are the armorial bearings of the five archbishops on shields, surmounted by archiepiscopal mitres, while on two of the remaining panels are small shields symbolising the Church at rest by the arms of St. Augustine of Canterbury and the Church militant by the arms of the present archbishop. Small gargoyle figures project from the angles of the octagon between the gablets above the eight panels. In front of the cross, on a bracketed pedestal, and with a projecting canopy above, stands a figure of the Good Shepherd carrying a lamb, and with His right foot on the head of a serpent which encircles the stem of the cross beneath. On the reverse is a representation of the Agnus Dei in a circle. The architect is Mr. J. Arthur Reeve, and the principal figure and gargoyles are the work of Mr. Taylersen, the sculptor.

Mr. W. T. Fletcher, the deputy surveyor, has been appointed county surveyor by the Dorset County Council.

Mr. Ernest William Gurstone, of Elvedon, West Suffolk, has been appointed road surveyor to the Thetford Town Council, in succession to the late Mr. Charles Baker, who has held the post for the past twenty-five years.

An inquiry was held at Yeadon Town-hall on Tuesday into an application by the urban district council for sanction to borrow £800 for the improvement and widening of Henshaw-lane. There was no opposition.

Earl Dartmouth, Lord-Lieutenant of Staffordshire, unveiled a statue of Lord Burton on Saturday at Burton-on-Trent. The memorial, which cost nearly £2,000 was subscribed for by 6,000 townspeople. It was executed by Mr. F. W. Pomeroy, A.R.A.

A new Conservative clubhouse in Pilgrim-street, Newcastle-on-Tyne, was opened by the Right Hon. A. J. Balfour, M.P., yesterday (Thursday). The architects are Messrs. Cackett and Burns-Dick, of Newcastle, and Mr. Stephen Easton, of the same city, is the builder.

The new extension to the Cottage Hospital at Bromley, Kent, erected at a cost of about £10,000, has been formally opened. The architect is Mr. Paul Waterhouse, of Staple Inn-buildings, High Holborn, W.C., and the general contractors were Messrs. T. Cressley and Son, of Bromley.

Our Office Table.

The Architectural Association Athletic Club Sports will be held on the new club ground at Boreham Wood, Elstree, on Saturday in next week, May 27, commencing at 2.30 p.m. The following trophies will be competed for:—The Squire Shield, presented by Mr. John H. Squire; the Cowper Cup, presented by Major Sydney Cowper, C.M.G.; the School Inter-Year Cup, presented by anonymous subscribers; One Hundred Yards Club Championship Cup, presented by Mr. M. G. Pechell; Quarter-Mile Club Championship Cup, presented by Mr. H. P. G. Maule; Half-Mile Club Championship Cup, presented by Mr. E. Bratt; One Mile Club Championship Cup, presented by Mr. B. H. B. Symons-Jeune. During the afternoon the ground will be officially opened and a commemoration tree planted by Sir Aston Webb, Past-President, C.B., R.A., supported by Mr. Arthur Keen, President, Mr. Gerald C. Horsley, President-elect, and Mr. Henry Tanner, immediate ex-President. The following events will be open to A.A. members and their friends:—Putting the weight, throwing the cricket ball, long jump, one mile handicap, high jump, veterans' race, hurdles, 220yd. handicap, tug-of-war, relay race quarter-mile consolation handicap, obstacle race. It is also hoped that it will be possible to arrange an invitation team race, to be contested between teams from opposing Rugby, hockey, and cricket clubs. The meeting will be held under the rules of the Amateur Athletic Association, to which the club is affiliated, and an official of this Association has kindly volunteered to act as honorary timekeeper for the occasion, so that the championship times may be recorded. Tea will be obtainable on the ground. The Finchley Military Band will play durng the afternoon. Tickets at a reduced fare of 1s. 4d. third return will be obtainable, on showing admittance tickets, only at St. Pancras Station, but will be available from King's Cross (Metropolitan) on payment of 1½d. excess at that station. Tickets, 1s. each, admitting two persons to the ground and club enclosure, can be obtained from H. T. Benjamin Barnard, Hon. Sec., Sports, 1911, 82, Victoria-street, S.W.

The annual performances of the A.A. Play will take place at the Maddox-street Galleries, by kind permission of the Royal Institute of British Architects, at 8.30 p.m. on Monday, May 29, Tuesday, May 30, Wednesday, May 31, Thursday, June 1. The performance on Monday, May 29, will be for men only, morning dress, and smoking will be permitted. Tickets (reserved 5s., unreserved 2s. 6d., each night) may be obtained from the offices of the Architectural Association, 18, Tufton-street, S.W.

The Victoria Memorial in St. James's Park, unveiled on Tuesday, marks the completion of the improvements in the Mall carried out from the plans of Sir Aston Webb, C.B., R.A., selected in competition nearly ten years ago, and illustrated in our pages, together with those of other competitors, in our issues of November 1 and 8, 1901. The statuary itself was illustrated in our issue of May 28, 1909. Sir Thomas Brock, R.A., the sculptor of the memorial, who received the honour of appointment as a Knight Commander of the Bath on Tuesday, is a son of the late Mr. W. Brock, of Worcester, in which city he was born in 1847. He was educated in the Government School of Design at Worcester, and afterwards in the Royal Academy Schools, where he gained gold and silver medals, and became a pupil of, and successor to, the late J. H. Foley, R.A. He was elected an Associate of the Royal Academy in 1883, and a full Academician in 1891. Among his best-known works are "A Moment of Peril," now in the Chantrey collection at the Tate Gallery, and the recumbent effigy of Lord Leighton in St. Paul's Cathedral.

A correspondent of the *Times* gives an interesting description of the discoveries that have recently been made on the site of the ancient city of Corcyla, or Palæopolis, some two miles south of Corfu. The explorations, begun in April last by M. Versallis for the Greek Archæological Society, are to be carried on henceforth at the cost of the Emperor William, under the supervision of Dr. Wilhelm Dorpfeld. The sculptures hitherto brought to light apparently belong to the western pediment of a very large temple, and it is now possible, says the correspondent, to determine their arrangement with tolerable certainty. The central group represents Perseus slaying the Gorgon Medusa, while the winged horse Pegasus springs from her blood. The gigantic form of Medusa, with one knee bent to the ground, is in strange contrast with the smaller figures of Perseus to her left and Pegasus to her right; her head is encircled with ringlets of snakes; two larger serpents descend on either side behind her arms, and long curls of hair fall on her breast. Her chiton, which has an ornamented border, is clasped round the waist by two serpents, and her feet are clothed with cothurni. On either side of the central group are two colossal couchant lions, or perhaps leopards, with their heads turned towards the spectator. Of the small groups beyond these animals, that on the spectator's left displays a goddess seated by an altar and warding off with her hand a spear hurled by an assailant. The corresponding group on the right represents Zeus slaying a Titan with a thunderbolt. The temple, in Dr. Dorpfeld's opinion, was probably that of Apollo. Concluding that the sculptures belonged to the western pediment of the temple, Dr. Dorpfeld has carried out excavations to the east, but so far no traces of the foundations have been revealed. His theory, however, has been confirmed by the discovery of a triglyph, of several fragments of fluted columns, of some portions of the cornice, of a paved area, and of a row of stone blocks which seems to have supported the platform between the peristyle and the wall of the eastern front. It seems probable that the temple was a Doric hexastyle or perhaps octostyle; it measured about 48 mètres in length by 20 in breadth, and its height was about 14 mètres. It was thus about the same size as the Heraeon at Olympia, and somewhat larger than the temple at Selinus. It probably dates from the beginning of the 6th, or the end of the 7th, century B.C.

Mr. A. A. Dallman, of Liverpool, writes stating that the remains of the famous ancient castle of Dyserth, in Flintshire, is in imminent danger of utter destruction. The hill on which the castle is situated appears, says Mr. Dallman, to have passed into the possession of a quarry owner. Limestone has been quarried there for some time past, and operations have now reached a point from which it is evident that the whole of the castle hill is to be demolished, and the limestone utilised for commercial purposes. The excavations have now reached the castle ruins, and it is merely a matter of a few weeks, or months, at the latest, before every trace of Dyserth castle will have disappeared! Surely something should be done before it is too late. There is abundance of excellent limestone elsewhere in the immediate vicinity, and the adjoining hill of Craig Fawr might easily be worked for this purpose. It is high time that the destruction of national monuments should be legally prohibited, and such vandalism rendered impossible.

The conference of Colonial Surveyors-General will be opened on Wednesday week, the 31st inst., by Lord Lucas (Under-Secretary for the Colonies). Mr. Alexander Goddard will act as the secretary. The main object of the conference is to discuss the practicability of reciprocity between the respective Governments and examining authorities throughout the Empire with regard to the examination and authorisation of land surveyors, so that any surveyor who has properly complied with the tests and conditions prescribed by the Imperial Government or the Governments of any self-governing Dependency, and has duly received the requisite authority to enable him to act as a surveyor, should be enabled to practise his profession in any other part of the Empire, subject only to his satisfying the Government or examining authority of the country in which he desires to practise of his knowledge of the necessary local Acts or regulations which may be in force therein relating to the survey of land. The President and Council of the Surveyors' Institution will give a dinner to the delegates at Great George-street on Monday, the 29th inst., at which the Lord Chief Justice, Lord Lucas, Sir Charles Prestwood Lucas, and Mr. H. W. Just, C.M.G., are expected to be present.

A special meeting of the Birkenhead Education Committee was held on Monday to consider an amended specification for the new Rock Ferry Council School submitted by the Administrative Sub-committee consequent upon the rejection by the Council of the original proposal to build a school for 1,200 children at a cost of £17,079. Mr. T. L. Dodds, chairman, presided, and moved the adoption of the new recommendation that the amended tender of Messrs. W. Tomkinson and Sons, amounting to £14,567, for the erection of the school, should be accepted, and that application should be made to the Local Government Board for sanction to borrow £16,014 to cover the total cost of erections and furnishing the school. Mr. Dodds said the original plans and specifications as they were first placed before the Council were not adopted until after careful deliberation. Not only so, but the school was less costly than previous buildings. Nothing was embodied in the early specification except what was necessary in the construction of a thoroughly efficient school, and it must be assumed that the strictest economy had been practised. In the amended specification some sacrifices had been made for the purpose of effecting temporary economy, which must be at the expense either of future economy or the efficiency of the school. £1,065 had been saved by the use of cheaper materials in the schools. It must not be taken that they were going to make such reductions in future buildings. They had accepted these reductions because of the pressing necessity for the school at the south end. After some discussion, the recommendations were approved.

The annual estimates by the Education Committee of the London County Council for new special schools and enlargements of existing special schools is £6,500 for sites, £46,640 for buildings, and £710. The cost of building the 8,650 places included in new and enlarged elementary schools has been estimated at £23 3s. 7d. a place, or, in all, £284,010. Six out of the sixteen proposals involved are, however, "central" schools, and in other cases the estimated cost includes the cost of domestic economy or other centres to be erected on the same site as the new school. The average cost a place of the six new schools (4,268 places) where none of these complications arise is £20 1s. 11d., and £103,040 is estimated as the probable cost of modernising and improving elementary Council schools, an increase of £43,040 on the amount provided for similar building work in previous years. The increase is due very largely to the policy of entirely reconstructing some of the older schools where it is found that remodelling cannot be satisfactorily carried out at a moderate figure, or where the comparatively small difference between the cost of remodelling and of reconstruction is such as to justify the extra expenditure, so as to obtain an entirely new school.

The Great Central Railway Co. issues quarterly an excellent "A.B.C." residential gazette, which all seeking for homes in the suburbs of the healthy, and in many parts yet unspoiled, suburban North-West districts it serves so well, should read. A copy of the "Homestead" will be sent post free on application to Publicity Office, Great Central Railway, 216, Marylebone-road, London, N.W.; or to Publicity Department, Metropolitan Railway, Edgware-road, London, N.W. The present issue deals with "The Beautiful North-West," and includes the towns and villages between Verney Junction and Willesden. Among the special articles is one by ourselves on "Where Shall We Live, and Why?"

MEETINGS FOR THE ENSUING WEEK

TO CORRESPONDENTS.

[illegible] of the opinions of [illegible] be [illegible] as there are many [illegible] [illegible] are matter [illegible] BUILDING [illegible] W.C., [illegible] Drawings not [illegible] A [illegible] is another [illegible] [illegible] less, and the [illegible] [illegible] the case for,

[illegible] to be made payable to [illegible] W.C., and [illegible] Westminster Bank.

[illegible] Observer, London."

[illegible] 1291.

NOTICE.

[illegible] NOS. XLV. are now ready, and [illegible] Ls. each, by post [illegible] are requested to [illegible] A [illegible] XXXIX., XLI., XLVI., [illegible] LXI., LXIV., LXV., LXVI., [illegible] LXIX., LXXI., LXXII., LXXIII., [illegible] LXXV., LXXVI., LXXVII., LXXIX., [illegible] LXXXI., LXXXII., LXXXIII., LXXXIV., [illegible] LXXXV., LXXXVI., LXXXVII., LXXXVIII., [illegible] XC., XCII., XCIII., XCIV., XCV., [illegible] XCVIII. may still be obtained at [illegible] Monthly Numbers of Current [illegible] Advertisers, Subscribers [illegible] to the Publication Office, [illegible] W.C.

[illegible] The Building News, [illegible] from any [illegible] Publisher, Effingham House, [illegible] W.C.

ADVERTISEMENT CHARGES.

[illegible] Competition and Contract [illegible] Public Companies, [illegible] Official [illegible] Wants, the first [illegible] words, the remaining charge being 6d. for [illegible]

[illegible] Auctions, Land Sales, and Miscellaneous [illegible] Trade Notices 6d. per line [illegible] words except [illegible] per line. Displayed [illegible] the Words [illegible] the ordinary charge [illegible] Special terms for series of [illegible] ascertained on application [illegible]

Situations and Partnerships.

[illegible] for Articles or Effects for Situations Vacant or Situations Wanted and "Partnerships," SIXPENCE FOR TWENTY-FOUR WORDS, and SIXPENCE for every [illegible] words after. *All Situation Advertisements must be prepaid.*

*** Replies to advertisements can be received at the Office, Effingham House, 1, Arundel Street, Strand, W.C., [illegible] envelopes. If letters to be forwarded under cover of a second envelope, an [illegible] of SIXPENCE is made. (See Notice under "Situations.")

Rates for **Trade** Advertisements on front page, and [illegible] positions, can be obtained on application [illegible]

Advertisements for current week must reach the [illegible] by 3 p.m. on Thursday. Front-page Advertisements and [illegible] Advertisements [illegible] Office by Tuesday Morning to secure [illegible]

[illegible] E. P. A and Son.—C. A. L., Ltd.—B. of B. [illegible] Ltd.—Q. and Son.—H. B. and E., Ltd.—[illegible] S. L. P. Co., Ltd.—W. W., Ltd.—H. G.—[illegible] C. B. and Son.—F. and J. J. Co.—[illegible] W. P. L. and Co.—W. K.—J. R. E.—[illegible] P. Ltd.—P. U. D. C.—[illegible]

[illegible] was [illegible] separately published.

[illegible] Scott's Academy [illegible] is [illegible] early

[illegible] we often use. [illegible] the [illegible]

[illegible] that [illegible] for [illegible] Certainly, [illegible] but ones.

[illegible] description of a [illegible] which [illegible] paper, was [illegible] other paper, the [illegible] 2, post free.

[illegible] one issue of our [illegible] next weeks [illegible] those designs [illegible] this week's [illegible] but does [illegible]

[illegible] RESTING CLUB.

[illegible] Waters de [illegible] Hervey. "There [illegible] not on the

Trade News.

WAGES MOVEMENTS.

LABOUR MARKET FOR APRIL. The [illegible] report prepared by the Board of Trade [illegible] state of the labour market says that [illegible] April continued good. On the [illegible] it was somewhat better than in March, [illegible] somewhat better than a year ago. There [illegible] some revival in iron and steel [illegible] and a seasonal improvement in [illegible] and brickmaking. As compared with [illegible] there was a marked improvement in [illegible] trades in the engineering, furnishing, and [illegible] trades. In the 395 trade-unions, [illegible] a net membership of 764,548 making returns, 21,447 or 2·8 per cent. were returned [illegible] out at the end of April, 1911, on [illegible] with 3 per cent. at the end of March, 1911, and 4·4 per cent. at the end of April, 1910. Returns from firms employing 455,060 [illegible] in the week ended April 29, 1911, [illegible] an increase of 0·1 per cent. in the [illegible] of wages paid compared with a month [illegible] and of 5·6 per cent. compared with a year [illegible]

LOSTWITHIEL. The masons employed by the Lostwithiel Building Syndicate agitated for [illegible] increase of 1d. per hour in their wages. The [illegible] have not yet acceded the demand the men [illegible] work on Saturday last. The present rate [illegible] wages is 5½d. per hour.

TRADE NOTES.

The Liverpool School [illegible] have been [illegible] with Shorter's patent Manchester [illegible] by Messrs. E. H. Shorter and Brother, [illegible] Farnworth, Manchester.

Messrs. Wood & Co., of 130 Chancery [illegible] E.C., have issued a new edition [illegible] Law Books which will [illegible] to readers the rules of books [illegible]

Under the direction of Mr. W. Carruthers [illegible], architect, Edinburgh, Boyle's latest [illegible] Air pumps, ventilators have been [illegible] to the new [illegible] Cathedral and [illegible] Leith Docks.

We hear that the Brush Reinforced Concrete [illegible] Co., Ltd., of 186 Deansgate, Manchester, are [illegible] out in a much [illegible] way to meet the demands for their system. At [illegible] meeting of the shareholders unanimously [illegible] a large increase in capital was raised [illegible] debentures and premises works in hand. The [illegible] reported the acceptance of several important contracts in Belgium, and a [illegible] list of foreign orders.

The Coronation Committee have given instructions to Messrs. Wm. Potts and Sons, Ltd., clock manufacturers, Leeds and Newcastle, to erect a new hour-striking clock with [illegible] the late Lord Grimthorpe's improvement inserted, and showing the time upon two large external dials, one facing N. Newbald and the other S. Newbald village, on the fine tower of St. Nicholas ancient parish church, near South Cave, Yorks. Messrs. Potts are also making a new dial to South Cave market-house clock, supplied by them between twenty and thirty years ago, which at that time had two dials, now making three dials. The clock has been [illegible] since being erected. They are [illegible] a new memorial clock at Hawarden, Lower Hall, Flints, for the Rev. Stephen Gladstone, M.A., which was set going by the [illegible] last week.

Canadian buyers are [illegible] the Main [illegible] Notre Dame streets [illegible] further [illegible] recent developments at Winnipeg. The Hudson Bay Company is [illegible] with a scheme for the construction of a new wholesale warehouse [illegible] £250,000.

At Tuesday's meeting of the London County Council Mr. F. Hall, M.P., chairman of the Tramways Committee, said that 14 schemes were [illegible] by the Council's Tramways Bill, 1911, the total length of single lines being about 28 miles. Four schemes had been withdrawn, [illegible] of the four remaining was [illegible] of suspicion.

Messrs. McDonald and Dodd, architects, [illegible] Broadway, Louisville, have been working [illegible] on the $20,000 home for the Young Men's Christian Association, which is to be erected on the northwest corner of Third Street and Broadway in Louisville. Mr. W. E. Shattuck, of the firm of Shattuck and Hussey, architects, Chicago, consulting architect for the undertaking.

LATEST PRICES.

IRON.

Steel Joists, Belgian and German (ex steamer, London) Per ton	£5	12	6	to	£5	17	6
Steel Joists, English	6	10	0	,,	6	15	0
Wrought-Iron Girder Plates	7	0	0	,,	7	5	0
Steel Girder Plates	7	2	6	,,	8	2	6
Bar Iron, good Staffs	8	5	0	,,	8	10	0
Do., Lowmoor, Flat, Round, or Square	20	0	0	,,	20	0	0
Do., Welsh	5	15	0	,,	5	17	0
Boiler Plates, Iron—							
South Staffs	8	0	0	,,	8	15	0
Best Snedshill	9	0	0	,,	9	10	0

Angles 10s., Tees 20s. per ton extra.

Builders' Hoop Iron, for bonding, &c., £8 15s. to £9.

Builders' Hoop Iron, galvanised, £14 to £15 10s. per ton

Galvanised Corrugated Sheet Iron—

	No. 18 to 20.	No. 22 to 24.
6ft. to 8ft. long, inclusive Per ton.		Per ton.
gauge	£13 0 0	£13 10 0
Best ditto	13 0 0	14 0 0

Wire Nails (Points de Paris)—

3 to 7	8	9	10	11	12	13	14	15	16	B.W.G.
8/3	8/9	9/3	9/9	10/3	11/-	11/9	12/6	13/6		per cwt.

	Per ton.			Per ton.
Cast-Iron Columns	£6	10	0 to	£8	10	0
Cast-Iron Stanchions	6	10	0 ,,	8	10	0
Rolled-Iron Fencing Wire	8	5	0 ,,	8	10	0
Rolled-Steel Fencing Wire	8	5	0 ,,	8	10	0
,, ,, ,, Galvanised	7	15	0 ,,	8	5	0
Cast-Iron Sash Weights	5	0	0 ,,	5	5	0
Cut Floor Brads	9	15	0 ,,		—	
Corrugated Iron, 24 gauge	16	0	0 ,,		—	
Galvanised Wire Strand, 7 ply, 14 B.W.G.	14	6	0 ,,		—	

B.B. Drawn Telegraph Wire, Galvanised—

0 to 8	9	10	11	12	B.W.G.
£10 5 0	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.

Cast-Iron Socket Pipes—					
3in. diameter	£6	2	6 to	£6	7	0
4in. to 6in.	6	0	0 ,,	6	5	0
7in. to 24in. (all sizes)	6	7	8 ,,	6	0	0

[Coated with composition, 5s. 0d. per ton extra; turned and bored joints, 5s. 0d. per ton extra.]

	Per ton.		
Pig Iron—			
Cold Blast, Lilleshall	110s. 0d.	to	117s. 6d.
Hot Blast, ditto	70s. 0d.	,,	75s. 0d.

Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.):—

Gas-Tubes	75	p.c.
Water-Tubes	72½	,,
Steam-Tubes	67½	,,
Galvanised Gas-Tubes	65	,,
Galvanised Water-Tubes	62½	,,
Galvanised Steam-Tubes	57½	,,

OTHER METALS.

Spelter, Silesian .....Per ton	£24	5	0	to	£24	10	0
Lead Water Pipe, Town	16	17	6	,,		—	
,, ,, ,, Country	17	12	6	,,		—	
Lead Barrel Pipe, Town	17	17	6	,,		—	
,, ,, ,, Country	18	12	6	,,		—	
Lead Pipe, Tinned inside, Town	18	17	6	,,		—	
,, ,, ,, ,, Country	19	12	6	,,		—	
Lead Pipe, Tinned inside and outside .....Town	21	7	6	,,		—	
,, ,, ,, ,, Country	22	2	6	,,		—	
Composition Gas-Pipe, Town	19	17	6	,,		—	
,, ,, Country.	20	12	6	,,		—	
Lead Soil-pipe (up to 4½in.) Town	19	17	6	,,		—	
,, ,, ,, Country [Over 4½in. £1 per ton extra.]	20	12	6	,,		—	
Lead Shot, in 28lb. bags	24	15	0	,,		—	
Copper Sheets, sheathing & rods	69	0	0	,,	69	10	0
Copper, British Cake and Ingot	57	5	0	,,	57	15	0
Tin, Straits	196	5	0	,,	196	15	0
Do., English Ingots	193	0	0	,,	193	10	0
Do., Australian	194	0	0	,,	194	10	0
Do., Bars	194	0	0	,,	194	10	0
Pig Lead, in 1cwt. pigs	14	5	0	,,		—	
Sheet Lead, Town	16	7	6	,,		—	
,, ,, Country	17	2	6	,,		—	
Genuine White Lead	21	0	0	,,		—	
Refined Red Lead	19	0	0	,,		—	
Sheet Zinc	32	5	0	,,		—	
Old Lead, against account	12	1	3	,,		—	
Tin ..... per cwt.	11	0	0	,,		—	
Cut Nails (per cwt. basis, ordinary brand)	0	10	8	,,		—	

TIMBER.

CONSTRUCTIONAL.

Per St. Petersburg Standard (100—12ft. by 1½in. by 11in.)

Yellow Pine Deals, Quebec, 1st quality	£34	0	0	to	£42	0	0
,, ,, ,, 2nd ,,	24	0	0	,,	28	0	0
,, ,, ,, 3rd ,,	15	10	0	,,	18	0	0
Spruce Deals: St. Johns	8	0	0	,,	11	0	0
,, ,, Miramichi	7	5	0	,,	8	10	0
,, Boards: Swag	7	0	0	,,	8	0	0
Red Deals: Archangel 1st quality	20	10	0	,,	21	10	0
,, ,, ,, 2nd ,,	16	0	0	,,	17	0	0
,, ,, ,, 3rd ,,	11	0	0	,,	12	0	0
,, ,, St. Petersburg—							
,, 1st quality	16	0	0	,,	17	0	0
,, 2nd ,,	13	0	0	,,	14	10	0
,, ,, Wyburg & Uleaborg	10	0	0	,,	12	0	0
,, ,, Gefle, Gothenburg, and Stockholm	10	0	0	,,	17	0	0
White Deals: Crown	10	0	0	,,	12	0	0
,, ,, Seconds	9	10	0	,,	10	0	0
Flooring: White and Planed—							
1st and 2nd quality mixed	9	0	0	,,	9	5	0
1st, 2nd, and 3rd quality mixed	8	5	0	,,	8	10	0
Red Planed, 1st quality	11	5	0	,,	11	10	0
Pitch Pine: Prime Deals and Boards	17	0	0	,,	20	0	0
Lignum Vitæ	6	10	0	,,	12	0	0

Per foot super, as 1in.

Yellow Pine Logs (waney board)	0	2	9	,,	0	4	3
Pitch Pine Logs	0	1	6	,,	0	1	10
Birch: Quebec Logs	0	2	0	,,	0	2	6
Oak: Austrian Wainscot	0	7	0	,,	0	8	0
Mahogany: Gabcon	0	6	1½	,,	0	6	2½

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (50c.ft.)	£20	0	0	to	£21	10	0
,, Java ,, ,,	15	0	0	,,	18	0	0

Per cubic foot.

Oak Planks: U.S.A., imported	0	1	9	to	0	2	6
,, Boards ,, ,, Prm.	0	2	4	,,	0	2	9
,, ,, ,, Mdm.	0	1	10	,,	0	2	2
Sequoia (Californian Redwood)	0	3	0	,,	0	3	6
Birch: Quebec logs	0	1	8	,,	0	2	2
,, ,, sawn planks	0	1	0	,,	0	1	2
Oak: Austrian Wainscot	0	6	0	,,	0	7	0
Walnut: Prime boards & planks	0	5	0	,,	0	6	0
,, Mdm. ,, ,,	0	3	4	,,	0	3	6
Greenheart: Hewn logs	0	3	8	,,	0	4	6
Cedar: Cigar box	0	3	6	,,	0	4	8
Satin Walnut: Imp. sawn boards, prime	0	2	3	,,	0	2	6
Orham: Imp. sawn boards, prime	0	1	10	,,	0	2	2

Mahogany: St. Domingo, Cuba, and Honduras

	Per foot of 1in.					
	0	0	5½	to	0	0	6
,, African, Assinee, &c.	0	0	4½	,,	0	0	9
,, Lagos and Benin	0	0	3¾	,,	0	0	4½
,, Sekondi and Cape Lopez	0	0	2½	,,	0	0	3½
,, Gaboon	0	0	1½	,,	0	0	0
Satinwood: West Indian	0	0	10	,,	0	2	2
Rosewood .....Per ton	7	0	0	,,	12	0	0
Lignum Vitæ ..... ,,	4	0	0	,,	11	10	6

STONE.*

Red Mansfield, in blocks .....per foot cube	£0	2	4				
Darley Dale, ditto ..... ,, ...	0	2	3				
Red Corsehill, ditto ..... ,, ...	0	2	2				
Closeburn Red Freestone, ditto ..... ,, ...	0	2	0				
Ancaster, ditto ..... ,, ...	0	1	10				
Greenshill, ditto ..... ,, ...	0	1	10				
Chilmark, ditto (in truck at Nine Elms) ,, ...	0	1	9				
Beer, ditto ..... ,, ...	0	1	8				
Hard York, ditto ..... ,, ...	0	2	10				
Ditto ditto 6in. sawn both sides, landings, random sizes .....per foot sup.	0	2					
Ditto ditto 3in. slab sawn two sides, random sizes ..... ,, ...	0	1					

* All F.O.R. London.

Bath Stone, delivered on rail at quarry stations .....per foot cube	0	1	0				
Delivered on road waggons, Paddington Depot ..... ,, ...	0	1	8½				
Ditto ditto, Nine Elms Depot ..... ,, ...	0	1	8½				
Beer Stone, delivered on rail at Seaton Station ..... ,, ...	0	1	0				
Ditto, delivered at Nine Elms Station ,, ...	0	1	6				

Portland Stone, in random blocks of 20ft. average:—

	Brown Whit Bed.				White Base Bed.		
Delivered to railway depot at the quarry .....per foot cube	£0	1	5½	...	£0	1	7½
Delivered on road waggons at Paddington Depot ... Ditto, Nine Elms Depot ... Ditto, Pimlico Wharf	,, ...	0	2	1	...	0	2 2½

SLATES.

	In.	In.	£	s.	d.			
Blue Portmadoc	20 × 10	...12	12	6	per 1000	of 1200	at r.stn.	
,, ,,	... 16 × 8	... 8	12	6	,,	,,	,,	
Blue Bangor	20 × 10	...13	2	6	,,	,,	,,	
,, ,,	... 20 × 12	...13	17	6	,,	,,	,,	
First quality	20 × 10	...13	0	0	,,	,,	,,	
,, ,,	... 20 × 12	...13	15	0	,,	,,	,,	
,, ,,	... 18 × 8	... 7	5	0	,,	,,	,,	

Eureka unfading	£	s.	d.			
green ..... 20 × 10	..15	17	8	,,	,,	
,, ,, ... 20 × 12	..18	7	8	,,	,,	,,
,, ,, ... 18 × 10	..13	5	0	,,	,,	,,
,, ,, ... 18 × 8	..10	5	0	,,	,,	,,
Permanent green 20 × 10	..11	12	6	,,	,,	,,
,, ,, ... 18 × 10	.. 9	12	6	,,	,,	,,
,, ,, ... 16 × 8	.. 8	12	6	,,	,,	,,

BRICKS.

(All prices net.)

Hard Stocks	£1	8	6	per 1,000	alongside, in river		
Rough Stocks and Grizzles	1	6	0	,,	,,	,,	
Picked Stocks for Facings	2	10	0	,,	delivered at railway station.		
Flettons	1	6	0	,,	,,	,,	
Pressed Wire Cuts	1	18	0	,,	,,	,,	
Red Wire Cuts	1	14	0	,,	,,	,,	
Best Fareham Red	3	12	0	,,	,,	,,	
Best Red Pressed Ruabon Facing	5	0	0	,,	,,	,,	
Best Blue Pressed Staffordshire	3	15	0	,,	,,	,,	
Ditto Bullnose	4	0	0	,,	,,	,,	
Best Stourbridge Fire Bricks	3	14	0	,,	,,	,,	
2¾" Best Red Accrington Plastic Facing Bricks	4	10	6	,,	Net, delivered in full truck loads in London.		

	Per 1,000		
3½" Accrington Best Red Plastic Facing Bricks	£2	10	0
3½" Ditto Second Best Plastic ditto	2	2	6
Ditto Ordinary Second Bricks	1	11	3
Ditto Plastic Engineering Bricks	1	17	6
Sewer Arch Brick, not more than 3½" at thickest part	2	0	0
3½" Chimney Bricks fit for outside work	2	6	0
3½" Ditto Ditto through and through	2	0	0
3½" Beaded, Ovolo and Bevel Jambs; Octagons; 2½" and ½" radius Bullnoses; Stock patterns	3	7	6
Accrington Air Bricks, 9" × 2 course deep, each	0	0	6
Ditto Ditto 9" × 1 course, each	0	0	3

Accrington Camber Arches:—

3 course deep, 4½" soffit, per foot opening							0	1	3
4	ditto	4½"	ditto	ditto	ditto	...	0	1	8
5	ditto	4½"	ditto	ditto	ditto	...	0	2	1
6	ditto	4½"	ditto	ditto	ditto	...	0	2	6
3	ditto	9"	ditto	ditto	ditto	...	0	2	1
4	ditto	9"	ditto	ditto	ditto	...	0	2	11
5	ditto	9"	ditto	ditto	ditto	...	0	3	9
6	ditto	9"	ditto	ditto	ditto	...	0	4	6

Net, free on rail or free on boat at works.

GLAZED BRICKS.*

HARD GLAZES. (PER 1,000.)

White, Ivory, and Salt Glazed. Best.	Seconds.	Buff and Cream. Best.	Other Colours.	Second Colours.
Stretchers—				
£10 17 6	£9 7 6	£12 7 6	£16 7 6	£10 17 6
Headers—				
10 7 6	8 17 6	11 17 6	15 17 6	10 7 6
Quoins, Bullnose, and 4½in. Flats—				
13 17 6	12 17 6	16 7 6	19 17 6	14 7 6
Double Stretchers—				
16 7 6	14 17 6	19 7 6	22 17 6	16 7 6
Double Headers—				
13 7 6	11 17 6	16 7 6	19 17 6	13 7 6
One side and two ends, square—				
17 7 6	15 17 6	20 7 6	24 17 6	17 7 8
Two sides and one end, square—				
18 7 6	16 17 6	21 7 6	25 7 6	18 7 6
Splays and Squints—				
15 17 6	14 7 6	20 7 6	23 7 6	15 17 6
Plinth and Hollow Bricks. Stretchers and Headers—				
5d. each	4d. each	6d. each	6d. each	5d. each
Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres—				
5d. each	4d. each	6d. each	6d. each	5d. each
Rounded Internal Angles—				
4d. each	3d. each	5d. each	5d. each	4d. each

MOULDED BRICKS.

Stretchers and Headers—				
8d. each	8d. each	8d. each	8d. each	8d. each
Internal and External Angles—				
1/2 each	1/2 each	1/2 each	1/2 each	1/2 each
Cill Bullnose, Stretchers and Headers—				
5d. each	4d. each	6d. each	6d. each	5d. each

	Per 1,000		
Majolica or Soft Glazed Stretchers and Headers	£21	17	6
,, ,, ,, Quoins and Bullnose	26	17	6
Compass bricks, circular and arch bricks of single radius £8 per 1,000 over above list for their respective kinds and colours	Not exceeding 9in. ×		
Camber arch brick, any kind or colour, 1s. 2d. each	4½in. × 2½in.		

Stretchers cut for Closers and Nicked Double Headers, £1 per 1,000 extra.

* These prices are carriage paid in full truck loads to London stations.

	a.	d.		
Thames and Pit Sand	7	0	per yard, delivered.	
Thames Ballast	5	6	,,	,,
Best Portland Cement	28	0	per ton,	,,
Best Ground Blue Lias Lime	19	0	,,	,,

Exclusive of charge for sacks.

Grey Stone Lime ..... 11s. 6d. per yard, delivered

Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. stn.

TILES.

	a.	d.		Delivered
Plain red roofing tiles	42	0	per 1000	at rly. stn.
Hip and Valley tiles	3	7	per doz.	,, ,,
Broseley tiles	50	0	per 1000	,, ,,
Ornamental tiles	52	8	,,	,, ,,
Hip and Valley tiles	4	0	per doz.	,, ,,
Ruabon red, brown, or brindled do. (Edwards)	57	6	per 1000	,, ,,
Ornamental do.	60	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	0	,,	,, ,,
Selected "Perfecta" roofing tiles:—Plain tiles (Peake's)	46	0	per 1000	,, ,,
Ornamental do.	48	6	,,	,, ,,
Hip tiles	3	10½	per doz.	,, ,,
Valley tiles	3	4½	,,	,, ,,
"Rosemary" brand plain tiles	48	0	per 1000	,, ,,
Ornamental tiles	50	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	8	,,	,, ,,
Staffordshire (Hanley) Reds or Brindled tiles	42	6	per 1000	,, ,,
Hand-made sand-faced	45	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,
"Hartshill" brand plain tiles, sand-faced	50	0	per 1000	,, ,,
Pressed	47	6	,,	,, ,,
Ornamental do.	50	0	,,	,, ,,
Hip tiles	4	0	per doz.	,, ,,
Valley tiles	3	6	,,	,, ,,

OILS.

Rapeseed, English pale, per tun	£28	15	0	to	£29	6	0
Do., brown	,,	...	26	15	0	,,	27	5	0
Cottonseed, refined	,,	...	29	0	0	,,	30	0	0
Olive, Spanish	,,	...	39	10	0	,,	40	0	0
Seal, pale	,,	...	21	0	0	,,	21	10	0
Cocoanut, Cochin	,,	...	46	0	0	,,	46	10	0
Do., Ceylon	,,	...	42	10	0	,,	43	0	0
Do., Mauritius	,,	...	42	10	0	,,	43	0	0
Palm, Lagos	,,	...	32	5	0	,,	33	5	0
Do., Nut Kernel	,,	...	35	0	0	,,	35	10	0
Oleine	,,	...	17	5	0	,,	19	5	0
Sperm	,,	...	30	0	0	,,	31	0	0
Lubricating U.S. ..... per gal.			0	7	0	,,	0	8	0
Petroleum, refined ..... ,,			0	0	6½	,,	0	0	6½
Tar, Stockholm ..... per barrel			1	8	0	,,	1	10	0
Do., Archangel ..... ,,			0	19	8	,,	1	0	0
Linseed Oil ..... per gal.			0	3	11½	,,		—	
Baltic Oil ..... ,,			0	4	3	,,		—	
Turpentine ..... ,,			0	4	6½	,,		—	
Putty (Genuine Linseed Oil) ..... per cwt.			0	11	0	,,		—	
,, Pure Linseed Oil, "Stority" Brand ,,			0	10	0	,,		—	

GLASS (IN CRATES).

	15oz.	21oz.	28oz.	32oz.
English Sheet Glass: Fourths	1½d. ...	2½d. ...	3½d. ...	4½d.
Thirds	2½d. ...	3½d. ...	4d. ...	5d.
Flatted Sheet	2½d. ...	3½d. ...	6d. ...	6½d.

	3/16in.	7/16in.	½in.
Hartley's English Rolled Plate:	2½d. ...	2½d. ...	3d.

	White.	Tinted.
Figured, Rolled, and Repoussine:	3½d. ...	

VARNISHES, &c.

OGILVIE & CO.
DALSTON LANE, N.E.
EXPERTS IN HIGH-CLASS JOINERY.
ALTERATIONS & DECORATIONS.
FOR
Olivers'
Seasoned
Hardwoods.
WM. OLIVER & SONS Ltd.,
120 Bunhill Row, London, E.C.

TENDERS.

Newbury.—For erection of a proposed new house, [illegible] Common, Newbury, Berks, for Mr. W. [illegible] Forrest. Messrs. E. F. Hall, M.S.A., and B. W. [illegible], Newbury, architects —

Houghton & Hitchman, Newbury	£2,417 0 0
Bance, J. A., Newbury	2,398 0 0
Cull, T., Norwich	2,301 0 0
Jenkins and Son, Southampton	2,290 0 0
Lewis Bros., Reading	2,285 0 0

Oldbury Bank.—For improvements at Mount Pleasant Council School, for the Staffordshire Education Committee.

Structural works —

[illegible] A. (accepted)	£222 0 0

Reconstructing heating apparatus —

Lewis and Son, Cradley Heath (Accepted.)	£165 0 0

[illegible].—For erecting dwelling-house, Cavendish Road, for Mr. D. Reynolds. Mr. A. W. Venner, M.S.A., Bedford, architect —

Goods, J., Reigate	£769 0 0

Lowest of six tenders. Highest £850.

[illegible].—For erecting dwelling-house, Reigate Road, for Mr. T. Swift. Mr. A. W. Venner, M.S.A., Bedford, architect —

Martin, G., Redhill	£870 0 0

Lowest tender received. Highest £900.

Shooter's Hill, Woolwich.—For the erection of a new fire station at the junction of Shrewsbury-lane and Eaglesfield Road, Shooter's Hill, in substitution for the existing Shooter's Hill station, for the London County Council.

Patman and Fotheringham, Ltd., Park street, W.	£13,213 9 0
Higgs and Hill, Ltd., Crown Works, South Lambeth	13,118 0 0
Leslie and Co., Ltd., Kensington-gate, W.	13,127 0 0
Holloway Bros. (London), Ltd., Victoria Wharf, Belvedere road	12,941 0 0
Johnson, W., and Co., Ltd., Wandsworth Common, S.W.	12,928 0 0
Holloway, H. L., Iron Works, Church street, Deptford	12,778 0 0
Nowell, C., Ltd., Lordship avenue, Tottenham	12,771 0 0
[illegible], W., and Sons, Finsbury, E.C.	12,724 0 0
[illegible] E. and Sons, Ltd., Wharf road, City road	12,709 0 0
[illegible] and Randall, Warwick Works, Worcester	[illegible]
[illegible] at 18 [illegible], Dyson's Dene House, Strand, W.C.	12,[illegible] 0 0
Bowyer, J. and C., Ltd., Lyon's Norwood	12,[illegible] 0 0
[illegible], Chas. F., Isle of Dogs	12,[illegible] 0 0
Dennis, W., Hampton-street, Walworth	11,973 0 0

Architect's estimate, £12,700.
* Recommended for acceptance.

Stansted.—For erecting new school for girls and infants, and alterations to boys' school at Stansted. Mr. Frank Whitmore, Chelmsford, architect —

Symes, J. H., Newport	£3,179 7 1
Trudgett, J. W., Lexden	3,075 0 0
Davey, P. & E., Ltd.	3,066 0 0
Ambrose, H. E., Cambridge	3,061 7 0
Grimwood, G., and Sons, Sudbury	3,058 10 0
Kidman Bros., Cambridge	3,054 0 0
Carter, A. J., Ltd., Grays	2,990 0 0
Robinson, W., Stansted	2,946 15 5
Parren, J., and Son, Earith	2,932 9 0
Brown, G., Grays	2,911 7 1
Redding and Son, Cambridge	2,873 0 0
Reed, A. H., Southend-on-Sea	2,866 0 0
Bell, W., & Sons, Saffron Walden	2,856 0 0
Willmott, F., Ilford	2,826 0 0
Day, J., Bishops Stortford	2,814 0 0
Grasscock, J. S., and Son, Bishops Stortford	2,805 0 0
Robinson, D., jun., Stansted	2,789 13 4
Clark and Sons, Cambridge*	2,612 0 0

(Architect's estimate, £2,761.)
* Recommended for acceptance.

Stratford.—For internal and external painting of the Court-house. Mr. Frank Whitmore, Chelmsford, county architect —

Horswell, H. C.	£219 0 0
Wyn, A.	214 0 0
Carter, H. J., Grays	180 0 0
Symes, A. E.*	177 0 0

Rest of Stratford.
* Recommended for acceptance.

Tonyrefail.—For the reinstatement of council school after fire, for the Glamorgan Education Committee. Mr. D. Pugh-Jones, F.S.I., Cardiff, county architect.—

Davies, D., Cardiff	£2,357 4 5

West Ham.—For motor fire-engine, for the town council. Mr. J. G. Morley, Town Hall, West Ham, E., borough engineer —

Shand, Mason and Co.	£1,150 0 0
Argyll, Ltd.	1,080 0 0
Merryweather and Sons	987 0 0
Dennis Bros., Ltd. (accepted)	868 0 0
Simms and Co.	845 0 0
Leyland Motors, Ltd.	845 0 0

West Ham.—For improvements to caretaker's house at Canning Town School, for the town council —

Bailey, W.	£200 2 0
Newell and Lusty	163 0 0
Myall and Upson	160 0 0
Luton, J. T.	158 0 0
Woollaston and Co.	156 0 0
Maddison, W. J.	149 0 0
Webb, A.	139 0 0
Barker and Co., Plaistow	136 0 0
Symes, A. E.	134 0 0
Horswill, H. C.*	129 0 0

* Recommended for acceptance.

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OUR ILLUSTRATIONS.

Winterbourne Anderson Manor House, Dorset, with Plans. Principal Entrance, Skipton Castle, Yorkshire. Chimney-stack, Easlington Court, Worcestershire. Plasterwork, Upton-Cressett, Shropshire. ("The Domestic Architecture of England during the Tudor Period," by Messrs. Thomas Garner and Arthur Stretton, Architects.)

The Polytechnic, Regent-street, W. Mr. Frank T. Verity, F.R.I.B.A., Architect.

Garden Porch House at Hambledon. Mr. Ernest Newton, A.R.A., Architect.

Selected Design for the Hartley University College, Southampton. Messrs. Clyde Young and East, Architects.

LESSEES ASSIGNING AND SUBLETTING.

A covenant by the lessee against assigning or subletting the demised premises, without the consent of the lessor, is very usual in leases, even when granted for long terms. It is, of course, necessary that the lessor or his successor in title should know who is the holder of the lease, and who is liable for the ground-rent. But, looked at in another way, this covenant may become a serious restriction upon the free and profitable use of the premises by the lessee or his assignees. Some freeholders, as lessors, when asked for their written consent to an assignment or subletting of the premises, used to seek to make a bargain to their own advantage over the business. It was not uncommon for them to demand some increase of rent, or some share in the improved rental that the lessee would get for subletting, or some cash consideration. Such a plan was practically imposing a fine upon the lessee for granting him the required consent or license. The Conveyancing Act, 1892, dealt with this matter effectively. It provided, by Section 3, that in all leases containing a covenant against assigning or underletting without license or consent, this should be deemed to be subject to a proviso that no fine, or sum of money in the nature of a fine, shall be payable, with a saving of the lessor's right in respect of any reasonable sum as legal, or other, expenses. A fine of this sort can, therefore, only be chargeable where the lease expressly provides for its payment. There has never been any doubt as to the application of this clause in the statute to leases made since its passing. But in regard to leases then existing there was a good deal of dispute.

The Court of Appeal has now decided in the recent case of West v. Gwynne (*Times*, May 11), that this section of the Act is retrospective, and therefore applies to all leases running at its date, however old they may be. This is a practical point which is often of much importance to owners of leasehold property, and those advising them professionally. The case above noted arose out of a lease made in 1874 for over 90 years. The plaintiff, as the present holder of it, desired to sublet a portion of the premises by underlease for 21 years, and applied to the defendant, as lessor, for the necessary license to do so. He, however, was only prepared to give this consent if the plaintiff would pay him over half the surplus rent he would get by means of the underlease, in addition to the rent of the lease itself. The plaintiff thereupon applied to the Court for a declaration that the defendant, as lessor, was not entitled to impose this condition, because it amounted to a payment of money in the nature of a fine, and so was contrary to the Conveyancing Act, 1892. The defence was that this Act did not apply to leases executed before the date of its passing. At the hearing, Mr. Justice Joyce held that the Act was retrospective, and made the declaration as asked, giving plaintiff his costs and upon appeal this ruling has been emphatically confirmed.

The Master of the Rolls, in his judgement, pointed out that the section begins by using the words, "in all leases," nothing being said which would limit the clause to operation in the future. Then, there is the fact that the Legislature regarded the exaction of a fine, as the price of consenting to an assignment or underletting, as being so unreasonable that it could not be allowed, unless expressly provided for in the lease itself. The Court therefore laid it down that the effect of this section is not to make void any existing contract, or to take away any vested interest; but to provide that in future there shall be no right to demand any such payment in the nature of a fine, under any lease, whenever made, unless this is expressly reserved. They also based their judgment upon the ground of public policy in the way of freedom of contract, and against restriction upon the use of property, which is notable as an argument judicially employed in this connection. The Court refused to consider the Act in such a way as to render it inoperative for many years whenever leases of 99, or even 999 years were in existence at the time of the passing of the statute, which would have been the result of approving the defendant's contention. This lessor must therefore now grant the necessary license for underletting without any condition as to a money payment, and upon the usual terms as to legal or similar expenses in regard to consent, while he is also liable to pay all the costs of this instructive litigation, subject, of course, to an ultimate appeal.

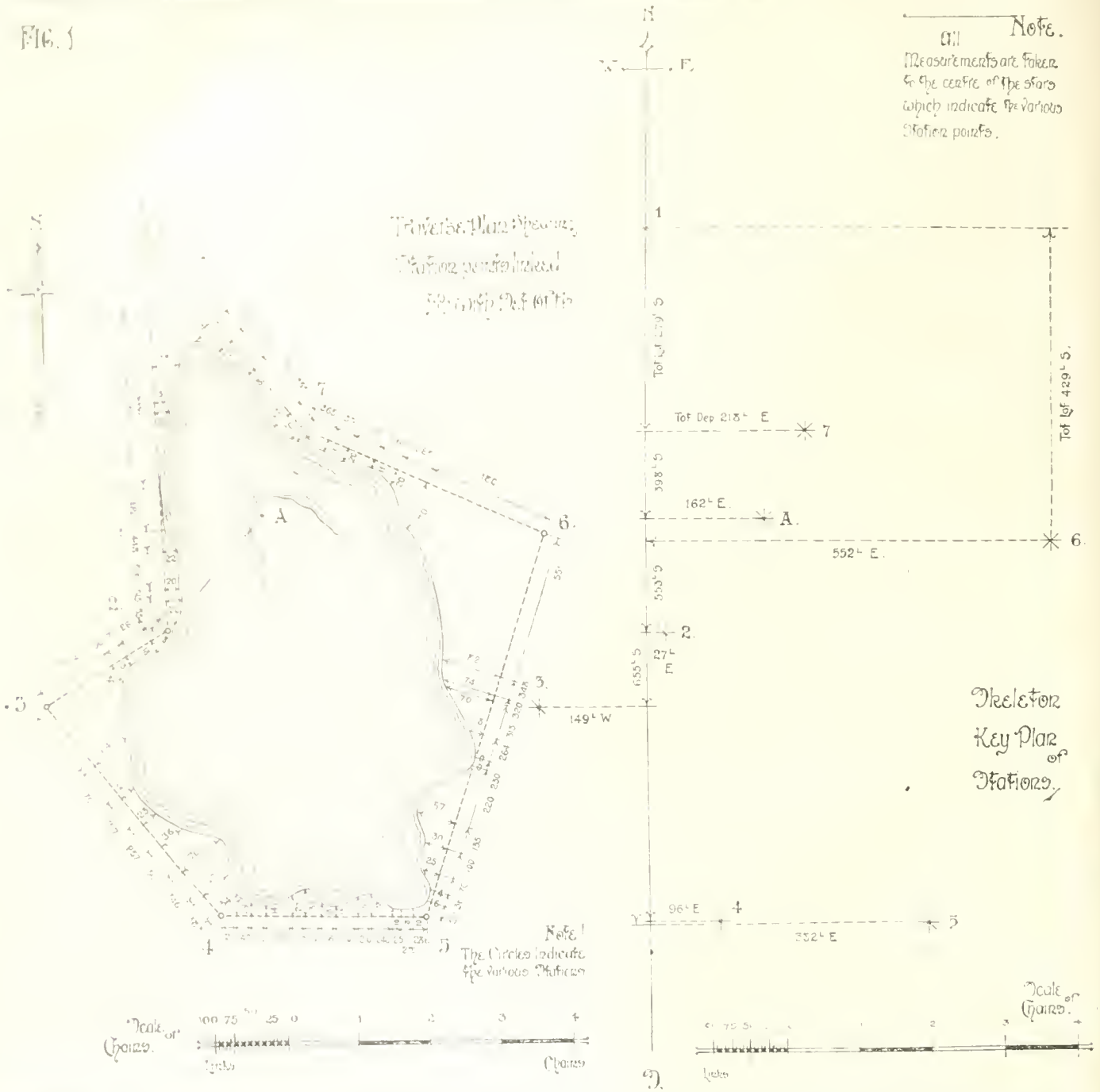
The Court, in its judgment, went further than was required, by determining a resulting point of much practical interest. While ordering the lessor to give the license to underlet, they held that, under the circumstances, the lessee could have gone on without it. The evidence showed that the defendant had refused to give his consent to the plaintiff's underletting as he was desired to do. That being so, the effect was to relieve the lessee from the necessity of obtaining the consent required by the lease, because the lessor was in the wrong by making the payment of a fine a condition precedent to his grant of a license. This view of the position had been stated in the Court of Appeal in a case some few years ago as a remark, and not as part of the judgment. Now it has been definitely declared to be the law in this latest decision. It therefore applies generally to all cases in which a lessor wrongfully refuses to give his consent to an assignment or underletting, so that a lessee can safely proceed in such cases as if the license had been obtained. The importance of this point is that it saves the risk and trouble of bringing an action to obtain a declaration against a lessor, who may be a man of straw, and quite unable to pay the costs incurred. It is especially satisfactory to find, as in this judgment, that the Court of Appeal bases its judgment upon grounds of public policy, as well as upon the technical construction of statutes and authorities. In these days it is more than ever necessary that owners of property, and especially of leaseholds, should be hampered as little as possible in doing the best they can with land or premises they may possess. Freedom in the way of assignment and underletting is essential if anything is to be done with reasonable profit in reference to the mass of property which has of recent years so fallen in value as to make its disposition in any way extremely difficult. Fines of the sort now abolished and even expenses incurred about these licenses, are matters of serious loss to those who are trying to make the best of their bad bargains in a depressed market. Even freeholders, as lessors, would, in the end, gain greatly by a loosening of those technical rules and strict covenants which tend to tie up property, and prevent its free and advantageous use. The dead hand of the owner of land and premises, who was of an earlier generation, and who passed away years ago, is still allowed to press too heavily upon the needs of the living, even in regard to leaseholds.

THE NEW ENGLISH ART CLUB.

It is satisfactory to note the continued improvement in the general character of the works shown at the forty-fifth exhibition of the New Art Club, which opened at the Gallery of the Royal Society of British Artists, in Suffolk-street, on Tuesday. The number of pictures is considerably less than last year, and several usual contributors are absent, including Mr. Henry Tonks, Mr. Augustus John, Mr. Muirhead Bone, Mr. Nicholson, and Mr. Gerald Chowne. There is nothing in the way of masterpieces; but there are fewer freaks and they are mostly relegated to the South-West Gallery.

Mr. William Orpen is well represented. His "Sheep and Goats" (31), and

FIG. 1



A THEODOLITE TRAVERSE SURVEY.

There is only one way which is demonstrably accurate in which a survey can be made of an irregular area of land containing a pond, wood, block of houses, or other considerable obstructions. This is by means of a closed theodolite traverse, having the latitude and departure (or longitude) of each point accurately worked out from the first station, so that the plotting can be done by means of co-ordinates. In the example selected for illustration, taken from an actual survey, there was a pond which contained several islands covered with trees, while the land round about it was also fairly well wooded and by no means level, so that the inclusion of the

whole pond within a single triangle, or even a series of triangles with tied angles, would have been a matter of considerable difficulty, and would probably have resulted in inaccuracies, while further difficulties would have been experienced in determining the position of the islands.

The theodolite was first erected over station 1 (see both the skeleton key-plan and the complete traverse plan in Fig. 1), and after being levelled and the vernier-plate clamped at zero, the instrument was rotated until the needle pointed due North. The main-plate was then clamped, any necessary adjustment being made by means of the tangent-screw. The vernier-plate was then released so that the telescope could be pointed in the direction of station 7, where a pole had already been fixed. When this was sighted, the vernier was clamped, and the vertical hair in the eyepiece brought accurately upon the shoe of the pole by means of the tangent-screw belonging to the vernier. The angle was then read as 141° 58', this being the Declination of the line 1—7 from compass North, and an entry was made to that effect in the second column marked of the Traverse Book, as below:—

TRAVERSE BOOK.

Line.	Decl. E. of N.	Length in Links.	Latitude.	Departure.	Total Latitude.	Total Departure.	Remarks.
1—7	141 58	355	279.62 S.	218.73 E.	279.62 S.	218.73 E.	
1—A	157 45	430	397.99 S.	162.82 E.	397.99 S.	162.82 E.	A = tree on island
1—2	177 12	554	553.34 S.	27.06 E.	553.34 S.	27.06 E.	
2—A	41 16						
2—3	239 57	204	102.15 S.	176.58 W.	655.49 S.	149.52 W.	
3—4	140 7	383	293.90 S.	245.59 E.	949.39 S.	96.07 E.	
4—5	90 54	286	4.49 S.	285.97 E.	953.88 S.	382.04 E.	
5—6	18 2	551	523.93 N.	170.58 E.	429.95 S.	552.62 E.	
6—7	294 33	365	151.66 N.	332.01 W.	278.29 S.	220.61 E.	

For the moment nothing further was done with regard to the line 1—7; but the vernier-plate was again released, and the telescope directed to a well-marked tree on the nearest island, which was called A, a letter instead of a number being given to it because it was not to be one of the stations of the actual traverse, but was an inaccessible point whose position had to be found by triangulation. The clamping and correction by the vernier-screw followed, and the line 1—A was found to be at an angle of 157° 45' from North. An entry to this effect was accordingly made in the Traverse Book.

In precisely the same way—by releasing the vernier-plate, directing the telescope to point 2, clamping, adjusting by the tangent, and reading the vernier—it was then ascertained that the line 1—2 was at an angle of 177° 12' from North, and this also was entered in the Traverse Book.

It will be noticed that all the angles were taken in the Easterly direction, or that in which the hands of a clock revolve. English instruments are always made to read this way only, so that mistakes in plotting cannot well be made by entering East for West, or vice-versâ.

At this stage the lines 1—7 and 1—2 were measured with the chain in the ordinary way, and entries made as shown in the Field Book (Fig. 2). The total lengths of these lines were 355 and 554 links respectively, and entries to this effect were made in the "Length" column of the Traverse Book.

The theodolite was now moved from Station 1, and a pole erected in its place, while the pole at station 2 was taken out of its hole, and the theodolite set up, with its plumb-bob exactly over the spot where it had stood. The instrument was then levelled (the main clamp being released for this to be done), its vernier-plate being still clamped so as to read 177° 12', this being the declination Eastwards from North of the line 1—2. Still so clamped, but with the main plate free, the telescope was directed from 2—1. A deliberate error of 180° was thus made; but in most theodolites this would be immediately apparent, for it would be shown by the compass-needle, and corrected by reading the opposite vernier to that originally employed. Thus, if the right-hand vernier were used while the instrument was over station 1, the left-hand vernier would now tell the truth with the instrument over station 2. Thus it would be only necessary to release the vernier, and direct the telescope to A, and clamp it again, in order to ascertain the declination eastwards from North of the line 2—A by reading the left-hand vernier. This was 41° 16', and was so entered in the Traverse Book.

Again, the vernier-plate was released, and the telescope directed to station 3, when it was ascertained that the declination from North of the line from 2 to 3 was 239° 57'. The length of this line was measured, and off-sets taken as shown in the Field Book, the total length being entered also in the Traverse Book.

In the same way, all the other lines were measured, and proper entries made.

When the field-work had thus been completed, and the measurements carried round a second time to station 7, it became necessary to work out the latitudes and departures of the various lines. For this purpose, a traverse table was used, such as either Boileau's or Louis and Caunt's that in Chambers's Mathematical Tables being insufficiently detailed for practical purposes. These tables give the latitudes and departures for any ordinary length to two places of decimals of a link; and, with less absolute accuracy, but still within a link of error, for lines of very great length indeed, and for every angle, by single minutes of arc, from 0° to 90°. It will be noticed that the line 1—7 has a declination of 148° 58', which is a greater angle than can be found in the tables. What can be done, however, is to discover the angle which the line 1—7 makes from a meridian line running North and South, by subtracting 148° 58' from 180°. The difference is 38° 2'. This is an angle which is dealt with in the tables, on consultation of which it was found that a line having this declination and a length of 355 links had a latitude of 279.62, and a departure or longitude of 218.73.

It was perfectly clear that as the line 1—7 makes an angle of 148° 58' East of North from station 1, then station 7 lay to the S.E. of station 1; this angle being greater than 90° and less than 180°. The latitude was, therefore, 279.62 links South, and the departure 218.73 links East; and entries to this effect were made in the Traverse Book.

In the same way the latitudes and departures of the lines 1—2 and 2—3 were ascertained; but in order to find the total latitudes and departures of station 3 in relation to station 1, it was necessary to algebraically add the latitudes and departures of station 3, as ascertained from station 2, to those already ascertained as pertaining to station 2. Thus the new Southing of 102.15 had to be added to the Southing of station 2 (which was 553.34), making a total Southing at station 3 of 655.49. On the other hand, there was Westing of 176.58 from 2—3, while there had been Easting of 27.06 from 1—2; so that it was the difference between these, amounting to 149.52, which became the total Westing of station 3 from station 1.

The total latitudes and departures of all the other points were similarly found, so that all the points were eventually referred to the starting-point, station 1. In this way station 7 was reached a second time, with the result that on the second occasion there was found to be a slight difference of total latitude and departure; not enough to affect the plotting, but sufficient to indicate that irregularities of surface had interfered with exact measurements. The degree of accuracy secured was, however, far greater than could have been obtained in any other way, for it was scarcely more than a link in either direction, and nothing better than this could have been expected, as fractions of a link were not measured.

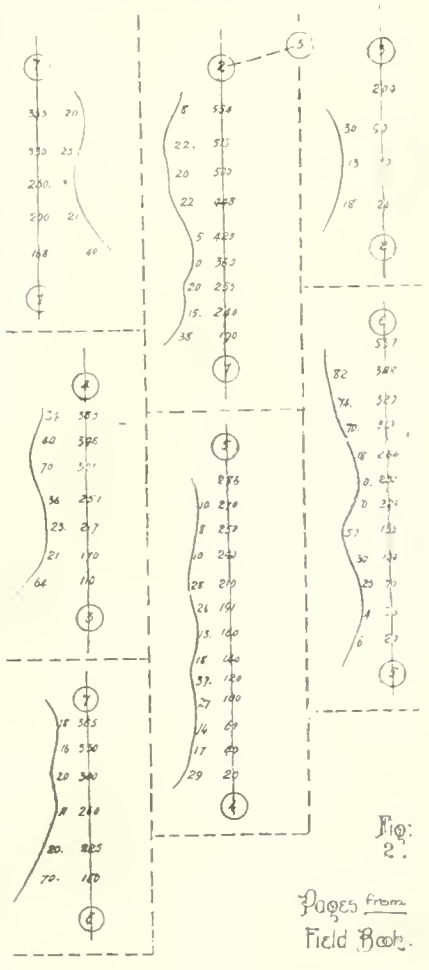


Fig. 2.

Pages from Field Book.

The principal points, as will be seen by reference to Fig. 1, were now plotted direct from the *total* latitude and departure columns of the Traverse Book the measurements in all cases being taken from station 1, along the N. and S. meridian line for latitudes, and at right angles to it, either easterly or westerly, as the case might be, for departures. Any accidental error of plotting could be checked by afterwards laying the scale along the lines. For example, when station 7 has been laid down as nearly as practicable as 279.62 S. and 218.73 E. (in other words, even with a fairly large scale,

[illegible]

[illegible]

[illegible]

ciated with a good deal of black. In this way extremely noble and splendid and reposeful effects may be achieved by a man who is a real colourist, effects which will be, in the words the late Mr. Brydon used, "very broad, very simple, very stately, very strong in lines, not at all naturalesque, and not at confused or jumbled up." Deep blues and greens and full-coloured reds, grave shades of brown or citron, ash-colour and purple, combined with a good "architectural" convention in the treatment of the figures, may be as readily attained in this material as in any other—by the man whose artistic powers lie in that direction. That, of course, is the essential condition for success. As the conditions of training are slowly improving, and common and sympathetic interest is encouraged between the architect, the sculptor, and the painter, we shall find, as time goes on, many young artists arise who are quite capable of working with a true "architectural" understanding of the relation of their share of the work to the whole, and who, as colourists and as modellers, can act as true colleagues and assistants to the architect.

In proposing a vote of thanks to Mr. Anning Bell, Mr. Walter Crane said the lecturer had touched upon the great difficulties which artists felt in working together. It was, indeed, very rarely that a sculptor could carry out work harmoniously with a decorative artist, and these, again, with an architect. It was very difficult, as they had all realised that evening, to form a definite opinion as to the effect of colour decoration from uncoloured photographs, shown as lantern-slides. It was often possible to get the effect of colour in decoration by the employment of bronze, gold, and silver, without introducing paint. The reason why commercial firms were encouraged to undertake all forms of design and decoration was, he feared, because the British public had little real sympathy with, or appreciation of, true art.

Mr. Gerald Moira seconded the vote of thanks, remarking that they had had a charming exhibition of coloured relief and a full exposition of its technique.

Mr. T. Lynn Jenkins had been pleased to hear Mr. Anning Bell advocate the definite application of colour to sculpture as a dignified and effective mode of decoration. The union of colour and form, of modelling and painting, might be regarded as a lawful wedding of the arts, and he should like to hear the objections of architects, if they entertained them, to this strong form of art. It could be made permanent by the use of bronze, mother-of pearl, gold, and silver.

Mr. John D Crace regretted that the lecturer did not lay stress on the important point that much of the effect of coloured relief lay in the character and treatment of the surroundings. One great drawback to the use of terracotta as a basis of coloured relief was the very great weight of the material as compared with that of plaster. The latter material was popularly regarded as fragile, but if properly placed it would last as long as the building itself. There were many examples of plaster decorations which had existed for three centuries. Mr. Anning Bell had not alluded to the Spanish examples of coloured relief; there were very many of these dating from the 15th and 16th centuries, and possessing great vigour and refinement of expression. He thought that coloured figures in relief could only be effective where the one artist was both the modeller and the colourist.

Mr. Maurice B. Adams drew particular attention to the durability of the work at Hardwicke, to which Mr. Crace had alluded. He had been more than struck to notice that in the uncompleted, or partially demolished, house which stands in front of Hardwicke Hall some of the decorations, which were very similar to those shown on the screen, had been exposed to the atmosphere from the time, he supposed, when the house was completed, and the work was still quite sound. Much of the brickwork, and some of the stonework, had perished; but the figure stucco work, which had been quite as much exposed as anything else, was still standing. He thought this was worth mentioning at this juncture, because there was no possible doubt that stucco was one of the most durable materials we had. He did not know where the use of stucco ended and where plaster began; but the figures in the decoration were practically the same as the frieze round the Throne room and other parts of the present mansion. With regard to the colouring of the kind shown that evening, and the objections which architects had to it, that was illustrated in the work of an extremely distinguished man, one of the greatest of his time—unfortunately, he was not working with them now—viz. Alfred Gilbert. When visiting St. Alban's Abbey a few weeks ago, he had been perturbed with the dossal which Gilbert had put up there. There were two crouching angels, with heavily massive wings, covered, he presumed, with mother-of pearl, and the rising from the tomb of the Saviour was represented in the centre in a very archaic manner, and in lines which did not, to his idea, assimilate with the flowing forms of the wings, or represent the essential idea of the Resurrection; the whole thing, however, seemed to him utterly incongruous with St. Alban's Abbey. If it had been in a church of a very modern kind, it might have been fitted to its environment, such as Mr. Crace mentioned; for, after all, that must be the dominating note governing all applications of designs of that kind. The figures in the screen at St. Alban's filled one with dismay, and, with the Crucifix which took the place of the silver figure which Lord Aldenham was willing to restore, but which Lord Grimthorpe would not allow him to put there, were things which they need not comment upon. The coloured sculptured dossal could hardly be called a reredos, because there was the great altar screen furnished that, with the crucifix in the midst. The gaudy interpolation was unfinished, and probably Gilbert would never finish it; but it illustrated one of the incongruities carried out by our contemporaries in this historic church. It might have been a beautiful thing by itself, judged apart from its position; but in its present place it seemed to him a deplorable instance of incongruity.

Mr. H. H. Statham said the lecturer had not alluded to the history of relief decoration in colour, or they would probably have been reminded that colour was undoubtedly applied to the frieze of the Parthenon. The Pan-Athenaic procession thereon portrayed was in very low relief, and a frieze was erected high up on the walls, where it received but little light. Where sculpture was in high relief the effect of colour was always unsatisfactory, as in the reredos by William Burges in Waltham Abbey Church. If the sculpture was executed in low relief and tinted, the figures did not seem too pronounced, and the effect was refined.

In putting the vote of thanks, the chairman remarked that architects were also artists, with ideas that were not always compatible with the aims of decorators. He would ask how far was the decoration in coloured relief expected to go? He held that all ornamentation should be distinctly subordinated to the work of the architect.

In his reply, Mr. Anning Bell said he had tried to point out that the decorator must always seek to collaborate with the architect. His paper had been a plea for the equal appreciation of relief in form and charm of colour.

SOCIETY OF ARCHITECTS' VISIT TO LAMBETH PALACE.

A numerous party of members of the Society of Architects, including Mr. Percy B. Tubbs, Vice-President, Colonel Seymour Leslie, R.E., Hon. Secretary, and Mr. C. McArthur Butler, Secretary, had a very interesting and enjoyable visit to Lambeth Palace on Saturday afternoon. At the entrance under Cardinal Morton's Gateway they were received by Mr. W. D. Caroe, M.A., F.S.A., under whose supervision the palace has been repaired, and who proved a most courteous and informative guide.

Passing along the pathway to the north of the Library, Mr. Caroe conducted the visitors through the Post Room in the so-called Lollards', or Water Tower, and by the turret staircase, first of oak, and then of worn masonry, on to the leads of the chapel. Here he showed a large-scale plan of the buildings constituting the Palace, and explained that a small part of the site was acquired from the Bishop of Rochester by Archbishop Baldwin, the Cistercian monk and Crusader, who had quarrelled with his Benedictine monks at Canterbury, and built here a residence, together with a college and hall, facing Westminster across the Thames. In 1189, while Baldwin was absent in Palestine (where he died the following year), the monks of Canterbury came to town and demolished the buildings. The next archbishop, Fitzjocelyn, died before his election was confirmed; but the following one, Hubert Walter, reconstructed on the old lines a college and chapel and other buildings, which he nearly completed, and of which remains existed till the 19th century. When they visited the chapel crypt they would see masonry which probably dated from Walter's day, and some fragments of work which might, perhaps, be attributed to Baldwin. Passing over three other prelates, they come to the famous Archbishop Boniface of Savoy, appointed in 1241, who, at the instigation of the Pope, rebuilt over the crypt the beautiful chapel as we now see it, and probably the cloister which formerly abutted on its north side. The great Water, or Lollards', Tower, faced with friable Reigate carrstone and brickwork, was erected—or, rather, re-erected—against an older staircase turret, in 1435, by Archbishop Chichele, who also repaired other parts of the fabric. The building records of his work were wonderfully complete, and we know that on the face of the tower towards the river Chichele erected the oriel still visible, and placed in it a long-famous statue of his predecessor Thomas à Becket. The niche, or oriel, cost £5 8s. 6d., and the figure another 11s. 4d. Chichele also built the almonry, or Grand Chamber, adjoining the parish church. Nearly seventy years later, in the days of Henry the Seventh, Archbishop Morton built the imposing gateway of small bricks forming the entrance to the Palace. In a line east of the tower, and a little beyond and north of the chapel, Archbishop Thomas Cranmer reared, in the reign of Henry the Eighth, the low brick tower which bears his name. The memory of Cardinal Reginald Pole was closely associated with the Palace on account of the additions he made to the Palace buildings, including a lofty tower destroyed in the 17th century, and to the fact that when charged with heresy he was, like Cranmer, confined for a time in the prison chamber, the upper floor of the Lollards' Tower. The chapel was repaired and provided with new altar-rails by Archbishop Laud, and some of the principal charges against him of inclining to Papistical opinions, and which led to his impeachment, attainder, and beheadal, were based upon his alterations to that part of the buildings. Great devastation was wrought at Lambeth by the Puritans after his execution, and when his successor, William Juxon, who had attended the first Charles on the scaffold, was installed, in 1660, he found the palace "a heap of ruins." The ancient hall, since 1834 known and utilised as the library, which had been demolished, was rebuilt on the old lines and as nearly as possible in the old manner; but, of course, all the details were Italian. Whether Sir Christopher Wren had a hand in the design was unknown. The style was very like that of his recognised works, but no record of his connection with the Palace existed, although, curiously enough, a portrait of his father, Dr. Christopher Wren, the Dean of Windsor and Wolverhampton, was hung in the drawing-room. Various additions were made to the Palace buildings by subsequent Archbishops, and when William Howley was appointed, in 1826, he found it extremely inconvenient in plan, the kitchen being in one block, and the dining-room in another. He called in Edward Blore, who pronounced the residential buildings to be as dilapidated as incommodious, and rebuilt them all as we now saw them at an outlay of some £60,000, half of which was borne by Dr. Howley.

Having thus sketched in detail the architectural history of the fabric, as to which, he

THE "BUILDING NEWS" ADVERTISEMENT DESIGN COMPETITION.

We have much pleasure in announcing the result of our recent Advertisement Design Competition, which, on the whole, was a very successful one, and has provided many of our advertisers with new designs for attracting the attention of readers to their specialities. In all, nearly 200 designs were submitted, and the task of awarding the premiums has not been altogether an easy one. There is no doubt, however, that, taking everything into consideration, the first prize is easily won by

Mr. G. Thomas Arthur,
16 Cranbrook road
Redland, Bristol,

for the design for Messrs. Hardtmuth, which appears on this page, and to him we have forwarded a cheque for Ten Guineas.

The second premium of Five Guineas we award to

Mr. J. T. Freeman,
41 Pilkington road
Southport,

for his design for the Silvan Cement Co., Ltd., which was reproduced on April 21. This page also contains the third prize of half a guinea for the design for the Rubroid Co., Ltd., which appeared on April 28.

In accordance with the terms of the competition we have awarded prizes of Half a Guinea each to the following competitors for designs which we are reproducing in the BUILDING NEWS, and cheques will be sent to them on application:

A. Spence Atkinson, 68, Buckingham road, Low Bank, Liverpool.

Stanley C. Bailey, The Laurels, Banstead road, Ewell, Surrey.

Edw. Banfield, 102, Lloyd street, Greenheys, Manchester.

Harold W. Bidmead, 36, Rippingham road, Withington road, Manchester.

S. C. Bryer, 28, Wilkinson-street, Leigh, Lancs. (two prizes).

C. S. Carter, 165, Francesca road, Tooting Common, S.W.

Edward M. Cox, Radnor chambers, Folkestone.

H. Cecil Dodds, "Higham," Stocken-lane, Heweth, Yorks.

Paul Ford, 40, Erpingham road, London, S.W.

J. T. Freeman, 41, Pilkington road, Southport.

Kenneth Glover, "Homeglen," The Avenue, St. Margaret's-on-Thames.

Florence M. Goldsmith, Old Blendworth, Horndean, Hants.

Alfred Hill, A.R.I.B.A., 23, Thornton-road, Huddersfield (two prizes).

W. W. Hitchins, 121, London-road, Reading.

Alfred G. T. Land, 33, Armstrong-avenue, Newcastle.

Jas. Macgregor, c/o. H. J. Blanc, Esq., R.S.A., 25, Rutland square, Edinburgh.

A. Martin, 35, Rhyman-road, Cathcart (two prizes).

Charles Matthew, 118, Ashford-street, Shelton, Stoke-on-Trent.

Jas. M'Lure, 55, William-street, Greenhead, Glasgow.

P. C. Morris, 13, Hainault road, Leytonstone, E.

A. H. Neck, 15, The Common, Stoke Newington, N.

O. Newbold, 21, Great Peter-street, Westminster, S.W. (two prizes).

Fred G. Pain, 120, Holland-road, Brixton, S.W.

F. Radford Smith, Monmouthshire C.C. Offices, Newport, Mon.

Morgan Reddie, 21, Lane grove, Bideford, N. Devon.

F. G. Lendsbury, 10, Friar-street, Reading.

Paul H. Solon, Stoke-on-Trent.

G. W. Stokes, 12, Fairfield-street, Wandsworth, S.W.

W. W. Tinlin, c/o. Mr. D. W. Greatbatch, Diamond Market, Kimberley, S.A.

In addition to the cash prizes announced above, Messrs. Hardtmuth have generously offered a sample box of their celebrated Koh-i-Noor Pencils to the following competitors who sent in designs for their advertisement which they regret they are unable to use. Application for these consolation prizes should be made to us by the competitors whose names are as follows:—A. Spence Atkinson, Cyril H. Lodge, Gerald Hines, Jas. G. Swinton, G. E. Jackson, B. C. Morris, Miss D. M. Hazlett, and Alfred Hill, A.R.I.B.A.

Unsuccessful competitors can have their designs returned on forwarding stamps for postage. We might add, however, that every design sent in has been submitted to the advertiser for whom it was drawn.

The new bridge over the River Stour at Redbridge, near Long Melford and Sudbury, which was opened on Thursday in last week, replaces an old wooden structure, which had become insufficient to carry the heavy traffic which now travels over the roads from North Essex into South Suffolk, and vice-versâ. The new bridge is of concrete, and is wider than the old one. It was designed by Messrs. P. J. Sheiler and A. Ainsworth Hunt, the surveyors to the County Councils of Essex and West Suffolk, and is being carried out by Messrs. Holloway Bros., contractors, of London.

Four wat rproofed reservoirs built by the El Paso & Mexico South-Western Railway a year ago have given satisfactory service as the result of suitable treatment of the concrete linings. Soap and alum were first used in coating the lining, which was 4in. to 6in. thick. Two coats of each were applied, beginning with the soap and alternating. Hot asphalt or cold prepared asphalt paint was then put on the surface. Some trouble was experienced in making the asphalt adhere permanently, owing to the fact that the surface was smooth and glossy as a result of the alum-and-soap treatment. The prepared asphalt paint adhered more firmly, however, and proved satisfactory. The work was done on the basis that dense concrete rich in cement is the primary requisite for watertightness. The treatment was selected after tests to determine the qualities of the soap-and-alum solutions and the asphalt and paint.

CURRENTE CALAMO.

An insight into the jealously guarded secrets of an Architectural Association Council meeting will, we hear, be vouchsafed to those who witness the A.A. Play, to be given on the first four evenings of next week in that most desirous of all assembly halls, the Maddox-street Galleries, kindly lent for the occasion by the Institute Council. Fresh light is to be thrown on the education question. Much fun will be made of recent doings in the architectural world, and many men concerned will find themselves satirised in "Putting the Best Face upon it," which, like the topical absurdities of previous years, has been penned by the Purple Patch, and mounted by Mr. C. Claude Kelly. A new and original prologue has been written by the same authors, and the curtain will rise at 8.30 p.m. The evenings have been altered since the first announcements were made; the first night, Monday next, will be the "smoker," morning dress being permissible, and Tuesday, Wednesday, and Thursday are ladies' nights. Tickets, at 5s. and 2s. 6d. each, may be obtained at the Association offices, 18, Tufton-street, Westminster.

Mr. Paul Montford, the sculptor of the memorial to Sir Henry Campbell Bannerman, which is to be placed in Westminster Abbey, is putting the finishing touches to his work. A full-length figure of the dead Premier was proposed first, but space not being available, the memorial takes the form of a bronze bust set on a pedestal of red marble against a niche of black marble, and framed in an Ionic entablature of black marble and bronze. The whole effect is very good, and the face is an excellent likeness. The memorial cannot now be placed in the Abbey before the Coronation; but when it is reopened in July the work will be in position. It is, we believe, to be placed next to the Fox monument.

It is really time the hands of the local authorities were strengthened as regards the regulation of advertising hoardings. As things are, the bill-poster seems able to defy everybody, and ruin a residential district, or utterly spoil sylvan surroundings at his will and pleasure. Recently, the people of New Malden sent a protest to the Local Government Board against the spoiling of their still rural stretches by a great hoarding 500yd. long. But the Board can do nothing, and wherever the bill-poster can arrange privately to put up his horrible structures, it seems as if public authority must just stand by and look on. What is wanted is a stiff tax on all posters, strict limitation as regards height, and power to each local authority to forbid their exhibition whenever they are objected to.

Let us remind readers, by the way, who are members of local authorities, that they *can* do something, little as it is, under existing powers. By a general Act passed in 1907, any county or town council, and any district council in an urban district with a census population of 10,000, may make by-laws for the regulation of advertisement hoardings. The scope of the by-laws is rather narrow; but where a public park or pleasure promenade, or the natural beauty of a landscape is threatened by the bill-poster, the Act seems to give the council a pretty free hand. Many towns seem not to know this, or that their surrender of every point of vantage to the bill-sticker, is one of the causes, and no small one, of depreciation of property, and rising rates.

The proposal to link up isolated farms by cheap telephones has come as a surprise to agriculturists, who are notoriously conservative. We are told that the Postmaster-General intends to develop our telephone service on popular lines. It is high time! So far, the telephone is a luxury even in our large towns. We are a century behind the Swedes, who in their cities have linked up under their telephone system the bulk of the ordinary householders, while in the hotels the traveller will even find a telephone at the side of his bed. Here, thanks to the monopoly which, all these years, has done as as it liked, it would to-day really pay a large business house with many branches to take a few "isolated farms" scattered about the country, and take advantage of Mr. Buxton's promised three-pound rate.

A scheme of what are called "industrial bursaries" has been formulated by the Commissioners of the Exhibition of 1851, with the object of assisting poor students of science who on leaving college are without the means to tide over the usual interval before they can obtain remunerative employment. The first awards under the scheme will be made towards the end of next July. There will only be ten students who will get them, and they will vary from £50 to £100 a year, except for study abroad, when the amount may be increased to £150. The institutions invited to nominate candidates this year are the University of Edinburgh, the Heriot Watt College, Edinburgh; the University of Glasgow, the Glasgow and West of Scotland Technical College, the University of St. Andrews, the University of Aberdeen, the University of Birmingham, the University of Bristol, the University of Leeds, the University of Liverpool, the University of Manchester, the Armstrong College, Newcastle-upon-Tyne; the University College, Nottingham; the University of Sheffield, the University of Oxford, the University of Cambridge, the University of London, the Imperial College of Science and Technology, the University College of Wales, Aberystwith; the University College of North Wales, Bangor; the University College of South Wales and Monmouthshire, Cardiff; the Royal College of Science for Ireland, the Queen's University of Belfast, the University College, Cork; and the University College, Galway. We shall watch the working of this scheme with interest. As candidates must be twenty-five years of age, British subjects, and able to prove to the Commissioners that they have got a post, or are likely to get one, in some engineering or other manufacturing firm within a month of election, it might easily degenerate into a benevolent, but hardly satisfactory, agency for supplying employers with cheap talented labour. The Commissioners for the Exhibition of 1857, who were left with £180,000 profits of the Great Exhibition to spend, have not greatly justified their long existence of nearly sixty years.

The land-selling peers are piling business on to our brethren the surveyors and auctioneers, and in many directions our turn will come soon—more especially in Devon and Cornwall, where big sales are announced on behalf of the Duke of Bedford at Tavistock, in South Devon; of Earl Stanhope at Holsworthy, in North West Devon; and of Earl Fortescue and the Earl of Wharncliffe on the north coast of Cornwall. In many cases the property covers sites of surpassingly historic interest and unrivalled picturesqueness. There is Tintagel, for instance, where King Arthur's castle still dominates "Dark Dundagill by the Cornish Sea," and where probably the flocking tourists in increasing numbers will soon want far more accommodation than the comfortable Wharncliffe or the more ambitious hostel—one of several due to Mr. Sylvanus Trevail's enterprise—will afford. Elsewhere than at Trevena, too, some of us ought to have a look in ere long along "the thundering shores of Bude and Boss," where at Treote, Tregavarne, and Trewetha, Lord Fortescue's little lots "command unrivalled sea views"—all far nearer to London now, practically, thanks to the London and South-Western Railway Company—than Brighton was to our forebears in the days of the Regency.

The rural district council of Braintree have instructed Messrs. Sands and Walker, civil engineers, Nottingham, to prepare a scheme for the water supply of Hatfield Peverel.

Permanent organisation was effected by the Minneapolis Society of Architects at a meeting which took place recently. An executive committee of seven members was chosen as follows: W. C. Whitney, Harry W. Jones, E. H. Hewitt, J. P. Jackson, S. M. Colburn, Henry Downs, and E. H. Brown.

Another Welsh beauty spot has been made of easy access to holidaymakers by the new twelve-miles long railway from Lampeter to Aberayron, in West Wales, which was opened by the Great Western Railway Company for passenger service the other day. Lampeter is on the Great Western line from Carmarthen to Aberystwith.

The Mersey Dock and Harbour Board have under consideration a scheme, submitted by the works committee, to raise the eastern portion of the south (or low-level) quay of the Brocklebank Branch Dock, and to erect upon it a double-story shed with a roadway and lines on its south side. The proposal is to erect a shed 500ft. long by 90ft. wide.

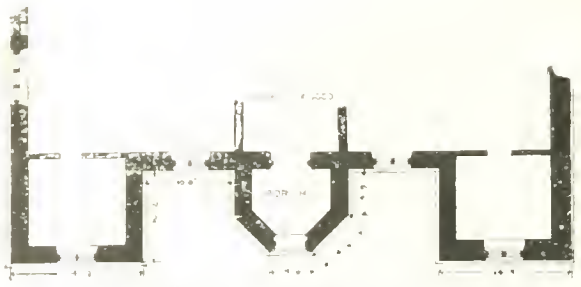
A memorial tablet has been unveiled in the Royal Scottish Academy buildings, Edinburgh, to commemorate the services of the President, Sir James Guthrie in carrying through the series of negotiations which resulted in the transference of the Academy from its former home. The tablet of bronze, framed in marble, has been executed by Mr. Alfred Gilbert, M.V.O.

As sufficient money has now been raised by subscription for the erection of a statue to Captain Cook, permission has been given for the statue to be placed on the Mall side of the Admiralty arch, at the end of the Processional road, on the right hand going towards Charing Cross, and the commission was given on Friday to Sir Thomas Brock, K.C.B., R.A., the sculptor of the Queen Victoria Memorial. The pedestal on which the statue will be placed is not far from the marines memorial.

The Birmingham Extension Bill was finally passed on Friday, and now only awaits the Royal assent. The last time the boundaries of Birmingham were enlarged was in 1891, and since then there has been a great increase in the population on the outskirts. The whole of Handsworth, Aston Manor, Erdington, Yardley, and a portion of King's Norton and Northfield are now incorporated, and the population of the city has been increased from 505,343 to 837,000, the acreage from 13,477 to 15,718, and the rateable value from £2,533,939 to £4,270,221.

His Majesty's Acting Consul-General at Leipzig, Mr. R. M. Tuxford, reports that a Portland cement factory, with an annual capacity of 1,000,000 barrels of cement, is to be erected at Sattelstadt. An assurance has been issued that the new concern will not directly join the Central German Cement Association; but, says the Acting Consul-General, it is almost certain that the establishment of this new factory will make the already unsatisfactory price and market conditions in the German cement trade even worse.

Castle Ycwyarde: The Principal Entrance [illegible] Door.



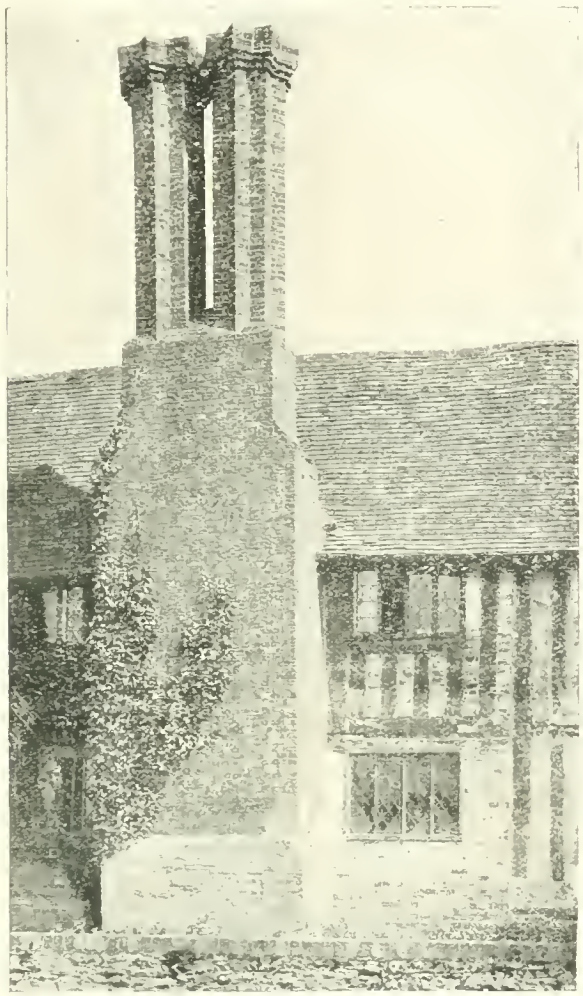
Winterbourne Anderson Manor House, Dorset: Plan of Principal Front

Winterbourne Anderson Manor House: Plan showing Laying out and Original Approach.

[illegible] Bristol has [illegible] Tudor [illegible] Hampton [illegible] Elizabethan [illegible] Bradford [illegible] Bridge [illegible] Hengrave Hall [illegible] Edwardian [illegible] Bridges [illegible] Hedingham [illegible] Bridges [illegible] Bridges [illegible] Bridges

the scope given him by the introduction of ribbed and moulded ceilings, the plasterer went on elaborating and inventing, till wooden ceilings ceased to be employed, giving place to arabesques and geometrical patterns which also found their way on to wall surfaces, as at Upton Cressett, Shropshire, here illustrated to show the plaster over-mantel, treated as mural work in scale with the ceiling.

From Skipton Castle, once a Yorkshire fortified stronghold, we take a sketch of the principal entrance. It is one of eight doorways, and a capital view is given in the book of the cosy little courtyard, with its pretty central porch, with its canted sides, is carried up as a two-storied bay, and strikes a note as charming as it is original. The three gables have lost their stone finials, and many windows, as shown on the plate, are blocked up; nevertheless, the composition is so vigorous, and the two groups of brick chimney-stacks so skilfully brought up, just in the right place, that such minor misfortunes detract but little from the general effect. The plan of this front illustrates the manner of these projections. The house, in common with its kind, has suffered more inside by modifications; but some of its old features still remain. It stands remote from



Eastington Court, Worcestershire. Chimney Stack, West Side.

windows, the congruity of which is now spoiled by the introduction of plate glass.

We have chosen for our representative plate a photograph of Winterbourne Anderson Manor-house, Dorset, once the home of the Turbevilles of Bere, but parted with to the Mortons of Milborne. Sir George Morton sold the property to John Tregonwell in 1620. He is said to have erected the present house some two years later, coming to live at the manor in 1624. On the waterheads, 1622 occurs, and Coker wrote in 1625, "where of late Mr. Tregonwell has built a faire house." The village has now vanished, and the church alone keeps the manor-house company. The block plan given shows the original approach by bridge and forecourt, but they no longer exist. The house is quadrangular, and is built of red brick, with stone quoins and dressings. The bricks, which have weathered to a beautifully soft tone, are quite thin, four courses rising eleven inches only. They are laid in English bond, and every third course is built with dark grey vitrified bricks, giving an exquisite wall texture which the photograph scarcely shows. The lower part of the walls beneath the stone plinth course is built of unsquared flint, and the roofs are covered with tiles. Considering its dimensions, the principal front has much dignity, and the stress of modern life, and is quite difficult of access; but, as the author says, "it is a valuable example of the healthy traditions in house-building that made it possible in the reign of James I. to carry through a work true to the instincts of the English craftsman, and untouched by the later innovations so apparent in most of its contemporaries."

Upton Cressett, Shropshire: Plaster work.

AMERICAN ARCHITECTURE *

By Frank M. Andrews.

After an introduction dealing with the influences which dominated the earlier stages of American architecture, Mr. Andrews said:

The story of departure from early standards, and the subsequent period of artistic squalor and ignorance, which I may refer to as our architectural Dark Ages, was one, however, not of wilful ignorance nor purposeful neglect, but of the condition of a people isolated by a great ocean, and by the greater intellectual ocean of abandonment of European traditions and ties; with the great task of solving an experiment in Government on a huge scale; with a vast wilderness to subdue and render serviceable to man; with the problem of assimilation of an influx of foreign population. Therefore, in our country, in this condition to which I have likened it, we find the Colonial type of Domestic architecture principally interpreted, not by architects nor under an artistic impulse, but by the builders of the period, whose personal vagaries and idiosyncrasies more and more overwhelm the meagre examples of this authoritative style. Passing over the time of the Civil War, the reconstruction days, and the panic of 1873, we find architecture at its lowest ebb concurrently with the renewal of the energetic development of railroads and of other fundamental industries, a consequent rapid increase in accumulated wealth, and of the power of the individual, as well as of communities, to assert their importance by a material display. The thin skirmish line of architects which stretched across this artistic wilderness from the century of Bulfinch, Hogan, L'Enfant, and others, to the century of Hunt, Root, Richardson, and their contemporaries, men who bravely maintained their loyalty to artistic purity, and devoted pursuit of art under all discouragement, has now broadened into an army of architects and artists, the product of schools of art and architecture both at home and abroad. These men are inspired by exceptional opportunity and an appreciative public. In their numbers and the power of their collective influence upon the civilisation and development of their country, they exceed that of any similar group of men of a single generation to be found in any recorded period of the world's art development. Undoubtedly the greatest, if not the primary, stimulus of the present artistic development of the United States is to be found in the Columbian Exposition of 1893 in Chicago. For the first time on American soil there was to be produced in orderly triumph the majestic splendour of Ancient Rome, of Italy, of the dreams of France, and these architects, recruited from the field of conventional daily routine, thus found in their grasp the opportunity to display to a great people the possibilities and meaning of the art of architecture. To-day it is a thing of the past, ephemeral in its material existence, but everlasting in its message and impression upon the nation. With difficulty can you, to whom the traditions of your own land and the storied riches of Europe are familiar things, realise the revelation contained in this work of art, and its stimulus to our people. Its direct influence is manifest in every important city of our

* A paper read before the Royal Society of Arts, May 24, 1911.

specialised and developed by this demand, all united in effective co-operation with the architect. The question is frequently propounded: "Are these structures beautiful, or can they be made so, and thus enter the realm of artistic thought?" Briefly stated, our fundamental principle in design seems to have become established by treating the tall structure as a column with its base, shaft, and capital. In all of the best and most pleasing examples of the later work, this element appears, and we find the lower stories grouped in a single architectural composition supporting a long vertical and shaft-like series of stories grouped into a simple treatment that carries the eye upward without interruption to the crowning feature of the entire design, which again is a series of stories combined into the capital, as it were, of the mass. The pleasing variety of thought in the handling of this scheme of treatment is one of the best features, and, generally speaking, is now characterised by a sober, refined self control and a truly architectural spirit. In the Classic feeling of the Italian Renaissance the municipal building of New York is unquestionably one of the best solutions of the problem on these lines that we have, while in the West street building, and in the Woolworth building, both in New York, we have equally good examples of the application of Gothic feeling and detail. Considering its extraordinary height and unusual mass, the design of the Woolworth building is, in my judgment, an architectural achievement of the highest order. I have referred to these buildings not only because of their architectural merit, but also for the reason that they represent the two broad schools of design which seem most suitable to the problem presented by the tall building, and are, I believe, typically representative of our lines of future development. In pointing out the consummation of this century and a half of architectural growth in my country, I would have you enter the harbour of the city of New York on a trans-Atlantic liner, and from that point of view for the first time observe the buildings of the lower end of Manhattan Island, with their towering and amazing sky-line and mountain-like mass of architectural grouping, picturesquely artistic and truthfully expressive of the spirit of our lives and activities. I believe that it will grip the imagination of any observer, whether he sees it for the first or the hundredth time, and that he will experience from it that flow of thought and impression which is produced only in the presence of some great and inspiring thing. To me it illustrates the quality and the character of our people, their aspirations, and their peculiar genius in terms of architecture, as do our mountains and valleys our lakes and rivers, the physical character of our land. Prosperity, wealth, and power we are surely possessed of, and we are as surely acquiring from the artistic wisdom and traditions of Europe that which is useful and good for us to have, and are applying it intelligently to our needs. As a people we are learning to respect and revere Art, and to value its uplifting influence, and with these fundamentals to build upon, and with the artistic forces that are ever active amongst us, the future of American architecture will be worthy of high regard.

INVESTIGATIONS OF FLOW IN BRICK-LINED CONDUITS.

In a paper read before the Western Society of American Engineers by Mr. John Ericson, city engineer of Chicago, the conclusion was drawn that for brick-lined conduits a value of n in Kutter's formula of 0.0130 is readily attainable. This is a coefficient due to roughness, and is applicable to tunnels or sewers of ordinary sizes and velocities of flow, lined with sewer-brick laid in cement mortar, if the brick is properly selected and not too warped or uneven, laid in a workmanlike manner and true to line, not disturbed by blasting, and the mortar joints scraped off flush with the brick.

Under certain circumstances, especially if there has been any disturbance whatever of the brick on account of blasting, it will be found advisable and profitable to have, in addition, the entire interior surface of brick conduits washed with neat cement, the strokes of the brush applying the wash to be always along the geometrical axis of the conduit. By this method a coefficient of roughness, n, considerably smaller than 0.0130 should be obtained in well-constructed tunnels of the sewer brick-lined class.

In relation to blasting in the excavation of trenches for brick lined conduits, Mr. Ericson pointed out that if the lining is thereby at all disturbed, whether such disturbance is especially noticeable or not, it will have the effect of increasing the resistance to flow, and consequently decreases the capacity of such a tunnel. The jarring of the brickwork undoubtedly disturbs the mortar joints more or less, so that the bond with the brick will be broken. Slight projections and irregularities will be caused by this shaking of the brickwork, and, irrespective of any visible disturbance or distortion of the same, resistances to the flow of water are created.

A brick tunnel in rock should not be lined until after the completion of the entire excavation, or at least the brick lining should be kept far enough back of the face, and be so protected as to be unaffected by the blasting.

In an earth tunnel, blasting should preferably not be permitted at all, and if anywhere found to be necessary, care should be taken to protect the brickwork from the effect of such blasting, and to remedy any defects in the brickwork that, upon close inspection, may be discovered.

There was a large attendance of members of the Ipswich Building Trades Association at the Crown and Anchor Hotel on Friday, on the occasion of the presentation of an illuminated address to Mr. Edgar Catchpole, to mark the happy event of his golden wedding.

At Tuesday's meeting of the London County Council it was resolved without discussion to grant an option for one year to the Shakespeare Memorial Committee to purchase the site of the County Hall in Spring-gardens on its vacation by the Council, on terms to be hereafter determined by the Council.

The South Westmorland Rural District Council have instructed Mr. Harry W. Taylor, A.M.I.C.E., of Messrs. Taylor, Wallin, and Taylor, to examine the existing sewerage and sewage disposal, and to report to them on the best method of putting the same into an efficient and up-to-date condition.

The corporation of Nottingham received and accepted with thanks, on Monday, the gift from Messrs. Dennett and Ingle of a section of pargetting removed from an old house, No. 69, Long-row, in the city. This fine specimen of plaster-work will be added to the permanent collection in the Castle Museum.

The Chantrey Trustees have bought "A Royal Game," by Mr. W. Reynolds Stephens. This fine piece of plastic craftsmanship, which is in the present exhibition of the Royal Academy, shows the figures of Queen Elizabeth and Philip of Spain playing chess, allegorical of the contest of England and Spain for the sovereignty of the seas.

The First Commissioner of Works has caused investigation to be made by an expert as to the means of coping with any outbreak of fire at Hampton Court Palace. Many of the recommendations made by the expert have been carried out, the water supply has been thoroughly overhauled and improved, and the appliances at the Palace have been brought up to date.

To the commission of the peace for Plymouth the names have been added of Mr. John Ford, architect, of Mr. W. Richardson Fox, managing director of Messrs. Fox, Elliott, and Co., Ltd., timber importers, Plymouth, and of the West of England Steam Joinery Co., Ltd., Stonehouse, and of Mr. John Thomas Fouracres, decorative and stained-glass artist, of Portland-square in that town.

The Griffiths Roberts Memorial Shelter at the Crippled Children's Home, Gosforth, was opened on Tuesday. The shelter is a one-story building, and has accommodation for five boys and five girls, in addition to the nurse in charge. The building, which faces south, comprises two dormitories, with verandah in front, a nurse's room, and bath and lavatory accommodation. Mr. Clive Newcombe, of Newcastle-on-Tyne, acted as hon. architect.

OBITUARY.

We regret to announce the death, in his eighty-second year, of Mr. John Douglas, the well-known ecclesiastical architect of Chester. Mr. Douglas had been ailing for some time, and his death, which took place on Tuesday morning at his residence, Walmoor Hill, Dee Bank, was not unexpected. Mr. Douglas, whose portrait was given in our issue of May 16, 1890, served his articles to the late E. G. Paley, of Lancaster, and went to Chester, commencing in business on his own account at the age of twenty-five. The firm afterwards became Douglas and Fordham, and when Mr. Fordham died became Douglas and Minshull. Under this style the firm has been carried on ever since. Among the many churches he designed were those of Aldford, Tattenhall, Dodleston, Pulford, Hartford, Altear, Warburton, Colwyn Bay, Criccieth, Barmouth, Haydock; Christ Church, Chester; St. Peter's, West Kirby; Congregational Church, Hoylake; Over, Altear; St. Paul's, Boughton, Chester; Deganwy, Shotton, Buckley, Helsby; and also the restoration of Hawarden Church. At Sandiway, where he was a large property owner, he gave the site for the church, and also presented the chancel and lychgate. His domestic work included the halls of Appleton, Abbeystead, Oakmere and Cornist Pabo, Rowden Abbey, Stratton Park, and additions to Joddrell and Glossop halls and Halkyn and Hawarden castles. Many instances of his work are to be found in Chester, particularly in St. Werburgh-street and North gate-street, where he was largely instrumental in introducing the half-timbered style of architecture, a feature which always appealed to the late Duke of Westminster, on whose estate Mr. Douglas did a large amount of work. He never joined the Royal Institute of British Architects. Mrs. Douglas died in 1878, and there is only one son surviving.

The death took place at the Cedars, Malvern, on Sunday morning, at the age of eighty-four, of Mr. William George Freeman, chairman of the firm of Messrs. John Freeman, Sons, and Co., Ltd., Penryn. He had been associated with the granite industry over sixty years. Mr. Freeman became the head of the firm on the death of his father, Mr. John Freeman, in 1874, and later took his two sons into partnership, carrying on the business under the old name. In 1892 the West of England Granite Co., of Penryn, became amalgamated with the firm. The deceased was the first chairman of the company, and held that position to his death, the two sons being managing directors.

A new hall and vestries, etc., have just been commenced at the Presbyterian Church, Durham. Messrs. Beevers and Clarke are the contractors, and Mr. H. T. Gradon the architect. The cost is between £800 and £900.

Mr. W. H. Webb, Licentiate R.I.B.A., has just published, through the Sanitary Publishing Co., "School Planning at Home and Abroad," which is a paper, in full, he was invited to read at the last Royal Sanitary Institute Congress at Brighton.

At the meeting on Tuesday of the city council of Birmingham, the presentation to the art gallery was announced of two valuable paintings, as family memorials of the late Mr. Alfred Morcom and of the late Mr. G. E. Belliss. One of these paintings, "Lilium Auratum," is a superb example of the work of J. F. Lewis, R.A., already represented in the gallery by a notable painting, "The Doubtful Coin." It was painted in 1871, and represents a young Turkish lady and her attendant in a garden gay with many flowers on the shores of the Bhosphorus. The other confers upon the gallery its first specimen of the art of Sir L. Alma-Tadema, R.A., and was executed in 1873. It is entitled "Autumn: Vintage Festival," and is one of a series of four panels representing the Seasons. It depicts the daughter of some Roman house offering a libation to Bacchus on the occasion of the burial of the large amphoræ containing the year's vintage in the cellar, as it was the custom to do each autumn after the making of the wine. Dressed in a leopard's skin and loose gown of dark red, and with a chaplet of ivy crowning her dark loose hair, she is dancing with bare feet in honour of the god.

Building Intelligence.

Engineering Notes.

Intercommunication.

GUINEAS FOR BEST REPLIES.

The Editor will award a guinea for what we deem the best reply to any question below this week.

Letters must be sent in over real name and address. Nothing will be published unless this is done.

Drawings or sketches are welcomed to illustrate replies, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies may be sent in, but a coupon may only be used once.

Other things being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that queries want brief answers, not long ones. Any necessary illustration must be in line only, no tint or washes, and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. K. H. Read, Technical School, Gloucester.

QUESTIONS.

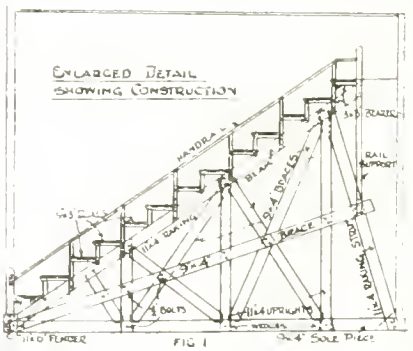
1345.—ROOF-TRUSS.—What form of timber roof-truss is best suited for a span of 45ft., pitch 45°, the covering to be plain tiles?—Rough sketch would assist.—Rise.

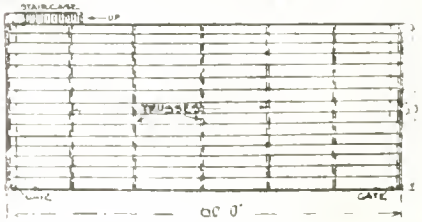
1346.—DAMPNESS.—In two houses the wood skirting in the hall, and in the drawing and dining rooms against the hall wall is found to be in an advanced state of decay. The floor-joists run at right angles to front of house, and, on examination, these are found to be sound, with the exception of the one next to the hall wall, and the one next to the outer wall. The houses have been erected about 14 years, the site is clay, and the floor level is 1ft. above ground. There is a space of about 3ft. below floor. The site is not covered with concrete. A number of air bricks are provided in all outer walls, which have also a damp proof course. The sleeper walls, below floor, are honey-combed, but from examination it is questionable whether any damp-proof course has been used in these walls. The vestibule floor is tiled, and the wall below this is solid, and it is here where the source of decay is suspected. There is no trace of fungus growth on the floor timbers. Can any reader suggest a remedy?—Foot Rule.

1347.—EROSION OF TIDAL FORESHORE.—In case of foreshore and bank, on a farm, rapidly becoming reduced by action of tides, under favourable circumstances—namely, sharp turns in course of tidal river, extremely soft and non-retentive character of mud in foreshore and bank. Piles, although driven 18ft. to 30ft., do not hold. Can a simple, inexpensive scheme, piling or otherwise, be suggested for providing a light structure which would encourage accumulation instead of wasting action of tide? Has expanded metal been adopted in such cases?—X.

REPLIES.

1313.—CORONATION STAND.—The accompanying diagram illustrates a suitable design for a stand to accommodate 500 spectators, and meets the requirements of the respective authorities governing





the erection of such temporary structures. The stand, which is 50ft. long, consists of seven trusses spaced 9ft. 6in. apart, with twelve rows of seating 3ft. wide and 1ft. high throughout. Each row will, therefore, seat forty-two persons. The trusses are principals, as will be seen on referring to the

sketch (Fig. 1), which is a vertical section or end elevation of the stand, are built up of 11in. by 4in. and 9in. by 4in. yellow deals (all the principal stress-bearing members), the uprights being tenoned, mortised, wedged, and pinned into the sole-pieces and strings, or raking beams, while the cross-braces, or struts, are made secure by short tenoning into all three members, as shown, and bolting through with ½in. bolts at all crossings. The sole-pieces are bolted to 11in. by 6in. fenders, while the trusses are also cross-braced at the back, to prevent any movement laterally. The seats are formed of three 9in. by 3in. planks (two 11in. by 3in. planks may be used, if more convenient), spiked to 3in. by 3in. bearers, which are mortised, tenoned, and pinned together in each case. The 6in. by 3in. timber may be cut down and used for this purpose, while the other timber mentioned may be used for the rails, uprights, etc. A staircase is shown on the plan (Fig. 2), at the rear, and gangways around back and sides of stand, to enable spectators to easily take and leave their seats, with two wicket-gates on the front. The seats should be at least 18in. wide. The scantlings specified by querist as only those obtainable are, of course, considerably too small for a stand of this description (while those of the sections herewith given are not any too heavy), and, again, if bolted together, would not be satisfactory, while not one of the governing authorities would grant a license upon application. As to the further question, the stresses, which all act in a vertical direction downwards when the stand is loaded, are distributed throughout by the raking beams to the uprights of struts directly on to the sole-pieces, while braces are introduced to stiffen the bays, thus preventing any likelihood of bending. —Chas. A. Longley, 52, Ivanhoe-road, Denmark Park, London.

[13043.]—CORONATION STAND.—Without further information as to the position of the stand and the frontage and depth available, it is somewhat difficult to answer the query. The best principle is the use of built-up trusses, using as a basis the triangle similar to a roof-truss. I have sketched out a form of stand easily adaptable to any height, in which the height of a standing spectator governs the position of the lowest seat. I think that the sketches are self-explanatory. A continuous sill should be provided to each upright, placed about 6ft. apart, to spread the weight. The uprights are built up of No. 3 6in. by 3in., bolted together with ½in. bolts, as shown on the isometric sketch. All the joints should be of the simplest form, coach-screws, bolts and nuts, iron dogs and cleats being used. The approach should be from the rear, so as to avoid any chance of the general public rushing the stand; the stairs should be of a single flight and painted white, to make them plainly visible. The stand should be divided into bays of 14ft. or so, to provide comfort for the occupants of the stand by preventing overcrowding, and also to prevent a rush towards any one part. A roof, or covering, may be provided; but the uprights must be placed so as not to obstruct the view more than can be helped, whilst provision should also be made in case of a very high wind. Large stands in certain positions will offer a considerable surface to the wind, to counteract which struts on the lines of raking should be used. Gangways 13in. wide, with seats 13in. wide, and raised from the gangways, as shown, are best, as they prevent the front people being kicked by those in the seat behind, the risers are best boarded, to avoid the loss of small articles, should they fall. A distance of 18in. to 20in. is allowed in the length per person, and the best rake for the seats is about 30deg. Double-deck stands and stands over the pavement on vacant building sites may be used as circumstances arise. Provision must be made to get rid of any rainwater if the stand is covered or not.—K. H. Read, Lecturer on Building Construction, Gloucester Technical Schools.

[13044.]—STORAGE TANK FOR GEYSER.—I think they can. It is certainly desirable, to avoid possible risks. Geysers are risky things to use if you depend solely on the main for water.—Kappa.

LEGAL INTELLIGENCE.

YARDLEY COUNCIL AND CONTRACTORS.—The Lord Chief Justice and Justices Pickford and Lush, in the King's Bench Divisional Court, heard on Friday the case of Thomas Vale and Sons v. the Yardley Rural District Council, which came up on a special case stated by an arbitrator. It appeared that Messrs. Vale contracted to construct sewage-works for the council. Upon the completion of the work, the contractors sent in an account, but the engineer to the council was not satisfied. It was provided that any dispute which might arise was to be settled by an arbitrator. Later the contractors, without contending that their former account was a proper and correct one, sent in an alternative account with the object of satisfying the engineer of the council, who had refused to certify the completion of the work, without which certificate the contractors could not obtain payment. Eventually the parties appeared before an arbitrator, when it was contended by counsel for the contractors that the account furnished first should be considered as well as the second one. The council objected to this, and the arbitrator held that he had only jurisdiction to consider the second account. It was now contended that the arbitrator should deal with all matters connected with the dispute. In reply to the Lord Chief Justice, counsel for the contractors said the contract was for £20,664, of which they said £9,674 was due. The Lord Chief Justice said the Court was of opinion that the arbitrator should deal with all matters in dispute, and the case would go back to him with that direction. Mr. Hudson (for the contractors) asked for costs. The Lord Chief Justice: We cannot grant costs. The arbitrator has asked for a direction about costs. The answer is that costs will depend upon the result of the arbitration. The arbitrator has jurisdiction to deal with them.

NUISANCE FROM DEMOLITION OF PREMISES.—FFOULKES v. SALISBURY JONES AND VARE BROTHERS.—In the Chancery Division on Friday, Mr. Justice Parker delivered judgment in an action for an injunction and damages, brought by the leaseholder, No. 2, Jones-street, Berkeley-square, W. The defendant, Mrs. Salisbury Jones, was the owner of No. 27, Berkeley-square. The back of this house adjoined 2, Jones-street, being separated from it by a party-wall. In August and September, 1910, the back portion of 27, Berkeley-square was pulled down to allow of in building extensions, Vare Brothers, the other defendants, being the builders employed by Mrs. Salisbury Jones to do the work. The plaintiff complained that the defendants had not complied with the requirements of the London Building Act, 1894, and had not given her previous notice; and that the operations had been conducted in such a negligent way as to cause a nuisance to the plaintiff by dust and broken materials. In his judgment, Mr. Justice Parker held that, as regarded non-compliance with the statutory requirements of the Act of 1894, this was not sufficient as a ground for giving damages. The second branch of the claim was for damages for injury and personal inconvenience by the pulling down and rebuilding of the adjoining house. He concurred in the decision of Mr. Justice Vaughan Williams, as he then was, in Harrison v. Southwark and Vauxhall Water Company, given in 1891. A man who pulled down his house for the purpose of building a new one doubtless caused considerable inconvenience to his next-door neighbours during the process of demolition; but he was not responsible as for a nuisance if he used all reasonable skill and care to avoid annoyance to his neighbour by the demolition. Nor was he liable to an action, even though the noise and dust, and the consequent annoyance, were such as would constitute a nuisance if the same had been created in sheer wantonness, or had involved a permanent continuance of the noise and dirt. In the present case his Lordship was satisfied that the plaintiff's house was, during the process of demolition of the other house, practically uninhabitable by reason of the brick and mortar dust coming into the rooms and causing damage. In such cases it was only reasonable that notice should be given. No such notice had been given, nor did the defendants use such reasonable skill and care as were required. The neglect of proper precautions to protect the neighbouring house from dust showed a want of exercise of reasonable skill and care. He held that the plaintiff was entitled to £40 damages, and the costs must follow the event.

ARCHITECTS' RESPONSIBILITIES FOR CORPORATION'S DETERMINATION OF FRONTAGE LINE: CURIOUS DECISION.—In the Manchester County-court, on Thursday in last week, Mr. Percy Churchill Larmuth, architect and surveyor, of Cross-street, Manchester, sued Mr. Richard Lomas, builder, of Beresford road, Longsight, for ten guineas, as fees for work done. Mr. Yates was counsel for the plaintiff, and Mr. H. Green, of Stockport, solicitor for the defence. Mr. Yates said that besides being an architect and surveyor, the plaintiff was agent of a building estate for sale in Burnage-lane. Early in February of last year the defendant approached him and negotiated for the purchase of a plot of the land on which he intended to erect three shops. Subsequently, after agreeing to purchase the land, the defendant instructed the plaintiff to prepare plans for the erection of the shops. The plaintiff completed them and presented them to the corporation for approval. The corporation returned them for the signature of the defendant, which was attached. Six weeks later the corporation intimated that they could not pass the plans, as they intended to widen the street and set back the building line by five yards. The defendant thereupon said that this made it impracticable for him to erect the shops, and refused to pay the plaintiff for his work. Counsel contended that as the work had been done before the corporation intimated their intention to widen the road, plaintiff was entitled to his fees, especi-

March 31, p 470 April 14 p 464 April 28, p 613 May 12 p 681 ... 638 Mr Lovegrove and Mr Rowe ... the Director of ... Mr C F Gill, K.C. and Mr J R Rudolph, appeared for the defendant. ... Walter Frampton and Mr Gray Philips ... interested parties. Mr ... Howard a member of the firm ... Howard, ... accountants the firm employed as ... from the formation ... April 1909, was further ... examined by Mr Gill. Several share ... the company were then called as ... including Frederic Heyhurst William ... Lemmé, Walter William Scott Richard ... Richard John Harrison, and Thomas ... H ... Martin and Thomas William ... having produced certain letters, Mr. ... committed the prisoner for trial bail ... well at two sureties of £500 each.

WATER SUPPLY AND SANITARY MATTERS.

FACTS ABOUT THE NATIONAL WATER SUPPLY.—Reading a paper dealing with the question of water supplies at a meeting of the Association of Water Engineers at Buxton, on Saturday Mr W R Baldwin Wiseman, of Southampton pointed out that last year the railways of England and Wales used about 28,500 million gallons, the brewers 15,700 million gallons and the distilleries 650 million gallons. The three trades together used enough water to fill all the annual supply of one-sixth of the population, giving 25 gallons per head per day. The water interests of the whole country represented a capital expenditure of about 260 millions sterling, or 70 millions more than the rateable value of the whole country.

NORTHALLERTON WATERWORKS.—Following upon the opening of the new sewerage works at Northallerton some few weeks ago, the second step in the town's improvement was taken on Friday, when a commencement was made with the construction of the new waterworks which are to be erected at a cost of £7,750. Mr H Chilcott, J.P., chairman of the Northallerton Urban Council, at the council's reservoir, situated at Thimbleby, near Osmotherley, cut the first sod. The existing waterworks, constructed since 1891, consist of a complete scheme to supply 120,000 gallons of water per day. These works have about six miles of conduit from the valley of Oakdale Beck, near Osmotherley, where the supply of water is conveyed to the town of Northallerton and Romanby. The intended extension works will consist of an impounding reservoir for compensation water in the valley of Oakdale Beck. There will be constructed an embankment of earth 110 yards in length, 46ft. high, and about 250ft. thick at the base, tapering at the top to 12ft. wide. In the middle of this embankment there will be a wall of clay 6ft. thick. There will be weirs and masonry to build for taking off the flood waters, and a valve-tower fitted with outlets at different levels, so as to pass off the water to the riparian owners upon the stream below. The council are allowed to take from the Oakdale Beck 150,000 gallons of water per day. This will be in addition to the present 120,000 gallons per day, making the total supply 270,000 gallons per day. The engineer, Mr A M Fower, M.I.C.E., Manchester, carried out the original works in 1891. The whole cost of the work is estimated at £17,000. The contract for the reservoir, for the construction of the wall, embankment, and fixing the ironwork, ... Messrs. D. Fihe and Co., Stockport, whose contract is £10,9.0.

THE SEWERAGE OF ROSYTH.—Giving evidence on Friday before the Select Committee of the House of Lords in the burgh of Dunfermline relative to the inclusion of Rosyth within the burgh boundaries, Mr C P Hogg, C.E., Glasgow, in support of the drainage proposals, said it would be a great advantage to have one scheme which would deal not only with the Dunfermline sewage, but also with that arising in the new town which would be built upon the vicinity of Rosyth.

In the House of Commons on Wednesday, the Edinburgh and District Tramways and Improvements Bill and the Metropolitan Electric Tramways Bill were read a second time.

The water committee of Aberdeen Town Council have appointed Mr Cecil H Roberts, ... Northampton, as water engineer ... Nineteen in place of Mr Lewis Mitchell, of ... who, after having been appointed, with ... resigned the office. The salary is £... per annum.

PARLIAMENTARY NOTES.

KING EDWARD MEMORIAL.—Mr. Douglas Hall asked the Prime Minister whether he would make it a condition to the granting of Crown land, either in Hyde Park or elsewhere, for a site for the memorial to King Edward VII. that the plans or the designs of the proposed memorial should be selected after open competition, and that the greatest possible portion of the work should be British, and that upon the Committee of Selection the Government or the House of Commons should be represented. Mr. Dudley Ward, replying for the Office of Works, said his Majesty's Government had made no contribution to the memorial, and it would be difficult for them to interfere with the work of the Committee elected by the subscribers unless and until the Committee brought forward some proposal which might affect the property of the Crown or of his Majesty's Government.

METROPOLITAN WATER BOARD (NEW WORKS) BILL.—The Joint Committee of the two Houses of Parliament amended on Wednesday the clauses of the Metropolitan Water Board (New Works) Bill in accordance with decisions arrived at in previous sittings. On the question of borrowing powers it was agreed that the period for repayment of the £4,100,000 loan for works of a permanent character should be 60 years. For the £1,000,000 for capital expenditure within seven years on extensions of mains, the Committee gave borrowing powers, and allowed 30 years as the period for repayment. As the limits of deviation for five miles between Stanwell and Wembley followed the line of route selected by the promoters of the Greater London Railway Bill, an agreed clause was inserted providing that any dispute between the Board and the Company should be settled by an arbitrator to be appointed by the Board of Trade. Other amendments were inserted, and the Bill was passed for third reading in the House of Lords.

THE COPYRIGHT BILL.—This measure was further considered on Tuesday by Standing Committee A of the House of Commons. After further discussion, Clause 2, as amended, was added to the Bill. The Committee then considered Clause 3, which alters the term of copyright as respects all classes of works, and provides that the term (except as otherwise expressly provided) shall be the life of the author and a period of 50 years after his death. An amendment by Mr. Croydon Marks to reduce the term to 30 years raised a discussion on the principle of the clause, several members contending that the term proposed in the Bill was too long. It was suggested that a compromise might be arrived at on the basis of an amendment in the name of the President of the Board of Trade to the following effect:—"Provided that at any time after the expiration of 30 years from the death of the author of a published work copyright in the work shall not be deemed to be infringed by the reproduction of the work if the person reproducing the work proves that he has given the prescribed notice in writing of his intention to reproduce the work, and that he has paid in the prescribed manner to, or for the benefit of, the owner of the copyright royalties in respect of all copies of the work sold by him calculated at the rate of 10 per cent. on the price at which he publishes the work." Several members of the Committee expressed the view that the 20 years referred to in the Government's amendment should be reduced to 15 or 10 years, and the royalty reduced from 10 to 5 per cent. The amendment of Mr. Marks was rejected by 20 to 7, and Mr. Buxton had only time formally to move his amendment when the Committee adjourned.

Mr James Haswell, of Hull, builder and contractor, left personalty amounting to £28,170.

A receiving order has been made in the case of Robert F. Brown, architect, Wash-lane, Clacton-on-Sea, Essex, and late of King William-street, E.C.

The Local Government Board have given authority to the urban district council of North Bromsgrove to prepare a town-planning scheme under the Housing and Town Planning Act, 1909, with reference to lands at Rubery, comprising an area of about 554 acres.

A notable addition will be made in a few days to the mural decorations of the Palace of Westminster. Mr. Solomon J. Solomon is now engaged putting the finishing touches to the painting which is to adorn the staircase leading from the central lobby to the committee-rooms above. The picture shows Queen Elizabeth accepting a ring wedding her to the Realm. Elizabeth is seated on a throne, surrounded by her courtiers, and is holding up the ring and is gazing at it with an expression of affected rapture.

Our Illustrations.

WINTERBOURNE ANDERSON MANOR HOUSE, DORSET.

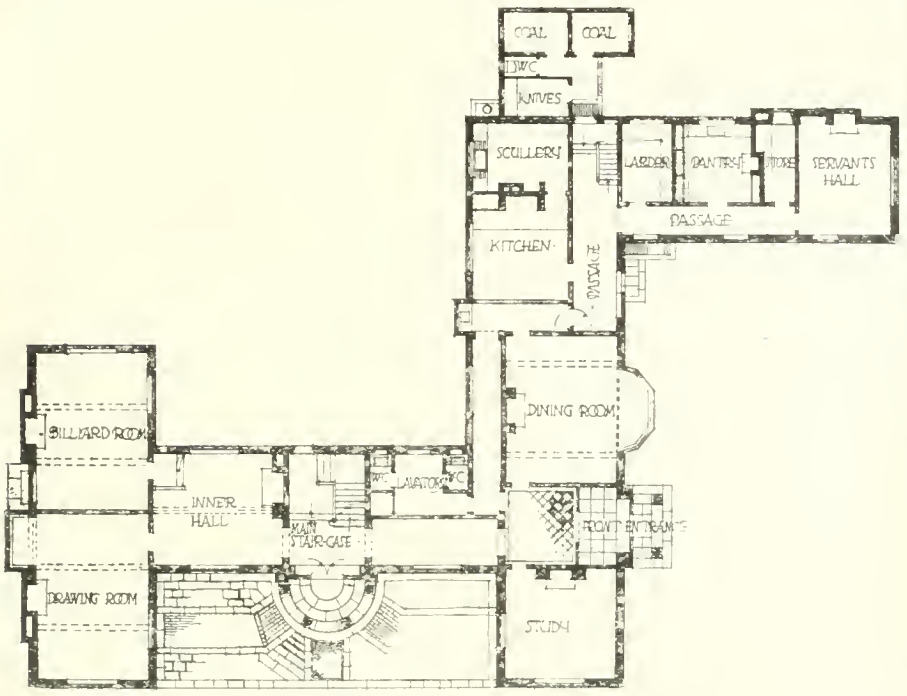
(For description and plans see review of "The Domestic Architecture of England during the Tudor Period," on pages 728-9.)

THE POLYTECHNIC, REGENT STREET, NEW FAÇADE.

This illustration is from a drawing, now in the Royal Academy, of the new Façade for the Polytechnic, Regent-street, and adjoining buildings. Mr. Frank Verity, F.R.I.B.A., is the architect.

HOUSE AT HAMBLEDON.

This house is built on the Great House Farm estate. It is on the top of a low hill, with gentle slopes in all directions except on the entrance front, where it rises slightly. The site is well wooded, and protected on the north and east. The building is of clamp bricks, with red Wrotham quoins, etc., and deep red Wrotham tiles for the roof. The general contractor was Mr. Seward, of Wokingham. The architect is Mr. Ernest Newton, A.R.A., and the drawing is hung this year at the Royal Academy.



HOUSE AT HAMBLEDON.

SELECTED DESIGN FOR THE HARTLEY UNIVERSITY COLLEGE, SOUTHAMPTON.

Messrs. Clyde Young and East, of Lancaster-place, Strand, have been awarded the first premium, and the award of Mr. Henry T. Hare, F.R.I.B.A., the assessor, has been confirmed by the Council. We gave the two principal plans of the chosen design in our issue of May 5. To-day we give the perspective. We fully described the design on May 5. The second premium was awarded to Mr. Edwin Cooper, F.R.I.B.A., of Gray's Inn-square, and the third premium to Messrs. J. H. Hickton and H. E. Farmer, FF.R.I.B.A., of Walsall. The exhibition of the drawings was to be held "shortly," but so far no intimation has reached us when.

Traffic over Rochester Bridge is much interfered with by work now in hand, preparatory to the reconstruction of the bridge. All the electric cables for lighting, telephoning, and gas mains, etc., have to be removed and relaid temporarily, and for this purpose one-half of the bridge is closed. On the completion of the work now proceeding, a footway is to be constructed over the water on the up-stream side of the bridge for the use of pedestrians.

PROFESSIONAL AND TRADE SOCIETIES.

EDINBURGH ARCHITECTS AT BIEL.—The members of the Edinburgh Architectural Association visited Biel on Saturday, by permission of Mrs. N. Hamilton Ogilvy, of Biel and Archerfield. Mr. Thomas Ross, LL.D., F.S.A.Scot., who acted as leader, gave a sketch of the history of the mansion and its owners. The house is situated about four miles from East Linton, on the Biel water, with fine terraces rising up from the stream, and contains a splendid collection of paintings from the Italian, Dutch, Spanish, and British schools, as well as valuable MSS., books, and china. The grounds were next visited, and the old terraced gardens, fine cedars, copper beeches, and other trees combined to produce a scene of rare beauty. The party was entertained to tea, after which Dr. Ross proposed a vote of thanks to Mrs. Hamilton Ogilvy for her hospitality, which was seconded by Mr. James B. Dunn, F.R.I.B.A., president of the association.

INCORPORATED CHURCH BUILDING SOCIETY.—The annual Court of the Incorporated Church Building Society was held on the 18th inst. at the Church House, Westminster, the Bishop of St. Davids presiding. The ninety-third annual report stated that 9,356 places had been aided by the Society with grants amounting to £1,078,495, thus helping to erect 2,641 additional churches and to have 6,715 rebuilt or enlarged. This work alone had called forth a further expenditure on the part of Churchmen of upwards of £17,665,863. Grants to the number of 1,017 had been made, amounting to £27,379, for mission buildings. Grants of money were made in aid of the following objects:—Building the church of St. Gabriel, Bishopwearmouth, Durham, £250; rebuilding the churches of St. James, Milton, near Portsmouth, £100, and The Bourne, St. Thomas, Surrey, £70; and towards enlarging the churches at Brotherton, St. Edward the Confessor, Yorks, £25; Hucclecote, St. Philip and St. James, near Gloucester, £30; Layer Marney, St. Mary the Virgin, Essex, £60; Mold, St. Mary, Flints, £100; and Stoke St. Milburgh, St. Milburgha, Salop, £15. Grants were also made from the Special Mission Buildings Fund towards building mission churches at Caergeiliog, near Rhoscolyn, Anglesey, £30; Heathfield, Sussex, £25; and Holmer, St. Mary, near Hereford, £25. The following grants were also paid for works completed:—East Cowton, All Saints, near Northallerton, £70; Birchington, All Saints, Kent, £35; Tarrant Crawford, St. Mary, Dorset, £50; and Litherland, St. Andrew, near Liverpool, £40. In an address on "Church Building," Mr. Charles Spooner, F.R.I.B.A., said that a large number of very poor designs received the approval of the Society because they complied with its rules. He appealed to the clergy responsible for new churches to select architects who could build churches with dignity and interest, and not those whose only qualifications were that they were relatives or friends of the incumbents, or lived in the neighbourhoods concerned.

NORTHERN ARCHITECTURAL ASSOCIATION.—A gathering of the Northern Architectural Association was held on Saturday in Newcastle, when the General Post Office extensions were inspected, and a visit paid to the new premises of the Northern Conservative Club. There was a large gathering of members of the association, among whom were the President (Mr. H. C. Charlewood), Messrs. J. T. Cackett, J. Oswald, G. T. Brown, J. W. Taylor, J. Bruce, R. Burns-Dick, and C. S. Errington (secretary). The visitors were shown round the new portion of the Post Office by Mr. G. Petrie, H.M. clerk of works. At the Conservative Club they were taken in hand by the architects, Messrs. Cackett and Burns-Dick. This visit was of interest to the members, who last year inspected the building in course of erection.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.—A special meeting of the Council of the above body was held at No. 31, South Frederick-street, on Monday last. The President, Mr. A. E. Murray, R.H.A., F.R.I.B.A., was in the chair, and there were also present Messrs. C. H. Ashworth, F. Hayes, L. O'Callaghan, H. Allberry, G. P. Sheridan, F. G. Hicks, J. H. Webb, R. Caulfeild Orpen, A. G. C. Millar, C. J. MacCarthy, and C. A. Owen (hon. secretary). A large amount of correspondence was dealt with. It was resolved that a printed form embodying particulars of the forthcoming examination for studentship be drawn up for the information of intending candidates. A representative of the Institute was appointed to attend the Congress of the Royal Sanitary Institute at Belfast.

ROYAL SANITARY INSTITUTE.—A provincial sessional meeting will be held at Exeter on Friday and Saturday next week, June 2 and 3. The meeting on the Friday will be held in the Royal Albert Memorial, University College, Exeter, at 7.30 p.m., when a discussion will take place on "Ventilation in Theory and Practice," to be opened by J. Jermin, F.R.I.B.A. It is hoped that the following will take part in the discussion: Dr. George Adkins, L.R.C.P., medical officer of health, Devon C.C.; Principal A. W. Clayden, M.A., Exeter University College; Alderman Chas. Cole, architect and surveyor, Exeter; and Messrs. James Crocker, F.R.I.B.A., Exeter; Councillor R. M. Challice, architect and surveyor, Exeter; S. Hutton, surveyor, Exmouth U.D.C.; Percy Morris, F.R.I.B.A., education architect, Devon C.C.; Thomas Moulding, M.Inst.C.E., city engineer and surveyor, Exeter; P. H. Stirk, M.R.C.S., L.R.C.P., school medical officer, Exeter; C. J. Vlieland, M.D., assistant medical officer of health, Exeter; and W. J. Wreford, sanitary inspector, Exeter. The chair will be taken by Mr. H. Percy Boulnois, M.Inst.C.E. (chairman of the Council of the Institute). On Saturday, June 3, members will meet at the Guildhall, Exeter, at 10.30 a.m., and proceed to visit the sewage-disposal works, septic tank system. After luncheon members will again meet at the Guildhall, and proceed by brakes to visit the corporation waterworks at Pynes.

A Local Government Board inquiry was held at Rochdale on Wednesday as to the application of the corporation for sanction to borrow £2,500 to defray the cost of laying out the extension to Falinge Park, for which plans have been prepared by Mr. P. W. Hathaway, the architect to the general purposes committee, and his designs are being carried out at an outlay of £3,000 by the Falinge Park manager (Mr. Arthur Blagden).

SELECTED DESIGN FOR THE HARTL

Messrs. CLYDE YO

"PHOTO-TINT" by James Akerman

GARDEN PORCH, HOUSE AT HAMBLEDON ERNEST NEWTON ARA ARCHITECT

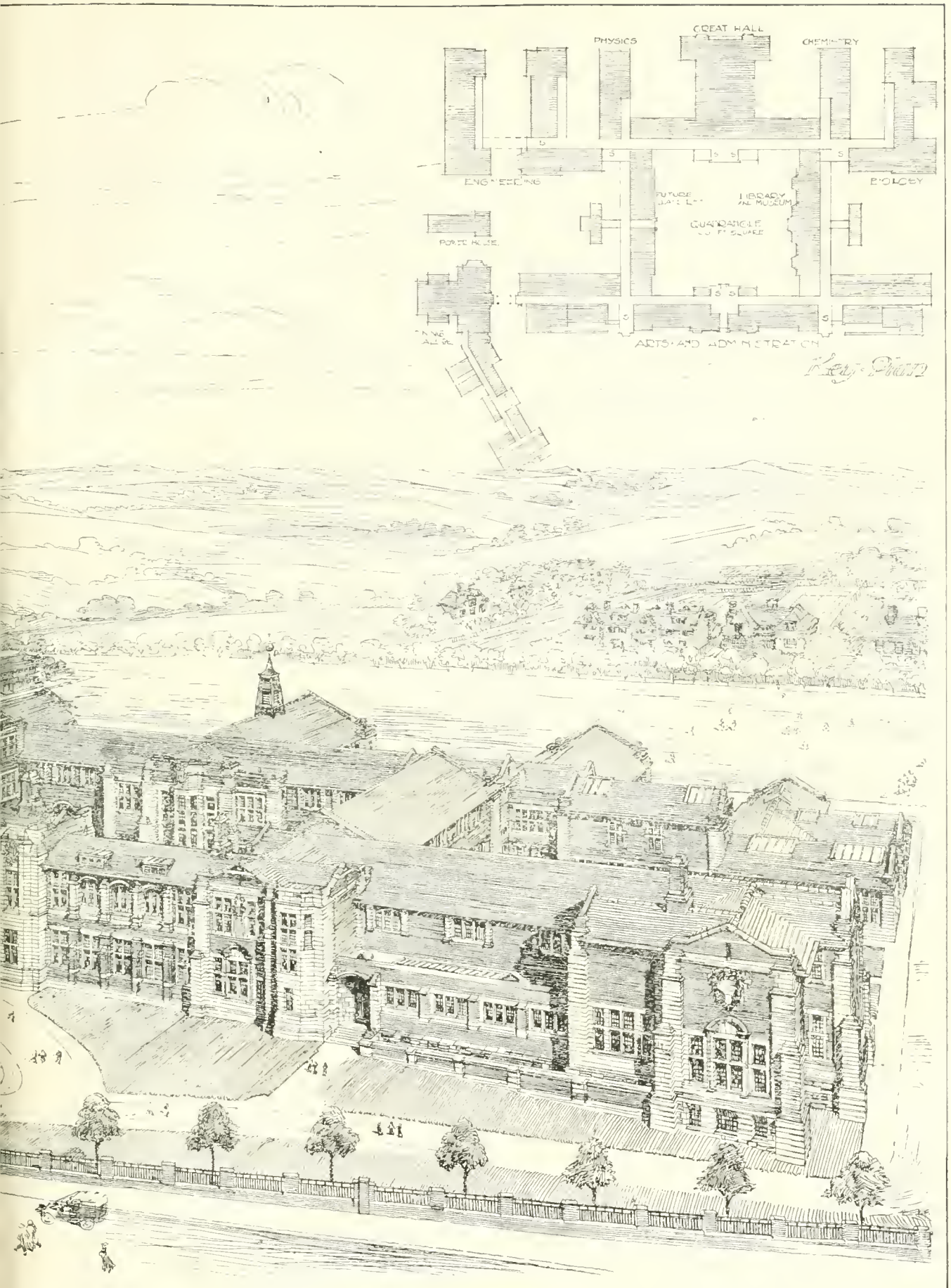
THE POLYTECHNIC, REGENT

"Photo-Tint" by James Akerman, 6 Queen Square London W.

St. W. Frank T. Verity Architect.

WINTERBOURNE ANDERSO

MANOR HOUSE, DORSET.



UNIVERSITY COLLEGE, SOUTHAMPTON.

EAST. Architects.

Our Office Table.

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MEETINGS FOR THE ENSUING WEEK.

SATURDAY (TO-MORROW.)—Architectural Association. Opening of New Athletic Club Ground at Boreham Wood, Elstree. 2.30 p.m.
Institution of Municipal and County Engineers. Metropolitan Meeting at Woolwich Town Hall. "Woolwich, and Some of its Works Since 1905," by J. Rush Dixon, M.Inst.C.E., Borough Engineer. "Description of the Woolwich Footway Tunnel Under Thames," by E. H. Tabor, M.Inst.C.E., Resident Engineer. 12 noon.
Manchester Society of Architects. Visit to Students' Union Building and the new Cathedral at Liverpool.

MONDAY—A.A. Play. "Putting the Best Face Upon It." Smoking allowed. Maddox-street Galleries. 8.30 p.m.

TUESDAY.—Royal Institution. "Charnwood Forest: its Ancient Volcano and Fossil Landscape," by Prof. W. W. Watts. 3 p.m.
A.A. Play. "Putting the Best Face Upon It." Ladies' Night. Maddox-street Galleries. 8.30 p.m.

WEDNESDAY.—A.A. Play. "Putting the Best Face Upon It." Second Ladies' Night. Maddox-street Galleries. 8.30 p.m.

THURSDAY.—A.A. Play. "Putting the Best Face Upon It." Third Ladies' Night. Maddox-street Galleries. 8.30 p.m.

FRIDAY (JUNE 2.)—Royal Sanitary Institute at Exeter. "Ventilation in Theory and Practice," by J. Jermao, F.R.I.B.A. University College. 7.30 p.m.

Mr. Frank B. J. Stephens, of Bognor, has been appointed surveyor and inspector of nuisances by the Salcombe Urban District Council.

The urban district council of Gosport have appointed Mr. F. C. Harvey as assistant surveyor in place of Mr. C. A. Mountfield, who recently resigned.

Mr. W. C. Holloway, of the Kettering surveyor's office, has been appointed out of 171 applicants, surveyor to the urban district council of Waltham Holy Cross.

At Tuesday's meeting of the London County Council the Establishment Committee were authorised to approve the list of firms to be invited to submit, and to invite therefrom, tenders for the construction of the substructure of the new County Hall.

Wandsworth Borough Council has rescinded, by thirty-five votes to seven, a resolution that the memorial statue to King Edward should be placed in front of the Council House at East Hill, Wandsworth, and agreed that it should be at Tooting Broadway.

A Local Government Board inquiry into the application of the Peterborough Rural District Council for sanction to borrow £7,025 for works of sewerage in Peterborough Without, Walton and Werrington, was held by Mr. R. G. Hetheringham, A.M.Inst.C.E., on Thursday in last week, at the Board Room, Peterborough.

Dr. T. H. Tristram, K.C., the Chancellor of the Diocese of Hereford, held a consistory court in Hereford Cathedral on Tuesday and Wednesday week, to consider an application by the vicar and churchwardens of Bromyard for power to refloor and reseat the church, which was stated to be in an insanitary condition, and still containing high old pews facing different ways. Mr. John Hartree, of Messrs. Nicholson and Hartree, architects, Hereford, produced and explained the plans; the cost would be £515. A faculty was granted.

Mr. C. F. Corbould-Ellis calls attention to the disfigurement of the magnificent fourteenth-century crypt under the Guildhall by the introduction to it of a comparatively modern mahogany staircase (probably of the eighteenth century), which has now been there for some short time. As he observes, the staircase completely spoils the symmetry of the interior. Whoever is responsible for this architectural sacrilege, it lies with the Corporation to remove the mahogany intrusion, and rebuild the missing portion of the old stone staircase, so that the crypt may remain, in its entirety, one of the architectural glories of London.

The London County Council has acquired at a cost of £10,200 the freehold property Nos. 107 and 109, Denmark-hill, S.E., as a site for a proposed mental hospital. The council have approved of drawings submitted for the buildings proposed to be erected on a site in Tunnel-avenue, Greenwich, which the council have agreed to let on lease to the British Oxygen Company, Limited, for 99 years. The building will be erected in Crowborough bricks with red brick dressings, while the lettering will be executed in mosaic or glazed brickwork. The principal entrance will be constructed in Portland or Ham-hill stone.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondence.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, Effingham House, 1, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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*** The special rate to Canada is £1 1s. 8d. = 5dols. 27c. for 12 months, and 10s. 10d. = 2dols. 64c. six months.

NOTICE.

Bound copies of Vol. XCIX. are now ready, and should be ordered early (price 12s. each, by post 12s. 9d.), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XLI., XLVI., XLIX., LIII., LXI., LXII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXIX., LXXX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., LXXXVI., LXXXVII., LXXXVIII., LXXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., XCVII., and XCVIII. may still be obtained at the same price; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

Handsome Cloth Cases for binding the BUILDING NEWS, price 2s., post free 2s. 4d., can be obtained from any Newsagent, or from the Publisher, Effingham House, 1, Arundel-street, Strand, W.C.

ADVERTISEMENT CHARGES.

The charge for **Competition** and **Contract** Advertisements, **Public Companies**, and all official advertisements is 1s. per line of Eight Words, the first line counting as two, the minimum charge being 5s. for four lines.

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Rates for **Trade** Advertisements on front page, and special and other positions, can be obtained on application to the Publisher.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

RECEIVED.—G. B. and Co.—M. Bros., Ltd.—H. H.—B. L. Co., Ltd.—J. W.—Z. P. M. and Co.—W. J.—E. S. and B.—W. F. S. and Co., Ltd.—G. A.—L. D. O.—J. G. K. and Co.—H. F. S. B.—Y. Bros.—A. M.—W. H. S. and Son.—E. L. Co., Ltd.—T. C. Co., Ltd.—M. and Co.—C. P. and Co.—S. C. P. Co., Ltd.—W. L.—C. A. Co., Ltd.—A. D. D. and Son., Ltd.—D. and J.—W. H. W.—F. D. and Co.—W. J. S.—H and B.—J. T.—O. and Co.

HOMO.—No.

PARAPET.—Probably.

D. R. S.—Not in our line.

S. D.—That was the old A. B. C. process. General Scott treated the sewer water with lime and clay, and proposed not to use the precipitate as a manure, but to burn it and use it as cement.

MEDIUM.—The danger to all pictures hung in churches, and other badly ventilated places, is from damp that causes the canvas to decay, and the sulphuretted hydrogen in the air that blackens the lights, and causes the middle tints and shades to fade. It has been suggested to damp the canvas in a solution of silicate of potash, and well dry it previous to using; but we have had no experience ourselves of the success of the idea.

The Torr-street reservoir, originally constructed by the old Bootle Water Company, is now being re-roofed with concrete.

TRADE NOTES.

Under the direction of Mr. J. L. Carnell, architect of King's Lynn, Boyle's latest patent "air pump" ventilators have been applied to the new secondary schools, East Dereham.

The new infirmary, Cardiff, is being supplied with Shorland's double-fronted patent Manchester stoves, with descending smoke flues and patent Manchester grates, by Messrs. E. H. Shorland and Brother, Ltd., of Failsworth, Manchester.

A large clock has just been erected in the parish church of Elland, Yorkshire, which shows time on four 7ft. illuminated dials, strikes the hours and chimes the Westminster quarters. It has been erected by Messrs. John Smith and Sons, of Derby, generally to the designs of the late Lord Grimthorpe, and the makers guarantee it to maintain perfectly accurate time. They made a similar clock for Huddersfield Parish Church a little time since—also one for Sowerby Church in the same neighbourhood.

As in former years, the fire protection arrangements at the Bath and West and Southern Counties Agricultural Show, which opens at Cardiff on May 31, are in the hands of Messrs. Merryweather and Sons. In addition to the apparatus necessary for fire protection purposes, there will also be on view a large exhibit of fire appliances and water supply apparatus suitable for country houses, farms, and estates, as well as a selection of the firm's patent spraying apparatus, and those interested in such matters would be well advised to inspect the various appliances.

CHIPS.

The Local Government Board have sanctioned the borrowing of £6,400 by the South Bank-in-Normanby Urban District Council for the construction of a new town-hall.

Mr. Trestrail, the engineer of the water-supply extension works for St. Agnes, made his final inspection of the undertaking on behalf of the Truro Rural District Council on Monday.

It has been decided to erect on land adjoining the Guest Hospital at Dudley an eye department and surgery, at a cost of £10,000. A committee has been appointed to procure plans.

A new chancel is about to be added to the parish church of Knocknamuckley, near Lurgan. The architect is Mr. W. J. Fennell, F.R.I.B.A., Scottish Provident Buildings, Belfast.

Sir Thomas Brock, K.C.B., R.A., is at work upon the equestrian monument of King Edward VII., which is to be erected at Delhi as the All-India memorial to the late monarch.

The revision survey of Calcutta, which is now being carried out under the direction of Lieutenant-Colonel R. T. Crichton, C.I.E., I.A., Director of Surveys, Bengal, is approaching completion.

The foundation-stone was laid at Ryefield, Ross, Herefordshire, last week by Sir James Rankin, M.P., of a new secondary school. The architects are Messrs. Small and Ashton, of Ross and the builders Messrs. W. Powell and Son, Hereford; the outlay will be £6,300.

The communal authorities of Constantza Roumania, have just been authorised to contract a loan for 3,000,000 lei (£120,000) to be utilised in connection with the erection of public buildings, barracks, schools, and slaughter-houses, the construction of baths, paving operations, canal extensions, etc.

To the Court house at Nenagh a wing has just been added at a cost of £900, providing a lecture-hall and offices for the county surveyor and various clerks. The architects were Messrs. Moynan and Gill, and the builder was Mr. Burke. The cost to the North Tipperary County Council has been £900.

At Monday's meeting of Thirsk Rural Council, the resignation on the ground of ill health of Mr. Edward Annakin, the newly-appointed surveyor, was accepted, and Mr. Charles Arthur Lake, aged 30 years, highway surveyor to Belford (Northumberland) Rural Council, one of the unsuccessful candidates a fortnight ago, was appointed in his stead.

The Baptist Chapel at Leominster was re-opened on Thursday in last week, after renovations and repairs. The building has been repainted, and decorated inside and outside, a work executed by Messrs. R. Bloomer and Son. A new baptistery has been made near the pulpit, thus doing away with the necessity of removing the seats, as was required when using the old baptistery in the centre of the church. This work was done by Messrs. Watkins and Son. The renovation of the manse and outbuildings has been carried out by Mr. S. J. Bridge.

LATEST PRICES.

IRON

TIMBER.

CONSERVATIONAL.

OTHER METALS.

Lead, Sheet, Pipe, &c.	Per ton	£24	to	£24	7
Lead, Soil Pipe, &c.		16	,,		—
Lead, Lead Pipe, &c.		17	,,		—
Lead, Lead Pipe, &c.		17	,,		—
Lead, Lead Pipe, &c.		18	,,		—
Lead Pipe, Patent Shot and Colliery		18	,,		—
Lead Pipe, Patent Shot and Colliery		19	,,		—
Lead Pipe, Tinned inside and Colliery		21	,,		—
Lead Pipe, Tinned inside and Colliery		22	,,		—
Lead Pipe, Compass Pipe, &c.		16	,,		—
Lead Pipe, Compass Pipe, &c.	Colliery	20	,,		—
Lead Sheet, Cistern and Colliery		19	,,		—
Lead Sheet, Cistern and Colliery		21	,,		—
Lead Sheet, Flashing, Milled		24

VARNISHES, &c.	Per gallon.
Fine Pale Oak Varnish	£0 8 0
Pale Copal Oak	0 10 0
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 6
Extra Pale Paper	0 12 6
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

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TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender; it adds to the value of the information.

BARNSTAPLE.—For the erection of public convenience at Rock Park, for the Town Council. Mr. E. Y. Saunders, Barnstaple, borough surveyor:—

Steel, W., and Son, Bear-street ...	£138 10 0

BITTON.—For erecting proposed teacher's house, Bitton Council School, for the Gloucestershire Education Committee. Mr. R. S. Phillips, Gloucester, architect —

Wren, H. E., Downend	£559 0 0
Wilbams, S., and Son, Bristol	499 0 0
Lovell, S., Bristol	498 8 0
England, H., and Son, Oldland ...	455 0 0
Heard, H. G., Shirehampton ...	447 9 8
Broad, T., and Sons, Totterdown	425 0 0
Walters, E., and Son, Bristol	420 17 0
Adams and Jefferies*	419 0 0

* Accepted, with reductions.

CHISWICK.—For works, for the Chiswick Urban District Council. Mr. E. Willis, A.M.I.C.E., engineer and surveyor:—

Painting at Chiswick isolation hospital:—	
Fensom, W. J.	£201 6 0
Plumridge, O. J.	195 6 0
Blackburn, W. (accepted)*	191 1 6
Lewtas, R.	153 0 0
External painting of lodge and laundry block only —	
Johnson, G.	44 10 0
All of Chiswick.	
Supply of motor mower and roller:—	
Shanks, A., and Sons	£214 2 6
Ransomes, Sims, and Jefferies ...	179 13 0
Green, T., and Son (accepted) ...	167 10 0
Painting and repairs at Holme Court, Truant School:—	
Scott and Williams	£211 7 6
Cutler and Sons	207 10 0
Baker, A., and Sons	195 4 0
Plumridge, O. J.	147 2 6
Blackburn, W.	139 0 0
Pallant, J. and J. F.	137 15 0
Morgan, H. (accepted)	137 8 0
Chapman, T. A.	117 2 6
Lemon, H.	100 0 0

BUDE.—For the erection of the isolation hospital, for the urban district council:—

Bechlay, W. A.	£399 0 0
Cann, F. (accepted)	375 0 0

DARTFORD.—For the supply of Baltic deal and batten ends, for the board of guardians —

Priddy & Hale, Ltd., Newman-street, Oxford-street, W. (Accepted.)

HAYWARD'S HEATH.—For erecting King Edward VII. Memorial (Eliot' Cottage Hospital, Haywards Heath. Messrs. F. Wheeler and Godman, Bank Chambers, Horsham, architects:—

Waters, H. and E., Forest Row	£3,380 0 0
Knight, S., and Co., Ltd., Cuckfield	3,340 0 0
Lindfield and Co., Horsham	3,295 0 0
Rowland Bros., Horsham	3,265 0 0
White, T., Hayward's Heath ...	3,186 0 0
Longley, J., and Co., Crawley ...	3,186 0 0
Finch, H., Hayward's Heath* ...	2,980 0 0
Anscombe, P., Lindfield†	2,865 0 0

* Accepted, subject to variations. † Withdrawn.

LIMEHOUSE, E.—For the erection of a handicraft centre for 20 boys, in Heckford-street, Limehouse, for the London County Council:—

Parrott and Isom, Fore-street ...	£1,020 0 0
Newell and Lusty, Wilson-street, Poplar...	871 3 9
Reason, W., Rosebery-avenue ...	815 15 0
McLaughlin, and Harvey, Ltd., Brecknock-road	799 2 5
Harris, W., North Woolwich ...	782 0 0
Leng, T. D., Evelyn-st., Deptford	767 0 0
Symes, A. E., Stratford	747 0 0
Price, C. R., Bishopsgate ...	709 10 0
Roome, E. A., & Co., Basinghall st.	702 0 0
Bowyer, J. and C., Ltd., Upper Norwood	689 0 0
Gathercole Bros., London-road, Norbury*	674 0 0

(Architect's estimate, £740.)

* Recommended for acceptance.

LONDON.—For the provision of two motor-cars for use in the chief engineer's department, and the tramways department, for the London County Council:—

	A.	B.
Sir W. G. Armstrong, Whitworth, & Co., Ltd., Newcastle-on-Tyne ...	£1,447 18 6	*£1,412 13 6
Jarrott, C., & Letts, Ltd., Great Marlborough-st.	1,380 18 0†	†1,339 18 0
Singer Motor Co., Ltd., Coventry	1,348 15 0†	†1,303 14 0
Vauxhall Motors, Ltd., Gt. Portland-st., W. ...	1,347 4 6	1,315 5 6
Humber, Ltd., Coventry	1,219 4 0	1,155 2 0
Thornycroft, J. I., & Co., Ltd., Westminster ...	1,110 0 0	1,060 0 0
Dennis Brothers, Ltd., Guildford	994 0 0	956 0 0
Enfield Autocar Co., Ltd., Birmingham	‡954 9 0	‡918 4 6
Darracq, A., & Co. (1905), Ltd., Kennington, S.E.	905 0 0	870 0 0

* Less 10 per cent. trade discount and 2½ per cent. discount for monthly payments. † Less 10 per cent. trade discount. ‡ Recommended for acceptance. A.—Including electric lighting for all lamps. B.—Including electric lighting for inside lamp only, or oil lighting for side and tail lamps.

LONDON.—For the supply of iron castings for tramways department (schedule No. 91), for the London County Council. Accepted tenders:—

Martin, J., and Son, Albion Iron Works, College-street, Lambeth	£1,591 0 0*
Butlin, T., and Co., Ltd., Irthlingborough Iron Works, Wellingborough	1,006 0 0*
Griffith, S., Railway Foundry and Engineering Works, Reading ...	117 0 0*

* Estimate value of contract.

LONDON.—For the supply of an electricity-driven pump for draining water from cable manholes, for the highways committee of the London County Council:—

Gwynnes, Ltd., Cannon-st., E.C.*	£170 17 6
The Rees Roturbo Pump Co., Ltd., Wolverhampton†	110 10 0

* Less 2½ per cent. discount. † Recommended for acceptance.

LONDON.—For alterations at Diana-place Factories, block A, B, C, and D, under the Factory and Workshop Acts, 1901 and 1907, for Messrs. G. Rowney and Co. Mr. W. J. Ebbetts, F.R.I.B.A., Savoy House, 115, Strand, W.C., architect:—

Faulkner, J. W., and Sons ...	£336 0 0
Hebblethwaite, J., and Sons	320 0 0
Andrews, J., and Sons	309 0 0
Turnbull and Sons	294 0 0
Hammond, W. (accepted)	256 5 0

LONDON.—For decorative and other work at Nos. 10 and 11, Percy-street, W., for Messrs. G. Rowney and Co. Mr. W. J. Ebbetts, F.R.I.B.A., Savoy House, 115, Strand, W.C., architect.—

Stone, H.	£269 0 0
Dilley, J. T.	268 0 0
Turnbull and Son	231 0 0
Hammond, W. (accepted)	209 0 0

LONDON.—For the supply of overhead fittings required for use at the Bow car shed (second section), and the Hammersmith car shed (third section), and for spare parts for stock, for the London County Council:—

British Insulated and Helsby Cables, Ltd., Prescot, Lancs. ...	£108 16 10
Dick, Kerr, and Co., Ltd., Cannon-street, E.C.	95 19 8
Wiseman, A., Ltd., Birmingham	91 3 7
Wood, W., & Co., Cannon-st., E.C.	90 6 3
Estler Bros., Victoria Docks, E.* ...	81 7 11
Brecknell, Munro, & Rogers, Ltd., Bristol†	76 18 2
Ditto (alternative tender)	83 6 2

(Estimate of the chief officer of tramways, £110.)

* Less 2½ per cent. discount. † Recommended for acceptance.

LONDON.—For painting external wood and iron work, at fire-stations, for the London County Council:—

Highbury:—	
Kirby, G., Queensland Works, Holloway, N.	£88 0 0
Markham and Markham, Essex-road, N.	87 0 0
Stevens and Sons, Crouch-hill, N. ...	78 10 0
Grover, J., & Son, Wilton Works, Islington, N.	77 0 0
McCormick and Sons, Ltd., Northampton-street, Essex-road, N.* ...	53 0 0
Dulwich:—	
Black, A., and Son, Perry Vale, Forest-hill, S.E.	95 0 0
Bowyer, J. and C., Ltd., Upper Norwood, S.E.	74 0 0
Mitchell, W. J., and Son, Dulwich Village, S.E....	62 0 0
Fenn, J. S., William-st., Woolwich	58 18 0
Parker, G., & Sons, 124, Summer-road, Peckham, S.E.*	49 0 0
Mile End —	
Gladding, W., & Co., Whitechapel-road, E.	87 10 0
Wood, F. and F. J., Cleveland-st., Mile End, E.	87 0 0
Ashby and Horner, Aldgate, E. ...	55 0 0
Vigor and Co., 15, King-street, Poplar, E.*	50 10 0
Kilburn:—	
Bristow and Eatwell, Lancaster-road, W.	57 0 0
Brown, W., and Sons (Builders), Ltd., Uxbridge-road, W.	49 7 6
Clifton, H. C., Cleveland-gardens, Bayswater, W.	42 10 0
Chappell, W., 243, Elgin-avenue, Maida-vale, W.*	35 0 0

(Architect's estimates, £81 19s. 11d., £52 17s. 3d., £52 5s. 11d., and £45 respectively.)

* Recommended for acceptance.

LONDON, S.W.—For the cleansing and repainting of Vauxhall Bridge, for the London County Council:—

King, W., and Son, Westminster	£3,321 0 0
Proctor, E., and Sons, Plumstead	3,097 19 10
Markham & Markham, Essex-rd.	3,051 0 0
Vigor and Co., Poplar, E.	2,834 10 0
Dudley, W., New Southgate, N. ...	2,577 12 0
Inns, A. H., Bishopsgate, E.C.* ...	2,198 0 0

(Estimate of the chief engineer, £3,200.)

* Recommended for acceptance.

MAIDSTONE.—For the erection of the new county offices, for the Kent County Council —

Glaves, T. C., Bristol	£51,196 0 0
Borrows, W. T., Maidstone ...	49,920 0 0
Godden, D., and Son, Hamstreet, near Ashford	48,161 0 0
Higgs and Hill, Ltd., London ...	47,984 0 0
Coles, A. N., Plymouth	47,510 0 0
Patrick, J. and M., Wandsworth ...	46,500 0 0
Skinner, C. E., Chatham	45,350 0 0
Davey, F. and E., Ltd., Southend-on-Sea	46,037 0 0
Pattinson, W., and Sons, Ltd., Westminster, S.W.	45,800
Johnson, W., & Co., Ltd., Wandsworth	45,934 0 0
Denne, G. H., and Son, Deal ...	45,700 0 0
Jarvis, J., Tunbridge Wells ...	45,670 0 0
Holloway Bros. (London), Ltd. ...	45,400 0 0
West Bros., Rochester	45,240 0 0
Wallis, G. E., & Sons, Ltd., Maidstone	44,334 0 0
Pethick Bros., Ltd., London and Plymouth*	43,444 0 0
For the supply of granite masonry in the offices —	
Cooper, Wettern, and Co., Great Tower-street, E.C.*	2,870 0 0
For the supply of fireproof flooring in the offices:—	
Armoured Tubular Flooring Co., Ltd., Westminster	2,495 0 0

* Accepted.

(*Continued on p. XIII.*)

LIST OF COMPETITIONS OPEN.

Burstow, Guildford—Pair of Semi-Detached Labourers' Cotts.		H. P. Smallpeice, Clerk, 138, High-street, Guildford	May 26
Norwich—Farmhouse and Buildings	£25, £15, £10, £5	T. McRow, Secretary, R.A.S., 16, Bedford-square, W.C.	June 2
Aspatria—Sewerage Scheme		F. Richardson, Clerk, Aspatria, Cumberland	,, 10
Port Talbot, Glamorgan—Designs for Rebodding Cymmer Co-operative Society, Ltd., Business Premises ...	£15, £5	The Secretary, Co-operative Society, Cymmer, Port Talbot ...	,, 16
Swansea—Chapel and Schoolroom at St. Alban's road ...		D. Walters, Secretary, 19, Brooklands-terrace, Swansea	July 1
Athens—Court of Justice (cost £160,000)	£800, £320	Comm. Intel. Branch, Board of Trade, 73, Basinghall-street, E.C.	Aug. 8
Glasgow—Alexander Thomson Travelling Studentship ...	£60, £20	C. J. Maclean, Secretary, 115, St. Vincent-street, Glasgow ...	Dec. 29
Yeovil—Laying-out site of 10 Acres of Land for Houses for the Working Class...	£20, £10	The Town Clerk, Yeovil	No date

LIST OF TENDERS OPEN.

BUILDINGS.

		L. Coates, A.R.I.B.A., 9, Central-street, Halifax	May 26
		N. F. Ballamy, Architect, Bodmin-road, St. Austell	,, 23
		F. E. Shepherd, M.S.A., Nuneaton	,, 26
		E. and T. Clark, Clerks to Governors, Snaith	,, 26
		Carder and Carder, Architects, 21, Lockyer-street, Plymouth	,, 27
		A. Haynes, Clerk, Boardroom, Workhouse, Baudon, Ireland	,, 27
	Spark and Co.	Horsfall and Son, Architects, Lord-street Chambers, Halifax	,, 27
		S. Hill, Architect, Green-lane, Redruth	,, 27
	Bermondsey Guardians	E. Pitts Fenton, Clerk, 283, Tooley-street, S.E.	,, 27
	St. Mary's Schools Managers	Hickton and Farmer, FF.R.I.B.A., Architects, Bridge-st., Walsall	,, 27
		W. W. Thompson, Hardrigg, Gravrigg	,, 27
		J. Firth and Sons, Architects, 67, Vulcan-road, Dewsbury	,, 27
		Carder and Carder, Architects, 21, Lockyer-street, Plymouth	,, 27
	Rector	J. S. Cairns, C.E., Ballina	,, 27
	The Very Rev. A. C. Byrnes, P.P.	O'Callaghan & Webb, Architects, 31, South Frederick-st., Dublin	,, 27
		W. F. Tollit, Architect, D, High-street, Totnes	,, 29
	Secretary of State for War	The Director of Army Contracts, War Office, Whitehall, S.W.	,, 21
	Corporation	W. T. Lancashire, City Engineer, Municipal Buildings, Leeds	,, 29
	School Board	J. A. Carfrae, Architect, 3, Queen-street, Edinburgh	,, 29
	Church View Boarding Club	D. J. Thomas, Architect, High-street, Blackwood, Mon.	,, 29
	Corporation	F. W. Sourr, City Engineer, Guildhall, York	,, 29
		S. Hill, Architect, Green-lane, Redruth	,, 29
		J. P. Alison, F.R.I.B.A., Hawick	,, 29
	East Sussex Education Committee	F. J. Wood, County Surveyor, County Hall, Lewes	,, 29
	Race Committee	J. W. Cockrill, M.I.C.E., Borough Surveyor, Town Hall, Yarmouth	,, 29
		The Rev. F. Clements, Fernleigh, Ebbw Vale, Mon	,, 29
		Nuttall and Cooper, Architects, Market-st., Bury, Lancs	,, 29
	Cwmcwrw Bowling Club	G. A. Treharne, Architect, Station-street, Aberdare	,, 29
	W. E. Dover	J. Henney, Architect, 39, Senhouse-street, Marsport	,, 30
		Jowett Kendall and Sons, Architects, Pudsey	,, 30
	Guardians	S. Segar, F.I.A.S., Union-street, Newton Abbot	,, 30
	Guardians	C. Payne, Surveyor, Cranbrook	,, 30
	Major W. A. Wetwan	J. Earnshaw, Architect, Carlton House, Bridlington	,, 30
	Aberaychan Industrial Co-op. Society	A. G. Babbidge, Architect, Clarence Chambers, Pontypool	,, 30
	West Riding Education Committee	E. L. Harrap, Divisional Clerk, W.R. Education Offices, Goole	,, 31
	Standing Joint Committee	W. Tanner, F.S.I., County Surveyor, Newport, Mon.	,, 31
		C. G. Bowles, M.S.A., Architect, Halkett-place, Jersey	,, 31
	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 31
	Wharf District Council	H. T. Mather, Engineer, Council Offices, Sarbiton	,, 31
		A. J. Cornelius, M.S.A., Architect, Truro	,, 31
	Corporation	F. W. Sparr, City Engineer, Guildhall, York	,, 31
	Boar Lot Guardians	A. J. Murgatroyd, Architect, 23, Strutt-street, Manchester	,, 31
	Guardians	W. Wilton Reed, Clerk, 24, High West-street, Dorchester	,, 31
		H. Carter Pegg, F.R.I.B.A., 152, London-road, Thornton Heath	,, 31
		R. W. Davies, M.S.A., Carno, Montgomery	,, 31
	Imperial Hotel Co., Ltd., Directors	F. A. Bevan, Architect, 5, Queen-street, Wrexham	June 1
	Guardians	B. Catmur, Clerk, Bancroft-road, Mile End, E.	,, 1
	Rural District Council	J. Stones, Surveyor, Union Offices, Sedgefield	,, 1
	David Williams and Co.	C. M. Davies, M.S.A., 112, High-street, Merthyr	,, 1
		E. W. Dyson, Architect, 17, Lee-lane, Horwich	,, 2
	Cumberland Education Committee	J. Forster, M.S.A., 13, Earl-street, Carlisle	,, 4
	Corporation	W. Plant, A.M.I.C.E., Waterworks Engr., Borough Hall, Stafford	,, 3
	Education Committee	Frank Freeman, Architect, 13, Bowker's-row, Bolton	,, 3
	Governors	A. E. Hanrahan, Secretary, Macclesfield	,, 3
	T. Morgan	D. C. Field, Architect, Commercial-street, Pontypool	,, 3
	Provincial Committee	A. K. Robertson, Architect, 29, Hanover-street, Edinburgh	,, 3
	Guardians	T. W. Willard, Architect, Market-place, Rugby	,, 3
	Andrew Anderson	Chalmers, Advocates, 18, Golden-square, Aberdeen	,, 3
	Teesdale Farmers' Auction Mart Co.	E. C. Surtees, Architect, 4, Park-terrace, Barnard Castle	,, 5
	Corporation	John England, Borough Engineer, Willow-road, Wrexham	,, 6
	Guardians	W. Jackson, Architect, Market-square, Biggleswade	,, 6
	Corporation	John England, Borough Engineer, Willow-road, Wrexham	,, 6
	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 6
	Education Committee	Clark and Moscrop, FF.R.I.B.A., 10, Albert-road, Middlesbrough	,, 7
	Guardians	F. Taylor, A.R.I.B.A., 7, Bourbon-street, Aylesbury	,, 7
	Hertfordshire County Council	U. A. Smith, County Surveyor, Hatfield	,, 8
	Guardians	E. P. Nolan, C.E., Boardroom Workhouse, Downpatrick	,, 9
		W. H. Harries, Cwmporthman	,, 9
	Cornwall Education Committee	B. C. Andrew, Architect, Biddick's-court, St. Austell	,, 10
		Nicholson and Hartree, Architects, Offa-street, Hereford	,, 10
	Corporation	H. R. Crabb, A.R.I.B.A., Bush-street, Pembroke Dock	,, 10
	Cumberland Education Committee	J. Forster, M.S.A., 13, Earl-street, Carlisle	,, 10
	Cornwall Education Committee	B. C. Andrew, Architect, Biddick's-court, St. Austell	,, 10
	Trade and Commerce Committee	The City Engineer, Town Hall, Newcastle-on-Tyne	,, 12
	Municipal Authorities	Senor Alcade, Alcadia Constitucional, Mataro	,, 12
	School Board	J. A. Carfrae, Architect, 3, Queen-street, Edinburgh	,, 12
	Hants County Council	W. J. Taylor, County Surveyor, The Castle, Winchester	,, 12
		I Farren, Coventry	,, 13
	Urban District Council	A. W. Cross, Surveyor, 23, Valentine-road, King's Heath	,, 14
	Local Education Authority	Whittaker and Bradburn, Architects, Macclesfield	,, 14
	Hospital Committee	E. B. Martin, A.M.I.C.E., Boro' Eng., Town Hall, Rotherham	,, 14
		T. Linscott, Wycarr, Bedale	,, 16
	Guardians	E. E. Shepherd, M.S.A., Architect, Nuneaton	,, 21
	Clyde Navigation Trustees	T. R. Mackenzie, Secretary, 16, Robertson-street, Glasgow	,, 26
	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 27
		T. E. Davidson and Son, Architects, Newcastle-on-Tyne	No date
		A. E. Millward, Manchester-road, Accrington	do.
		J. Hartley, Architect, Skipton	do.
		J. W. Start, F.S.I., Architect, Colchester	do.
		W. H. Wagstaff, Architect, 4, Priory-place, Doncaster	do.
	M. Foster	J. Elliott, Heatherlea, New Greencroft, Annfield Plain	do.
		J. B. Hingley, Architect, Bank Chambers, Nuneaton	do.
		The Hon. Secretary, Newton-road, Billinge, near Wigan	do.
		Empsall and Clarkson, Architects, The Exchange, Bradford	do.
		E. Hammond, Kingsley Holt, near Cheadle	do.
	Parish Council	W. Easter, Surveyor, St. Germans, Norfolk	do.
	United Gas Light Co.	T. Monkman & Son, Archts., St. Martin's House, Micklegate, York	do.
	E. J. Hopkins	R. A. Churchward, Architect, 353, Strand, W.C.	do.
		A. Easton, Architect, Prince's Dock Side, Hull	do.
	Guardians	A. Hopkinson, Architect, 15, Angur-street, Bury, Lancs	do.
		L. F. Eagleton, Architect, King-street, King's Lynn	do.
	Rural District Council	The Surveyor's Office, West-street, Bourne	do.
		Thomas, Meager, and Jones, Archts., 15, Wind-st,, Swansea	do.
		Davies and Son, Architects, Cowell House, Llanelly	do.
	H. Page	J. W. Start, F.S.I., Architect, Colchester	do.
	Trustees	J. E. Douglas, L.R.I.B.A., Brunswick Lodge, Douglas	do.
		Belfrage and Saville, Architects, 27, Chancery-lane, W.C.	do.
		J. Garry, F.R.I.B.A., 17, Church-street, West Hartlepool	do.
	Rev. T. Williams	M. H. Hunter, Architect, The Square, Neath	do.
	E. Morris	G. E. Tonge, L.R.I.B.A., 371, Lord-street, Southport	do.
	Mineral Water Co., Ltd.	Morgan and Elford, Architects, 1, Jeffrey-street, Mountain Ash	do.
	Maynard Ewan	Moore and Flanigan, Architects, 35, Royal-avenue, Belfast	do.
		Sutherland and George, Architects, Aberdeen	do.
		F. R. Eltringham, Architect, Throckley, Newburn-on-Tyne	do.
	D. Wilson	Harding and Thomas, Bryn Cottage, Gotre-road, Killay, Glam.	do.
		E. Martindale, Architect, 11, Lowther-street, Whitehaven	do.

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THE BUILDING NEWS

AND ENGINEERING JOURNAL.

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Business Premises, Regent-street. Mr. George Hornblower, F.R.I.B.A., Architect.

William Rufus Building the Tower of London. Painting by Mr. C. Goldsborough Anderson.

Gothic Architecture in England and France (1) Canterbury Cathedral Choir, Looking East; (2) Sens Cathedral, East; (3) Exeter Cathedral: Vault Over and North Arcade of Nave; (4) In Notre Dame, Paris: Junction of Nave and North Transept; (5) Ripon Cathedral: North Transept; (6) West Front, Amiens Cathedral.

"THE IDEAL HOME."

"A ghost, whatever else it is, must certainly be one of the most complex phenomena in Nature." So said the late Mr. Frederick Myers; and so, with equal confidence, any of us might say of the "Ideal Home." Where is it? Where, at any time, was it? Where, in the future, can it ever be? Was there ever, or could there at any time be, an ideal home in London? There is something ghostlike in the essence of it. An ideal home cannot be built by taking thought beforehand. It has to grow. Men's and women's lives make it; and the lives of children and animals, too—even of birds, and flowers, and trees. You may announce competitions for it, and receive designs for it, if you can get them, by anyone from an R.A. to the youngest articled pupil; but you will find at last that "Time is of the essence of the problem." Not necessarily a long time, however. The song-thrush who builds to-day in your laurels feels, if there is any meaning in music, that he, too, is making an ideal home for his wife and children, no less than the man who has taken a site on a ninety-nine years' lease, and is hoping, with the help of lawyers, and architects, and surveyors, of bricklayers and builders, to raise a man's nest in which those who are dear to him may live and flourish. "Far on, in summers that he will not see." And of the two, in a world where boys and cats are both abundant, the thrush, with only one year to provide for, is, perhaps, less often disappointed than the man, who tries to insure all good things for ninety-nine.

The novelist, according to Sir Walter Scott, can best deal with his subject when it relates to a period two or three generations before his own. And London, though to-day it looks so far from an ideal place to begin a home in, had gleams of poetry in it—say, at the time of the "Great Exhibition." Forty years of peace had followed on nearly a century of war, and few people doubted that the peace, so begun, would be everlasting. It was to set a seal on what seemed such endless possibilities of bliss that a group of well-intentioned men, just sixty years ago, got up the first Crystal Palace. Its architect—or, rather, its suggester—Sir Joseph Paxton, after receiving more public homage than had ever been laid at a designer's feet before, seems to have found at last that one idea does not make an architect, any more than one swallow makes a summer. For awhile, everyone wanted to build in glass and iron, except the people who knew what glass and iron were, and who were wise enough to remember that the glass would break and iron would rust. But in those years, the ideal home had hardly vanished from spots within an omnibus ride from the City. Even Walthamstow and Tottenham were not dreaming that their quiet lanes were places where Russian madmen would ever "run amok." They slumbered on, the one with memories of Isaak Walton and his quiet pupils, and the other with traditions of Sir W. Batten and his home-grown wine. Even Shacklewell, with its lanes and lime-trees and its picturesque old houses, was hardly in London then. The Cat and Mutton Fields lay still unbuilt on as part of the footway from Hackney to Holloway. There were wild dog-roses in the hedges about Stamford Hill, and yellow water-lilies in the river at Lea Bridge. London had hardly begun to stretch itself. To go into the country was a serious undertaking. It might be only for an afternoon's walk in Epping Forest, or a morning stroll about the hills at Hampstead, or an evening's glimpse of the crimson heath on the sandy slopes near Norwood. Then, as now, there was little to attract the lover of Nature to the nearer part of Western Middlesex. It was a place of orchards and market gardens, redeemed only by the Thames with its smaller tributaries, and dotted over here and there with a few important houses, and ennobled by their stories of past greatness.

It is not insisted on, however, by the *Daily Mail*, which has issued particulars of "an Architects' Competition" for its "Ideal Home Exhibition," that the scheme to be adopted shall in any way be suited for a London site. A gentleman is mentioned by name, "who will subsequently build the house, *and whose decision shall be absolutely binding and final on all competitors.*" Much seems to depend on the exact meaning of these words. They form part of the Conditions of Competition: and any one proposing to compete would probably like to know before he does so whether they refer to the "jury of two well-known architects, two ladies interested in domestic architecture, and the gentleman who will subsequently build the house," and who, apparently, need have no more knowledge of architecture as an art than the average builder possesses (which is often very little); or to this gentleman only? The successful competitor will find himself rather curiously situated if the gentleman who is to build the house is to settle all questions in dispute, and if his decision is to be "absolutely binding and final on all competitors." Of the architect's functions, one is—by long-established custom—to supervise the builder; but here the tables are turned, and the builder's decision is to be absolutely binding and final on all competitors, including the successful one. In other words, is the architect to superintend the builder, or is the builder to superintend *him?* If the builder, or his foreman, makes a mistake (and he often makes many, and may blame the architect for them), is there to be no impartial judge to decide which is to blame? The ambiguity of the Conditions of Competition at this point reminds one of the ancient oracles, and might form the worst of precedents for a committee with a competition in hand.

Again, why does not the *Daily Mail* openly publish the names of the "two well-known architects" who are to sit on its jury? It surely does not suppose, as the Man in the Gutter might, that the result would tempt competitors to write direct to these two professional jurors asking for their vote and interest, and that if they did so write, they would be at all likely to obtain them. If competitions are ever to be good for anything, they must be carried on in the broad light of day. Where darkness is, there is confusion and every evil work. We should welcome a competition with no mottoes, no secrecy, no concealment of names, but with judges able enough, honest enough, and strong enough to do justice between R.A.'s and C.B.'s, on the one hand, if any competed, and "kinless loons," in Carlyle's quotation, like those who devised our villages, and, silently putting their hearts and lives into them, bequeathed to England her fast-perishing legacy of "Ideal Homes." They are not builders' work, still less are they contractors' work or architects' work, or surveyors' work. They were made by men of little education, men who, freely having received their best ideas, freely gave them back to the land from which they first sprung—men, mostly, no higher in rank than Snug the joiner, and Quince the carpenter, and Snout the tinker in old Athens, and in 13th-century Oxford, Nicholas the carpenter, and "the parish clerke," "Whose robe was red, his even grey as goos, With Poules window carven on his shoes." It is to such men as these last that the poets introduce us, as Shakespeare does again at Agincourt, to Bates, to Williams, and to Fluellen, as well as to King Harry conversing with them, and, if need be, fighting with them, as man with man. They are gone, and there seem to be no more left of the kind. But it is only because men of this kind have turned their thoughts to other things. Just now, they care little for rising in their craft, because, for awhile, their breasts are set on rising out of it, because the workman wants to be a

[illegible] quarry beds is insisted on [illegible] cases this is a wholly useless [illegible] the necessity [illegible] stones [illegible] sometimes [illegible] whom, as a rule, it has no real [illegible] them. Our author defines [illegible] that can be [illegible] with a toothed saw. In many [illegible] districts quarrymen call a sandy [illegible] stone "even though cannot be cut with a toothed saw. Any stone that will not tear up under the chisel—that is a "freestone" is usually called a "rag"; but as a matter of fact the [illegible] stones are different things in different districts.

It is stated that stones from certain quarries may be face-bedded, and it is permissible to have it so placed; but no reason is assigned for the departure from the general rule. If we wished a cornice to break it wholesome instead of retail, we should face-bed it, or get bed the stones especially if it was a sandstone. Even though a sandstone may be quarry-bedded, it can often be worked that thin scales will come away from the face at right angles to the bed, leading to the belief that the stone is face-bedded. This kind of tissil structure is induced by chiselling the face of the stone with a blunt tool. The upper greensand at Merstham Church, and the oolite reef in the Lady-chapel at Hereford Cathedral, as well as the sandstones of the new red about Shrewsbury and Chester, afford examples of failure of this kind. The author advises that stones be worked while the quarry sap is in them. We did this once and after working we stacked the stones in a shed on boards and straw; the shed was locked up, and, after a severe frost, we found that all the stones had burst something like stacked lump loaf. If therefore a stone is soft enough to require working in a wet state, it should, while wet, be carefully protected from frost.

A stone from Drumkeeran Quarries, Donegal, is mentioned as being suitable for building, and it is cited as being, we presume, a good stone. We would suggest that Mr. Watson should examine the under side of the window sills in the Kildare-street Museum, Dublin, and he will probably change his opinion. It is not universally true that sedimentary stone will carry greater weights on their beds than on their edge. We have tried many sandstones, and found amongst them some that carried more on the edge than on the bed—as, example, a Lower Kemper stone carried 9,390lb on an inch cube, whilst 3,920lb crushed it on the bed. As a rule, fine-grained sandstones are bad, and those with coarse grains, including quartz pebbles, are usually good weather stones. We have found the former perished as ashlaring; whilst the latter, as a projecting base course, was sound after five hundred years' exposure. We have over and over again pointed out in these columns that the only safe way for a builder to obtain a know-

[illegible] British and Foreign Building Stones. By John [illegible] Cambridge University Press. 1911.

[illegible] See also Engl shstones, Feb. 16, March 2, 9, and [illegible] April 20, May 4, and June 15 and 22, 1894. Irish stones, July 13, 1894. Scottish stones, July 20 and 27 and Aug. 17 and 24, 1894. For quarry lists of English Building Stones see further the BUILDING NEWS for Jan. 12 and 26, March 7, April 20, July 13, and 20, August 3, 10, 17, 24, and 31, Sept. 21 and 28, Oct. 5, 19, and 26, Nov. 23, Dec. 7 and 28, 1900; Jan. 25 and Feb. 8, 1901. Welsh stones March 8, April 5 and 12, May 17, 24, 31, June 28, Aug. 23 and 30, 1901. Scotch stones Oct. 11, Nov. 1 and 29, Dec. 6, 13, and 27, 1901, and March 7, 1902. Irish stones Oct. 30, Nov. 13 and 27, and Dec. 25, 1903; Jan. 22, Feb. 12 and 19, March 4, April 1 and 8, May 6, 13, 20, and 27, 1904.

ledge of the weathering properties of building stones is to examine them in the numerous buildings all over the country. Here he will find an infallible and never-failing guide to what he requires. Mr. Watson's is an interesting and useful book, and we have no hesitation in recommending it to those who have already a practical knowledge of the subject. In the next edition, on p. 8, the author's real and more innocent-looking name should be reinstated in the quotation from "Guilt's" Encyclopædia of Architecture.

REINFORCED CONCRETE DESIGN.

X.

By RICHD. COULSON, Licentiate R.I.B.A., and RICHD. COULSON, JUN., Assoc.-R.C.Sc.I.

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The following formulæ are based on the assumption that ordinary practice will be followed as to arrangement and dimensions of the reinforcement—that is, there will be two rows of rods in positive tension and one row in positive compression, and that their diameters will lie between 1¼in. and 1½in.

It should have been stated in Article IX.

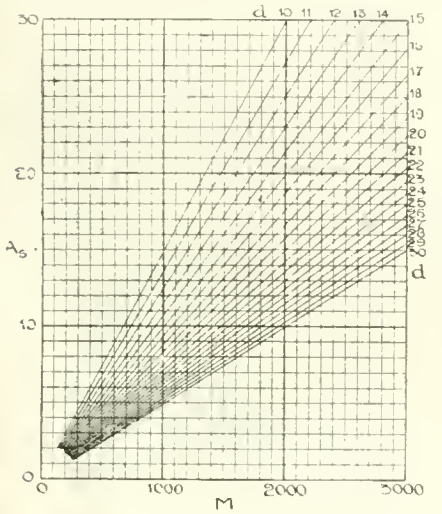

DIAGRAM 18.—T-beams with Compressive or Double Reinforcement.—$f_c = \frac{1}{4}$ ton per square inch, $f_s = 7\frac{1}{2}$ tons per square inch, $r = 15$, $c = 3\frac{1}{4}$in.—To obtain area of tensile reinforcement, find maximum bending moment M, and using curve for depth of beam d, read A_s on left.

that equations (45) and (46), together with those leading up to them, are for two rows of rods only, or O = 2, and that for any other number, $\frac{1}{2}\pi o$ O must be substituted for πo, otherwise the *symbolical* formulæ can be used for any arrangement whatever.

REDUCED WORKING FORMULÆ AND DIAGRAMS 18, 19, 20, AND 21, FOR T-BEAMS WITH COMPRESSIVE OR DOUBLE REINFORCEMENT.

$f_c = \frac{1}{4}$ ton per square inch, $f_s = 7\frac{1}{2}$ tons per square inch, $r = 15$, $s_c = 60$lb. per square inch, $s_s = 5$ tons per square inch, $c = \frac{1}{2}$ depth of tensile reinforcement + 2in., $w_c = 140$, $w_s = 490$. Cost of concrete, including timber forms, 1s. per cube foot, cost of steel £3 per cube foot.

WEIGHT OF WEB.

As in single-reinforced T-beams, 5 per cent. may be added to the total load to be carried by the beam as the approximate weight of the web.

COST OF BEAM.

This can also be obtained as before by cubing up the concrete in web, also *both* tensile and compressive reinforcement, and pricing out at the cost given above.

VALUE OF d.

It is assumed that when double reinforcement is to be used, the total depth, D, is fixed, that $c = 3\frac{1}{4}$in. to $3\frac{1}{2}$in., and $d = D - c$.

VALUE OF b.

The same conditions apply as in single-reinforced T-beam—i.e., that the acting-

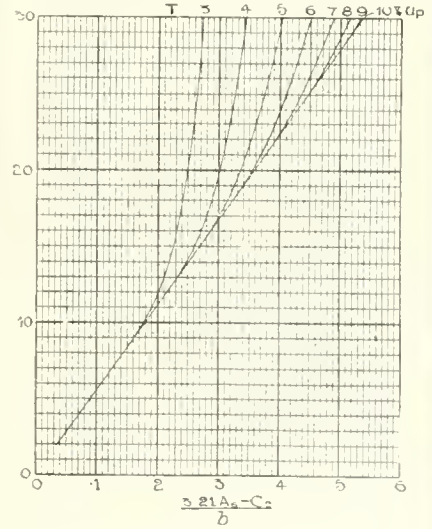

DIAGRAM 19.—T-beams with Compressive or Double Reinforcement.—$f_c = \frac{1}{4}$ ton per square inch, $f_s = 7\frac{1}{2}$ tons per square inch, $r = 15$, $c = 3\frac{1}{4}$in.—To obtain area of compressive reinforcement, using depth of beam d on left and curve for thickness of slab T, read $\frac{1}{b}(3.21 A_s - C_s)$ on base line; multiply by acting-breadth of flange b, and subtract from $3.21 A_s$.

breadth of flange should not exceed one-third the span; *or*, where there is slab reinforcement parallel to the beam, half the distance between the beams; *or*, where there is transverse slab reinforcement, three-fourths the distance between the beams, the lesser value to be taken in each case.

VALUE OF b'.

If $o = 1\frac{1}{4}$in., then $b' = \frac{M}{6.5d}$, or if $o = 1\frac{1}{2}$in., $b' = \frac{M}{7.8d}$. The latter has

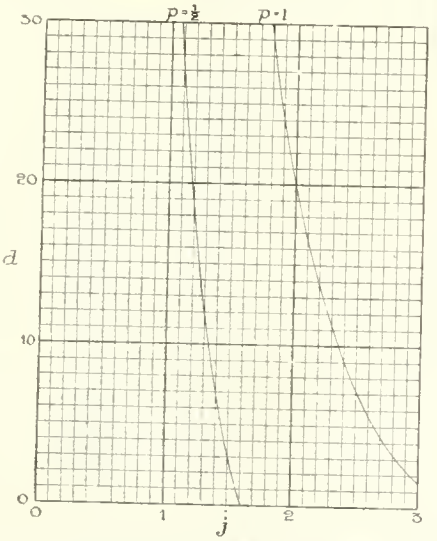

DIAGRAM 20.—T-beams with Compressive or Double Reinforcement.—$f_c = \frac{1}{4}$ ton per square inch, $f_s = 7\frac{1}{2}$ tons per square inch, $r = 15$, $b' = \frac{M}{7.8d}$, $c = 3\frac{1}{4}$in., O = 2.—To obtain increased depth of web d' at fixed ends or intermediate supports, using depth of beam d on left and curve for required value of p, read j on base line, and multiply by depth d. (See Fig. 18, p. 687, Article IX.)

been used for Diagrams 20 and 21, this being on the safe side when calculating for j.

POSITION OF NEUTRAL AXIS.

For $f_c = \frac{1}{4}$, and $f_s = 7\frac{1}{2}$, $x d = d\ 3$.

If this be less than T, the neutral axis is in the slab, if equal to T at underside of slab, and if greater than T below the slab.

AREA OF TENSILE REINFORCEMENT.

Assuming, as before, the arm of resistance couple to remain constant for any relation of neutral axis to slab—

$$A_s = \frac{3\,M}{20\,d},$$

or it can be obtained from Diagram 18.

AREA OF COMPRESSIVE REINFORCEMENT.

If neutral axis be either in or at underside of slab—

$$C_s = \frac{180\,A_s - b\,d}{56}$$

If neutral axis is below the slab—i.e., in the web—

$$C_s = \frac{180\,d\,A_s - 3\,b\,T(2\,d - 3\,T)}{56\,d}$$

or it can be found for all cases from Diagram 19.

NEGATIVE MOMENT AND RESISTANCE.

If the beam be either fixed at ends, or continuous over supports, the negative R

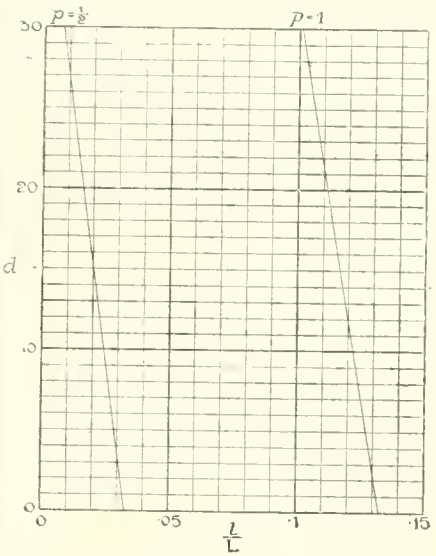

DIAGRAM 21.—T-beams with Compressive or Double Reinforcement.—$f_c = \frac{1}{4}$ ton per square inch, $f_s = 7\frac{1}{2}$ tons per square inch, $r = 15$, $b' = \frac{M}{7.8d}$, $c = 3\frac{1}{4}$in., O = 2.—For uniformly distributed loading *only*, to obtain distance l from centre of support to point at which increase in depth commences, using depth of beam d on left and curve for required value of p, read l L on base line, and multiply by span L. (See Fig. 18, p. 687, Article IX.)

must be provided for by increased depth of beam, the value of j being obtained from Diagram 20 for $p = \frac{1}{2}$ or 1, as required, when depth from centre of upper reinforcement—

$$d' = j\,d,$$

and the arm of couple—

$$j\,d\,(1 - x\,3) = 8\ 9\,.\,j\,d.$$

The distance l, at which the increased depth should commence, can be obtained from Diagram 21 for beams with uniformly-distributed loading; but for all other cases, the bending moment diagram should be drawn, and the increase must commence at the points in the span where the negative bending moment—

$$M' = M\ 45\,(d\ 4.68 - 14)$$

Area of negative tensile reinforcement, near upper surface, and extending to the quarter-points of the beam, will be as before—

$$A_s' = p\,A_s\,j.$$

Also, if there be no slab reinforcement transversely to the beam, rods of any dia-

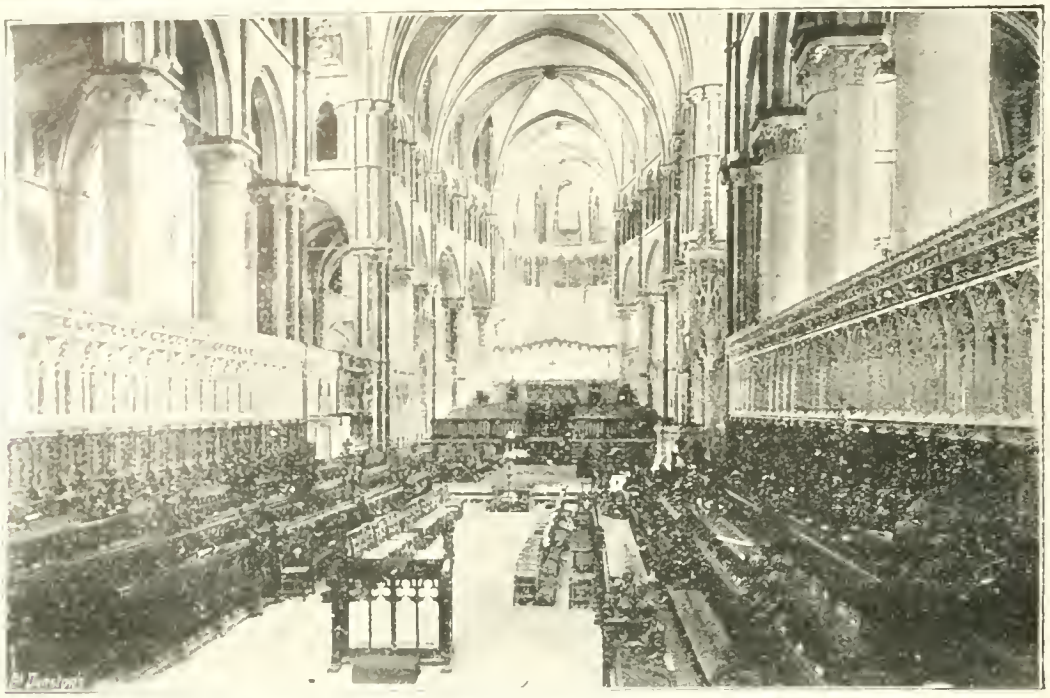

Fig. 1. CANTERBURY CATHEDRAL CHOIR, LOOKING EAST.
(From West's "Gothic Architecture in England and France.")

[illegible] ey 3*b* will be [illegible] of which will be

19A [illegible]

[illegible] compare with the single [illegible] beam in Example 12. A [illegible] VIII [illegible] given next week.

To be continued.)

GOTHIC ARCHITECTURE IN ENGLAND AND FRANCE.*

We are continually reminded by the [illegible] which reach us for our Intercen. [illegible] Certain that the days for the study of Gothic architecture are by no means [illegible] Due to the issue of Francis Bond's [illegible] work half a dozen years since, and the writings of John Belcher, Baldwin Brown, W. R. Lethaby, Edward S. Prior, and many others in this country, and of Choisy, Enlart, Revoil, and others in France, there is an obvious need for a cheap and [illegible] handbook brought up to date. Dr. West, who is now one of the Senior Associates of the Royal Institute of British Architects, has for many years, like Canon Scott-Robertson, the late R. Medley Fulford, and others, exchanged the drawing board for the [illegible] is eminently fitted for the task by [illegible] knowledge, impartial outlook, and clear and easy style. He has endeavoured, working on the foundations of Bloxam's "Gothic Architecture," to restate in a brief and popular form the history and development of Mediæval art. Those who look for [illegible] on unsolved controversial [illegible] will almost certainly be disappointed, as these are, for the most part, avoided; but in several cases the author [illegible] states the conclusions at which he has arrived after verifying the issues of [illegible].

[illegible] Dr. West points [illegible] Ruskin, on his fourfold classification [illegible] the great styles of English church [illegible] the study of Gothic [illegible] the same position that [illegible] should with regard to geology and [illegible]. As to all early classifications, the points by which [illegible] were distinguished were [illegible] although the most

* "Gothic Architecture in England and France. By [illegible] West, D.D., A.R.I.B.A., Vicar of [illegible], late Head Master of St. [illegible], Eastbourne. Cloth, crown 8vo, [illegible] numerous illustrations. 6*s.* net. London: G. Bell and Sons, York House, Portugal street.

be admitted that the names of the styles do represent facts, and until better ones are agreed upon, we must continue to use them if we are to have any classification at all. In France there was much less change of detail, at least in the Royal Domain, than in England, so that the various periods cannot be applied to French art to the same extent that they can be used for that of England.

The author gives a parallel list of the approximate dates of English and French buildings, and at the end of the volume a table of contemporary monarchs' reigns, works, and events in England and France, which will be found of the greatest value in comparing work in the two countries. The index, again, is commendably full and clear. The bibliography is brought up to date, and

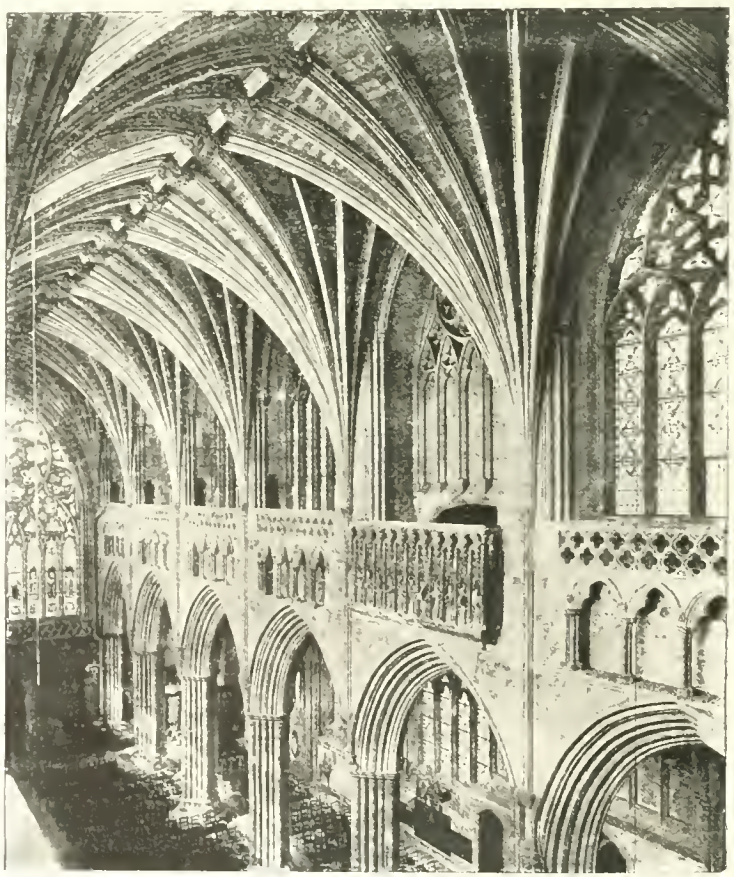

Fig. 3. EXETER CATHEDRAL: VAULT OVER AND NORTH ARCADE OF NAVE.
(From West's "Gothic Architecture in England and France.")

Fig. 2.—SENS CATHEDRAL, EAST

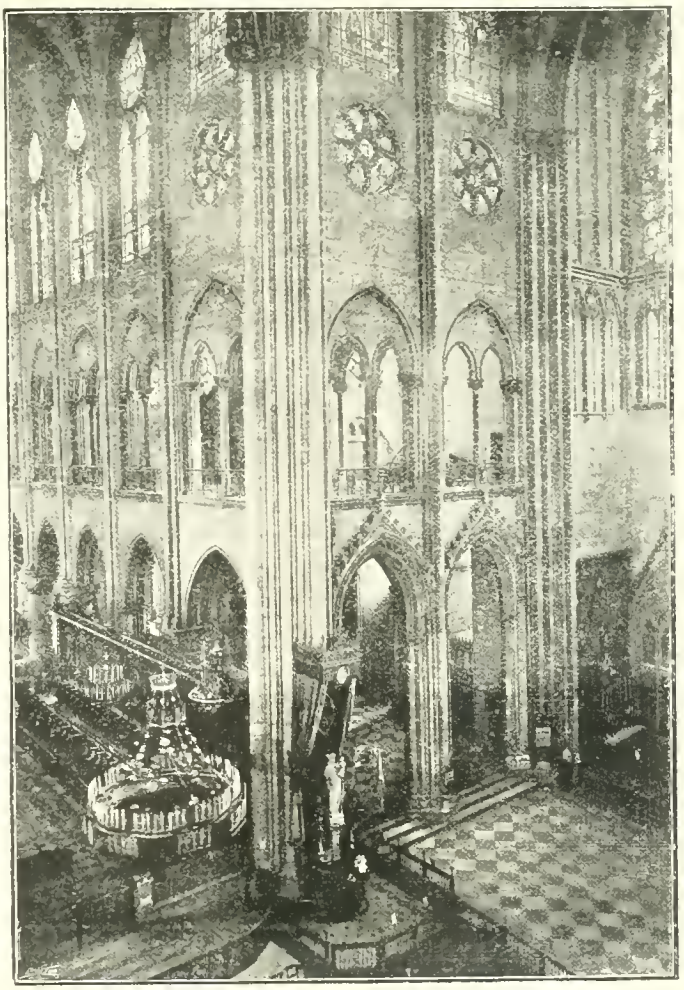

Fig. 4.—IN NOTRE DAME, PARIS: JUNCTION OF NAVE AND NORTH TRANSEPT.

(From West's "Gothic Architecture in England and France.")

includes the important paper by Messrs. Bond and Watkins on the Chronology of Lincoln Cathedral, published in the R.I.B.A. Journal in November last, and Mr. John Codd's reply in the issue of that Journal two months later. The result of Messrs. Bond and Watkins' investigations are epitomised without comment on pp. 224-5. The "Glossary" is lifted, with little alteration, from Bloxam, and most of the woodcuts are old and familiar friends, having figured in that work and many subsequent ones issued by J. H. Parker, or from Viollet-le-Duc's works. The very numerous and excellent full-page half-tones are, however, without exception, from recent photographs, most of the French ones being reproductions of those taken by the author.

The subject of the volume is divided into two parts, constructional and historical, the former naturally giving most scope for original deductions and theories. After treating upon the origin of the fabric of the Christian church, two chapters are devoted to the evolution of the French and the English cathedral respectively. French art was, the author points out, derived from two sources—that which arose from the great Benedictine Monasteries of the 9th and 10th centuries, around which towns gradually sprang up in previously deserted country districts, and that to be found in the bishops' cathedrals in the towns, which were chiefly of Roman origin, and possessed a continuous history from the time of the Empire. The second of these sources, he demonstrates in the next chapter, does not exist in England, for there were in this country no towns possessing a continuous church history from Roman times. Yet, small and unimportant as English buildings are, we can display in this country a more consecutive architectural record from the 6th to the 10th century in our Anglo-Saxon remains than can be found in France or even in Germany. The French cathedral was semi-secular; that of England was self-centred and exclusive, a character of the enclosing wall and also of the cloister. As a rule, English abbeys were not placed in the chief towns, and the English cathedrals were not, except in the case of London, built in large centres of population. The churches of the greater towns in England, unlike those of France, may be reckoned in the same category as country churches, as the towns grew so gradually. "Such contrasted views as those of Chartres and Lichfield, Wells and Rouen, sum up completely the stories of the two national churches." The same story is, Dr. West points out, even more clearly told by the plans, as he shows by placing those of Salisbury and Amiens in juxtaposition. Dr. West illustrates side by side photographs of the interior choirs of Canterbury and its prototype, Sens, in both cases looking east by E.N.E., which we reproduce, by permission of Messrs. Bell, as Figs. 1 and 2. He reminds us that in rebuilding the eastern end of Canterbury after the fire of 1174, which destroyed the glorious choir of Conrad, William of Sens gave the work its French character, and introduced from his own cathedral the beautiful double columns round the shrine of Thomas-à-Becket. Dr. West directs attention to the French character of the whole work at Canterbury, particularly in the columns, capitals, and mouldings, in the sexpartite vaulting, showing a small transverse arch and no ridge rib, and the single vaulting shaft to alternate bays. The piers at the crossing of the lesser transepts have square capitals, which were afterwards copied at Lincoln; the windows are of unwonted breadth, and round and pointed arches are curiously intermixed. This choir is, the author observes, the chief glory of the Transitional period, and is, "with Westminster, the only instance of a thoroughly French design introduced into England, but in its detail is far more French than the latter building." Canterbury is, he adds, not equal to the corresponding work in France—the proportions of the three stories are unsatisfactory, the round arches with the tall, slender columns a step backwards, and the sexpartite vault hollow and weak. Turning to Sens, the Lombard plan of alternate piers and columns is noteworthy, and we observe the double columns, afterwards repeated at Canterbury, the sexpartite vault, and single vaulting shafts, the heavy transverse arches, and simple character of the arch moulding and of the tracery in the choir. The aisle windows are broad pointed, and the arcading consists of round arches. The illustration is from a photograph by Dr West.

An interesting chapter tells afresh, and in lucid terms, the story of the development of vaulting in the two countries, a development which governed the evolution of Gothic art in all its details. The Gothic vault consists of arched ribs placed at right angles to each other, and diagonally forming a skeleton of stone work above an oblong or square space, and supporting thin independent stone panels, which in France are made up of a number of flat arches of small stones thrown from rib to rib, and which are not, therefore, self-supporting. In England they are frequently not arched, but flat, as if made of plaster, and consequently weak, and in need of intermediate ribs to support them. The pointed arch was used as a means of getting the summits of the arches approximately level. The diagonals and intermediate tiercerons being of different lengths would rise to different heights; their curve, therefore, was altered in the upper part, to keep all the crowns level. Hence arose the four-centred arch. To hide the breaks of curve, cross-pieces—liernes—were inserted, with bosses at the intersections. If the ribs are very numerous, and have all the same curve, an

...PON CATHEDRAL. NORTH TRANSEPT.

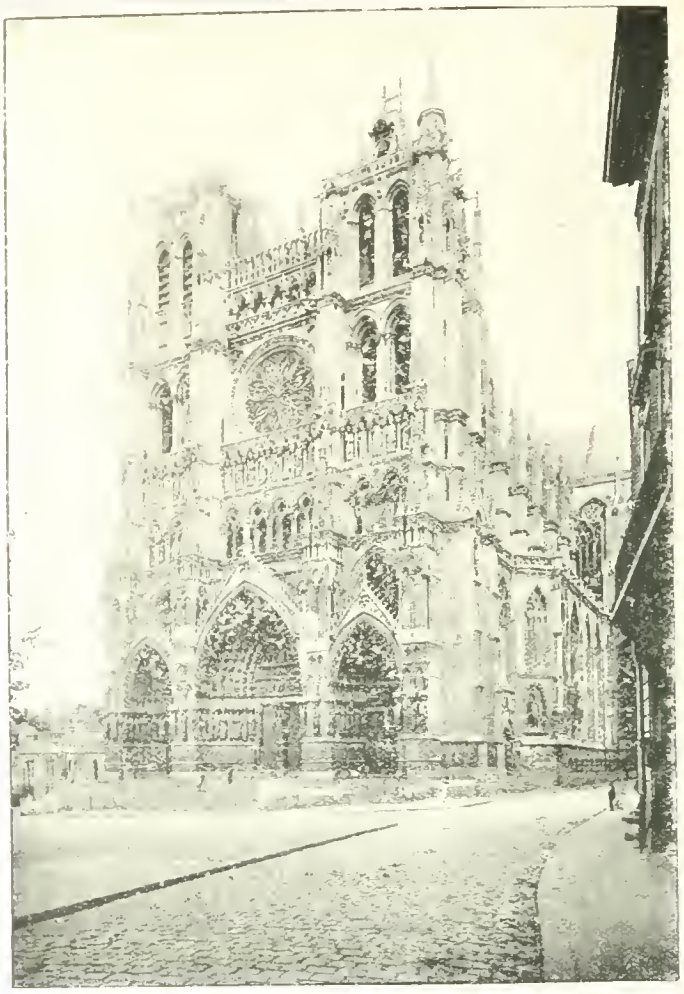

Fig. 6.—WEST FRONT, AMIENS CATHEDRAL.

(From West "Gothic Architecture in England and France.")

...and Sir Charles Nicholson, seem to give plausible reasons for the thickening of the choir and transept walls and the abnormal and distorted form of the old choir vaulting. Among the buildings of the 13th century, contemporaries which inevitably challenge comparison are Salisbury and Amiens. In the latter building the nave interior is well-nigh perfect. Externally "Amiens, especially in the apse, is restless and confused, and the lack of broad contrast gives some sense of weariness, however perfect the detail. The lower part of the western façade (Fig. 6) is one of the finest things that ever was created, with its broad tower buttresses standing square upon the ground, and the great cavern of sacred imagery opening into the dark temple beyond; but the restless flamboyant gutters sway the beauty at the top."

In a closing chapter the author summarises his views, pointing out that, in spite of some resemblance, there can hardly be a greater contrast than that between the French and English cathedral, whether regarded from without or within. The aspiring height of the former edifice is very wonderful and very beautiful, but leaves a sense of constant effort to overcome difficulties, after all only partially vanquished; whereas the English cathedral has a peaceful effect, in its long unaspiring lines, unequal parts, and ...[illegible]. Nevertheless, the French art ...[illegible] of English but it is the expression of the nation's soul, the other but ...[illegible] history.

...[illegible] has been ...[illegible] though a few important ...[illegible] Bishop for Archbishop Roger of York, in 1220, and the varying ...[illegible] Compact in size, ...[illegible] and abundantly illustrated, ...[illegible] will be found as attractive as help ...[illegible] Gothic architecture.

...[illegible] Through

"BUILDING NEWS" DESIGNING CLUB.

A COUNTRY-SIDE GARAGE AND COTTAGES.

Much of the cottage work now being done shows a distinct taste of an improved order by reason of an endeavour exercised to assimilate more intimately the country-side dwelling with its unsophisticated environments; but still the prevailing tendency presents too evident a desire to insure a meretricious picturesqueness, which mostly takes the easy form of over-featuring designs, whereas cottages can scarcely, if ever, be successful without intuitive simplicity, and the result, to be good, must be the outcome of restraint rather than any apparent effort, which, indeed, may show itself in one direction quite as distinctly as in the other. Mere sterility of invention and crude mannerisms are alike unequal to the problem of emulating the charm of old, unpretentious dwellings of our English forefathers, whose homes were the result of simple needs carried out with local materials in a vernacular way. Everyone, theoretically, acknowledges these elemental premises of the subject, but still only a few realise them in actual practice. This fact is patent to anyone after visiting either of the model villages or town planning centres springing up here and there all over the country; and while willingly acknowledging an advance in many ways a feeling of disappointment must be felt owing to the shortcomings which still preponderate, in spite of the laudatory reviews and outstanding advertisements issued by interested promoters. This preface is suggested by the response which our Designing Club members have made in this competition for two cottages and a country-side garage, for which we publish three schemes.

That the subject is an eminently attractive one there can be no doubt; but we recognise a certain degree of incongruousness about ...[illegible] so far as the up-to-date con-

ditions inseparable from a motor garage are concerned, incorporated as they are in this case with the homes, presumbably, of country folk, who, nevertheless, likewise can in no other way undertake the repairs of the latest form of locomotive machines than by being specially trained in active centres of a manufacturing industry, and who, by this same technical training so acquired, must by the very nature of things become proportionately disassociated from the primitive intuitiveness belonging only to native upbringing and the limited outlook of an indigenous simple life. The engineer in one cottage, and his helper in the other, who must possess a wife or daughter capable of conducting a rural post-office business, cannot be reckoned as ordinary country folk, and however charming their homes may be made, so far as the architect is concerned, the risk of an ultimate discrepancy is more than likely as to the way in which the occupants will accommodate themselves to their position and surroundings, while possibly the men in either house will find little time for the amenities of their environment, even if they chance to have a natural taste in gardening and floriculture. It is this difficulty, indeed, which militates so largely against the success of garden cities, where only the minority realise their opportunities, or have the good sense and energy to rise to the occasion These considerations scarcely, perhaps, come within the scope of our enterprise in setting competition subjects; but they ought not to be ignored—indeed, they cannot be properly overlooked, however much artistic ambitions may actuate our ideals—and so, in judging the merits of contemporary design, the modern architect ought to fully comprehend the actualities of everyday affairs, and while seeking to emulate the joy of simplicity and refined taste, he, above all his contemporaries, cannot afford to ignore the altered conditions of life, and the measure of everyday economics. It is this aspect of the question of modern house-building which makes the art and craft ideals of design so manifestly out of accord with the actualities of things, for they possess little in common with the days of smock frocks for men and sun-bonnets for women. Here, then, comes in the question as to how far the poetic side of architectural conformity correctly justifies itself, and in selecting the designs submitted in this competition, judgment cannot be settled by æsthetic considerations alone. The only safe solution must be based upon a practical view of things, and the assessor must rely upon an intuitive judgment (exactly as the designer should), which will insure him against making an artistic mistake. He may not be able to define his position in such a way as to satisfy those who fail to comprehend his standpoint, as taste remains a factor beyond the scope of exact determination, though as such, like poetry, it remains, and must remain, the dominating influence which will outlive every other consideration in the long run.

That "Margis" possesses a poetic fancy in solving modern problems we will scarcely claim without qualification; but he does know how to restrain his hand, and, at the same time, he recognises the essentials of pleasing effects without too much emphasis. Also he has a facility for depicting his proposals with an artistic unpretentiousness, so we put him first, and place "Oxonian" second, with "Harvey" third. It will appear later why these two were not reversed in their order; but we may say at once that for the elevations, "Harvey" pleases us more than the other. "Margis" makes a mistake in putting his motor-pits the wrong way round, so that every car has to turn on going into position in the garage. In every other respect he seems preferable to the others. The post-office is easily recognisable, and unmistakably comes to the front, and is well isolated. The little angle-wall and glazed window to the other cottage (where the roof slope comes down) is not justified by the plan, where it looks stuck on without a meaning. Had the window been omitted we could have understood the feature better. The shrub in the sketch looks as if "Margis" had realised what we are driving at, and any reader can immediately see what we mean.

"Oxonian" elongates his group detrimentally, and makes rather too much of the incidental pigeons' cote, relatively taking the scale out of the dormers, judged by the perspective, and the garage doors have the same effect. The post-office is a trifle too obscured, allocated like a porch at the west end, the door being hidden by the hedge from the road. There is not any waste of head room below the stairs to get into the w.c., No. 9 being the number in the quarter-space landing, and no steps down into the closet.

"Harvey" spoilt his chance by omitting an entrance to his second cottage save through the post-office or the scullery. We could not ignore such an initial oversight, and we do not think the bathroom comes well next the parlour door, while here, again, there is precious little head room over the bath, coming so close under the stairs. The bedroom floor is rather well managed for economy, and as we have already intimated, we like his elevations very well. The post-office comes out properly to the front, as if it meant business, and the motors stand rightly in the garage.

"Liver," placed fourth, has a pretty fancy, and the back, as well as the front, of his building ranks as a success; but the post-office is not quite distinctive enough—in fact, as both cottages have double bays, and the post-office occupies one of them in the second cottage, the public would not recognise its location, and at best it looks like an after thought, while, anyway, the cottage door and the office door should not be placed so closely together. The fault of the plan is the dark staircase right in the centre of the block, with no windows whatever. Architecturally, the projecting wings in front are so put that there remains too small a piece of main roof between the valley of the intersection and the hip at the ends; consequently the result is fidgety and small just where breadth of line is so essential. Lofty roofs are costly, and in old cottages were made use of for lofts. "Liver" leaves the space unutilised. He draws well, but in most of his rooms puts the doors too close up to the angle. Two doors to such small living rooms are scarcely needed. They waste wall space badly.

"Showman" comes fifth; but the shape of his post-office, set in the angle, with a flat over it, and a long valley above, is not quite a practical or pretty contrivance, with the segmental shape for the window on plan, besides which the house porch has to do duty also for the post-office. A case of measles or scarlet fever in the cottage would interfere with the public use of the place. "Showman" cuts his gables into queer shapes by a long lean-to roof on one side not particularly well-managed, as the perspective demonstrates, otherwise there is no objection to such a diversification of line. Here the front chimney-stacks cut into the roof, and make a nasty snow-pocket gutter, which finds an outlet at the rear of the brickwork just into the valley behind, where much water in storm time is hardly reckoned for, as it ought to be by practical builders. The glazed doors to the garage are all very well, but look better suited to a winter garden, and the glass would be continually broken, besides which the doors opening outwards on a centre-post have no chance of being folded back out of the way. This fault is not confined to "Showman's" plan, however. The stores and shop should be connected. Here one is to the right and the other to the left of the garage.

"Pylon" gets out of the door difficulty just mentioned by omitting them entirely, and though the shaped timbering looks very quaint, and would do for a cart-shed, the open, unprotected front free to the high road scarcely seems suitable for the housing of expensive motor-cars, even as a temporary resting-place, for tramps might find comfortable lodgings uninvited, and possibly thieves might avail themselves of temptations thus freely given. The post-office in this scheme is quite one of the best; but we do not like the way in which the stairs cut into the ceilings of the living-rooms. By starting the stairs earlier on the ground floor, this might be mitigated, though the difficulty occurs from shortness of head-room by reason of the roof over running down as it does at the end of the block.

"Jimmy" cuts up his scheme badly, and draws in a coarse outline way which does not improve his chances. The projecting post-office does not belong to his group, and makes no attempt at conformity. The stairs go up straight, facing the front door, and hardly look as if they would get one up in time unless the risers were of step-ladder altitudes.

"Kardoh" is of a less dashing order, and is just as neat as the last competitor is slap dash. The results in execution would be favourable to the man of forethought and care—in fact, much could be said for "Kardoh," but, even so, he misses the spirit of good proportion with tall, narrow door openings and tile hanging introduced without any oversailing or projecting verges. The frontage parts with the gables over are tame by projecting so triflingly, and the long ridge line should not drop in the centre, but run through boldly at the same level, even if the eaves line stood higher behind than in front. This last remark may appear questionable to the commonplace mind, but if thought out, the suggestion favours precisely the method which the old builders would have adopted as the natural thing to do, and so a better loft would have been got, with ample window-space on the rear side.

"Prospero" has good points, but is not successful with his bedrooms, and his post office, though well to the fore, scarcely justifies itself The door, when open, would block up one front window.

"Memnon" draws in a captious way, cloud spotting with bladder forms both plans as well as elevations. He inserts his garage with the workshop in between. This proposal, if licked into shape by a qualified hand, might prove to possess elements of success now obscured by inadequate handling. The wasteful halls and landings make it, however, a difficult if not an impossible contribution.

"Bournemouth Queen" draws with a hard, matter-of-fact precision devoid of sympathetic expression. His plans are poor. The private entrance to the second cottage constitutes the post office attendant's space for service, and so all the conduct of the residents' affairs are open to public inspection, while customers may enjoy most of the odours of cooking in process, as well as a full view into the living-room kitchen

"Granite" is nearer the end in view, though we cannot say that he approaches success, as he easily might by adopting a bigger style of featuring, and less enormous printing. The canted shape for the post-office means more cost and less accommodation. At present there is not room "to swing a cat," much less to do public execution, even of the postal order and halfpenny stamp kind. The staircases are dark, and badly contrived. The twin roofs to the little dormers are out of scale, and expensive, without being effective as here done.

"Also Ran" does try to come in somewhere, but anything more unlike what was intended it is difficult to imagine. The garage is made subservient to the cottages, which assume the character of Georgian houses done in tile hanging, with the post office stuck on casually at one end. There is no semblance to the smock frock and sun bonnet order of things in this proposal, and if no poetry, there is little practical conception, even if we do note a joist carried from the reveal of a doorway to that of a window, to give support to a canted fireplace over the bathroom, and for the chimney weight above.

"Ink Splash" will never set the Thames on fire, and seems little likely to produce good buildings, wasting space badly, and devising rooms of inconvenient shapes. The only way into cottage No. 2 is past the back w.c. door by way of the scullery, unless access is obtained through the post-office.

"Jeck" sends a design with an archway big enough for a tramcar depot, and out of the garage space the bathroom of No. 1 cottage is carved, while the workshop is worked into the cottage plan, as likewise happens with the loft above.

"Crux" is neat or nothing, with outstretching eaves like pents carried by shaped brackets in a Chinese mode, drawn with

NEW TIMBER TREATING PROCESS IN NEW ZEALAND

Consul-General William A. Prickitt, Auckland, New Zealand, reports that a limited stock company, located near Wellington, is now engaged in treating chemically lumber of ordinary quality for railroad ties, fence posts, etc., by a new method. The preserving process consists essentially in boiling the wood in a saccharine solution to which certain other substances are added, according to the special purpose for which the lumber is required. The lumber is not subject to external pressure or vacuum at any stage of the process. The wood as it is received is immersed in a cold solution in large open tanks. This solution is gradually heated to the boiling point, and is maintained at this temperature for a certain time, depending on the size and density of the wood. After boiling, the wood is removed and placed in a drying chamber, the temperature of which is slowly raised. When sufficient desiccation has taken place, the material is cooled down. The time required for this treatment generally ranges from 6 to 10 days, though in special cases and where extra strength is required it may be extended to several weeks. The action which takes place is described as follows: As the temperature of the solution is raised, the air in the cells of the wood is expanded, the greater portion of which escapes. As a result of the cooling of the solution a partial vacuum is created in the cells of the wood, and the solution is forced into the cells by the pressure of the atmosphere. The coagulation accounts for the strength of the wood being increased by the process. While cooling the solution is rapidly absorbed by the wood and penetrates every part of it. The company is executing an order for 180,000 ties for the Government Railway department, and the works were lately inspected by the prime minister. The company is also treating large quantities of wood for use in railway cars. Among the advantages claimed for this process is the statement that the timber can be treated as soon as it is brought in from the forests and often immediately used for the purposes required, whereas in the ordinary way the sawn timber must be allowed to season for a year or more before being worked up. It is claimed, also, that there is no waste in lumber which has been treated, as the process stops all warpage and splitting, as well as rendering it immune from dry rot and borer insects.

THE SURVEYORS' INSTITUTION REPORT.

The forty third annual report of the council of the Surveyors' Institution, presented at the annual general meeting, May 29, 1911, states that the total membership is now 4,500, being an increase of 157 on last year. We notice, however, with some regret that there is a steady and continuous decrease in the number of students, the numbers being 355 in 1909, 365 last year, and 338 this year. The financial position of the Institution is fairly satisfactory. An endeavour is being made to place the Institution Scholarships on a firm basis, each year any balance which may exist on the examination account being transferred to the Scholarships account, in order to provide a capital sum the interest from which may in time suffice for the annual payments in respect of Scholarships.

A large sum, £2,500, has been carried forward on deposit account. This was not invested, as it will shortly be needed in part payment of the cost of extending the Institution buildings.

Receipts.	£.	s.	d.	Payments.	£	s.	d.
Revenue Balance Jan. 1, 1910	641	7	2	Total Payments out of Revenue (Current Expenses)	9,979	1	2
Total Receipts on Revenue	11,641	5	9				
Examinations Account	1,042	5	6	Purchase of £776 8s. 4d. Metropolitan Water Board "B" Stock on account of Scholarship Fund	689	14	2
Receipts on Capital Account	1,043	14	0				
Reserve Fund	51	3	6				
Scholarship Fund	68	14	0				
Examinations Suspense Account	141	18	0	Purchase of £1,129 15s. 5d. New South Wales 3 per cent. Inscribed Stock on Capital Account	1,000	0	0
				Purchase of £182 5s. 4d. Consols 2½ per cent. Reserve Fund	149	17	0
				On Deposit Account	2,500	0	0
				Balance in hand Dec. 31, 1910	314	15	7
	£11,633	7	11		£14,633	7	11

THE EXAMINATIONS, 1911.

During the year 905 candidates have presented themselves for the Institution Examinations, being 152 more than in 1910, and 180 more than the previous record in 1907. This great increase must be looked upon as to some extent of a temporary nature, the closing of the doors of membership after October, 1913, to all who have not passed both the intermediate and final examinations having the effect doubtless of inducing candidates to come up before that date if possible, and being therefore one of the factors to which this great increase must be attributed.

THE SPECIAL CERTIFICATE EXAMINATIONS.

The triennial examinations for special certificates were held in June of last year, seven candidates presenting themselves in Sanitary Science, and fourteen in Forestry. Of the former seven, and of the latter six, satisfied the examiners, the Daniel Watney prizes for the first place in the Forestry examination being taken respectively by Mr. John W. Aris with 713 marks out of 1,000, and Mr. C. N. Philpot with 711.

SCHOLARSHIPS AT THE UNIVERSITIES.

The successful candidate for the Institution Scholarship of £80 per annum tenable at Cambridge University was Mr. P. D. Sturge, a great-nephew of the late Mr. William Sturge, President of the Institution in 1878.

No scholarship was awarded at Oxford University, but for those in connection with which the successful candidates had the choice of the University at which they would take their course, the competition was encouraging, affording ground for the belief that the changes outlined in the last annual report had justified themselves.

The council remind the members that these scholarships, which are of an annual value of £50 or £60 respectively, and are tenable for three years, two being offered yearly, may be held at any University selected by the successful candidates other than Oxford or Cambridge, which have their own institution scholarships. The course of study, too, is not restricted, candidates being allowed to choose the course they elect to follow, provided that it is one sanctioned by the council as bearing on the training and practice of a surveyor.

THE INSTITUTION PREMISES.

The possibility of an extension of the Institution premises over Prince's Mews to the new street at the back, referred to in the last annual report, has now practically been settled. Mr. Paul Waterhouse, F.R.I.B.A., has prepared plans extending the lecture hall and the council chamber, and making use of the ground floor thereunder for the staff offices, which are at present much scattered. This will not only allow the ordinary work of the Institution to be more conveniently carried on, but will also provide both a ground-floor lavatory and improved accommodation for writing and arbitrations. The elevation to the new street proposed by Mr. Waterhouse is a dignified one, in accord with the existing building, and the Council feel that when the extension is complete with the additional frontages the Institution will be housed in a manner befitting the position which it has attained.

THE SURVEYORS' INSTITUTION AT LIVERPOOL.

The annual summer meeting of the Surveyors' Institution was held at Liverpool on Thursday and Friday in last week.

On the opening day the members were received and welcomed by the Lord Mayor (Councillor G. Mason Hutchinson) in the council chamber of the town-hall. The Lord Mayor said that municipal authorities owed a deep debt of gratitude to surveyors and land valuers for their work. As regarded schemes for housing, construction of new roads on the outskirts, and sanitation, they would find that the municipality of Liverpool had always been in the van of progress. The chair was then taken by Mr. Leslie R. Vigers, president of the Institution.

THE MERSEY DOCK ESTATE.

Mr. Oswald W. Young, F.S.I., read a paper on "The Mersey Dock Estate." The estate consisted, he explained, of two distinct and separate properties divided by the River Mersey, situated in two counties which in turn embraced three county boroughs, one borough, and an urban district. The estate covered an area of about 2,350 acres, of which 1,642 were in Lancashire and 708 in Cheshire, and the length of the docks proper was nearly six miles. The lecturer pointed out that the new Port of London Authority had been modelled on the lines of the Mersey Docks and Harbour Board—a compliment of which Liverpudlians were justly proud. He went on to deal with the large tracts of foreshore acquired by the board. There still remained undeveloped two pieces at the extreme north and south ends of the estate, and though at present unproductive, he thought it was generally acknowledged that the board had exercised commendable fore-

sight in the acquisition of these lands, as they had thereby effectually secured for the trust the supremacy of the Mersey, and left no opening for the establishment of rival docks. He went on to deal with sales and purchases effected after the establishment of the present board, alluding at some length to the purchase by the corporation of the George's Dock site. He traced in detail the negotiations, and mentioned that the arbitrator (Mr. Robert Vigers), in his award, fixed the price at £305,224, or £12 12s. a square yard, which he thought they would agree was favourable to the board; but the actual amount paid came to about £11 8s. 6d. a yard, or about £55,000 per acre, a reduction in respect of certain matters in dispute between the board and the corporation. Mr. Young gave details of the new Dock Offices and the Royal Liver Society's new offices, and the site for baths. He mentioned incidentally that the tobacco warehouse at the Stanley Dock was the largest in the world, having a total floor area of thirty-six acres. Details as to the dredging of the bar were given, and, in conclusion, Mr. Young said that over £37,000,000 had been expended on the dock estate.

A vote of thanks was accorded the lecturer, on the motion of Mr. Hanson, of Huddersfield, seconded by Mr. E. R. Robson, of London.

THE LEDSHAM SMALL HOLDINGS.

Mr. W. McCracken, F.S.I., read a paper on the Cheshire County Council Small Holdings in relation to the estate of Ledsham, which was bought for £35,000 in 1908. The estate is almost midway between Chester and Birkenhead, and each end touches a railway station. Mr. McCracken said that in its general aspect Ledsham is flat, though providing sufficient falls for drainage purposes. At no point does it exceed an elevation of 150ft. above sea-level. The difference between the highest and lowest points is only about 20ft. Of the total area of 853 acres, 635 acres were in grass, 188 acres in tillage, and 30 acres taken up by plantations and roads. Everything about the property when it was taken over was in a more or less dilapidated condition, and this greatly increased the initial expenditure. The scheme that has been adopted provides twenty-four small holdings, ranging from 4½ acres to 50 acres in extent. The average area is about 32 acres, the average rent about 46s. per acre. There are also five market gardens of from 6 to 13½ acres, averaging 8½ acres in area, and 83s. per acre in rent. Three cottages with small gardens complete the list of tenancies. All the small holdings are provided with homesteads. Sixteen of these homesteads are entirely new; in the other cases existing houses and buildings have been repaired and adapted. Four new houses have been built in connection with the market gardens, and one old one has been put in order and utilised. Where practicable the homesteads have been, for the sake of economy, built in semi-detached pairs. It was found possible to build six pairs in this way. The other four new homesteads stand by themselves. Each pair cost £480, and the single houses £270. With one exception all the previous farm tenants remained upon the estate as small holders under the County Council. The new tenants were drawn from all parts of the county. All the holdings are let upon "year-to-year" tenancies with the usual restrictions and reservations, and subject to notice to quit given by either party six months before February 2 in any year. The rents become due half-yearly. The tenants pay all ordinary tenants' rates. These amount to 3s. 4d. upon the buildings and half that rate upon the land. Dairy farming is the prevailing industry.

Mr. Cowper Coles, in proposing a vote of thanks to the reader of the paper, said that although the land was acquired on favourable terms, yet the item of 25 per cent. for the cost of equipment was a serious one. On the whole, Ledsham could hardly be taken as a fair standard for small holdings generally through the country. The question for the future was whether tenants would hold under the County Council or purchase outright. It was not a political, but an economic subject, and there was great trouble ahead in dealing with it.

Mr. Dickson, Mr. Coard S. Pain, Mr. Sabin, and others took part in the discussion.

After luncheon, the members inspected the dock estate, and various other places of interest in Liverpool.

MR. W. H. LEVER AND TOWN PLANNING.

In the evening Mr. L. R. Vigers presided over a large gathering at dinner at the Adelphi Hotel. The company included the Lord Mayor, Sir Edward Evans, Sir Charles Petrie, Sir A. R. Stenning, the Hon. E. G. Strutt, Judge Taylor, and many prominent representatives of the surveyors' profession. After the loyal toasts, Mr. Arthur Vernon (past president) gave the toast of "The City of Liverpool," and wished the port a continuance of its prosperity. He would suggest to visitors the motto—"Study Liverpool and take courage."

The Lord Mayor, in reply, observed that the corporation had been engaged for years in sweeping away slum property and placing the poorest of the poor in new environments.

The Hon. E. G. Strutt submitted the toast of "The Guests," which was acknowledged by the Mayor of Bootle.

Mr. W. H. Lever proposed "The Surveyors' Institution," and said he did not know of any grander profession than the one they followed. They could only live healthy lives in large communities by a proper scheme of town planning, and that could not be done without the assistance of surveyors. It was a mistake to suppose that town planning meant an added burden on the rates. On the contrary, it was the lack of town planning in the past that caused the present high rates. Liverpool, fortunately, possessed exceptional physical advantages, and if London had had a proper town-planning scheme in the past, there would not be that block and delay in traffic which existed to-day. In his opinion, suitable town-planning schemes would be made in the future in all great cities, including London, and the saving in time and wastage would be well-nigh incalculable. He believed in the utility and healthfulness of town planning, and thought there was no profession better calculated to secure that object than the Surveyors' Institution.

The president replied, and proposed the toast of "Lancashire and Cheshire Committee," which was acknowledged by Mr. John D. Wallis, chairman of the Reception Committee.

AMERICAN ARCHITECTURE.

In the discussion which followed Mr. Andrews's paper last week at the Royal Society of Arts, which we gave on p. 729, the chairman, Sir Aston Webb, said when he was in New York he did not think the American architects were themselves quite sure as to the possible final success of those buildings, and they were always asking Europeans what they thought of them. He never felt any hesitation in declaring that he thought them extremely fine, though he believed the Americans to whom he said it sometimes thought he was chaffing them. The effect of them upon him was very strong, and when the streets were fuller of them, and there was an aspect of greater cohesiveness, the effect would be better still. But when he was there, the tall buildings were only occasional, so that the effect was somewhat "jumpy." Looking down town in New York at that date reminded him very greatly of the streets of Genoa and of other of the older Italian towns. The New York streets were wider; but the buildings being higher, with the overhanging cornices, there was produced the same effect of deep shade at the bottom, and brilliant light on top. Fine as one thought such buildings out there, he did not think our admiration for them would enable us to imitate them in England—our atmosphere and our requirements seemed so different. But it was important to note how keen was the interest taken by the American public in matters architectural. Here the public did not generally take much interest in those matters, and the reason might be that Americans had had that new problem to solve. Our problems had been settled, and most excellently, in days gone by, and at present we were somewhat nervous about trying new ones. In America, architecture was a topic of public conversation, and one could hear comments upon the beauty of design of the buildings. That was, naturally, a great encouragement to the artists working in brick and stone, an advantage which Britishers congratulated them upon possessing. Another advantage was the unified action in that country; they were all working on the same lines there, though not necessarily on the same style; sometimes they used the Gothic, sometimes the Classic; but the buildings were so huge that the detail in them was a comparatively small matter. The buildings were designed with the idea of great effect, a great base, a great shaft, and a great cap; and each was trying to bring about the same effect in his own individual way. That was an advantage which was seen in all countries in the world in the matter of architecture. In Greece, for instance, they worked together on the same lines, and they achieved success; and so in Rome, and in the Renaissance, and in the English Gothic. When working together with the same aims, success followed, which showed that architecture was an associated art, and that a Copyright Bill was scarcely necessary or desirable for architects. What was required was that they should assist one another by their examples, and thus by degrees develop something which should be not only satisfactory to themselves but should bring honour and repute to the countries in which the buildings were placed. The history of our country was largely built in its architecture; and the history of America was now, he thought, being largely, nobly, and grandly built by American architects. He was, therefore, sure that the meeting would join with him in congratulating Mr. Andrews and the American people on the magnificent opportunity they had. He knew very well Mr. MacKim, of the firm of MacKim, Mead, and White, one of the most charming men who ever stepped, as well as one of the most modest and refined. When he (Sir Aston) was in New York, Mr. McKim had just finished the library for Mr. Pierpoint Morgan, one of the most refined buildings, of ordinary size, which he had ever seen. A New York City man told him that constantly on going down town he went out of his way for the pleasure of going down the street to look at the elevation of that library—a very strong illustration of the effect which architecture might have upon the individual. He also had the pleasure of knowing Mr. Cass Gilbert, whose very fine buildings the lecturer had shown on the screen. Mr. Gilbert was also a great artist and a most delightful man. There was one omission in the slides, and that was an indication of what buildings were designed by Mr. Andrews himself. If he showed any of them, he did not say which they were, a piece of information he was sure they would be glad to have.

Mr. H. H. Statham, F.R.I.B.A., said although he knew the position of Manhattan Island led to the crowding of the ground, he was not previously aware that the resulting buildings had been accepted as the type of American architecture. He admired those buildings, and he agreed that they were the natural outcome of the conditions; but it was impossible not to feel some dissatisfaction with the idea that they were buildings of which the whole exterior more or less imitated a construction which was not the real construction; and if that system of building tall steel buildings was to be made architectural, there should be some effort to resign the exterior so that it actually conveyed to the mind that it was only steel; that it should avoid giving the impression that it was an imitation of a stone structure. Was it possible to carry out these high buildings in ferro-concrete, instead of with a stone skin, so that the exterior should represent the actual construction? Pictures had not been shown of very high buildings in concrete steel. To Europeans, who had been accustomed to regard architecture as buildings in stone and brick, that idea of the outer skin went against one's prejudices. He had

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CURRENTE CALAMO.

Elsewhere this week a responsible correspondent, who asks us for the present to withhold his name, puts a question which we have more than once seriously considered lately. We should be glad if it elicited comments. Presently, we hope, the Institute will be, amongst other good things, a real and effective "Architects' Protection Society," fighting real cases of hardship as doggedly as a trade unionist demands the reversal of the Osborne judgment. Possibly even then all cases could hardly be covered. As to insurance, we are uncertain. We suppose ordinary companies would ask stiff premiums? You can insure against almost any contingency at Lloyds' now—even against twins—but it is imaginable that even there, just as a high premium might be asked of insurers of proved powerful progenitiveness, so some architects with a propensity for finding their way into pitfalls might be quoted rates which would induce them still to run risks rather than purchase safety so dearly. Some of these risks might be guarded against if architects would be more careful in their contracts with clients; and if some good sound legal advice were at the command of such a society, and available before loss were incurred, it might double the benefit of membership.

The frequent fires at temporary exhibitions, "shows," etc., where highly inflammable forms of construction are used, have decided the executive of the British Fire Prevention Committee to issue a detailed report on the great Brussels Exhibition fire of last year, and to supplement it with suggestions as to safeguards against fire in future temporary exhibitions, etc. The publication is a most timely one. In England these flimsy temporary exhibition buildings can practically be erected anywhere, except when situated strictly within the London County area, for but few provincial centres have regulations to cover this class of structure. Surely the time has arrived when we should either have general regulations or a form of model by-laws that could easily be adopted by localities to meet special fire risks of this kind? The Brussels Exhibition disaster meant a loss of over two million sterling, of which, it is true, about £1,750,000 was insured, but many of the exhibits were entirely irreplaceable. At a show like that at Coney Island there will probably be a loss of over £250,000. But what if one of these fires were to occur when the public are actually in the exhibition buildings or "shows"? The Paris Charity Bazaar fire of 1897 is a grim reminder, and, looking at some of the temporary structures now being erected in connection with the impending Coronation celebrations, we rather wonder that many people will risk their lives in them, in the absence of any real precautions against disaster.

The *Rand Daily Mail* of April 27 wants "the idea knocked on the head that if a man lives in London, or Paris, or New York, he must of necessity be able to give ten yards start and a beating to everybody who lives in South Africa." This is apropos of the selection of Mr. Lutyens as the architect of the new Johannesburg Art Gallery, with a South African architect to be nominated by him as collaborator.

There seems to have been a very lively meeting of the Johannesburg Municipal Council the day before, of which a three-column report appears in the same issue of our contemporary, and at which an amendment was moved by Mr. Smit: "That having regard to the resolution unanimously adopted at the annual general meeting of the Association of Transvaal Architects held on February 22, and reaffirmed at the special general meeting of members of the Association on April 12, protesting to the Town Council against the appointment of an architect to design the Municipal Art Gallery building, without first inviting designs from South African architects in competition, and requesting that an open competition be arranged; this Council directs that such open competition be at once arranged, and that the General Purposes Committee be instructed to take the necessary steps to give effect thereto without delay."

A good deal of oratory ensued. One gentleman seconded the amendment, consoling his hearers by assuring them that, nevertheless, "he was going to vote against it when it was carried." Another insisted that South African architects were so much divided about the matter that at the meeting of the Association of Transvaal Architects the protest was only carried by one vote. Another insisted that when Mr. Leonard Stokes was there, he "complimented the South African architects most highly." Another was certain Mr. Lutyens' appointment meant "the destruction of two of the more important open spaces of the town," and that they would have to cut up Joubert Park in order to give Mr. Lutyens "his setting for this jewel of architecture." This was to be avoided by a competition, with Mr. Leonard Stokes for assessor, when all South African architects would be "honoured to compete against Mr. Lutyens." In the end, the votes for and against were equal, and the Mayor then gave his casting vote against the amendment. Another amendment to "carry out the work departmentally," and save £800 on the design, and 7 to 8 per cent. in superintendence, was defeated, and the original motion was then carried.

As one hurries away from the cloud of dust raised—especially on the "macadam" of the suburban roads, by the ordinary revolving brushes of the street-cleaners, this hot but breezy weather—the question must prompt itself to many, why not vacuum-clean our roadways? They do in Berlin and Vienna, and Dr. Prudden, an American physician, is trying hard to induce New York to follow suit. The method is cheaper, because the whole process is completed at one operation. The motor provides the power to work the suction apparatus as well as to drive the vehicle. Revolving brushes loosen the dirt, the suction-pipe collects it, and pours it into a closed bin, and the vehicle carries it off. No one has to follow the machine round to collect the piled-up dirt, or what is left of it, an hour or two later when a high wind has blown most of it over the street again. On electric tramway routes Dr. Prudden suggests that the vacuum cleaner, for the middle of the street, at any rate, could be driven by electricity like a tram. Why not?

At last, if the new Temple Station scheme for shops and a roof tea-garden materialises, something will have been done to relieve the deadly dullness of the Thames Embankment. No other city in the world would have let slip for so many years the splendid opportunities for recreation which the long stretch of promenade affords. Let us hope the promised open-air café may deserve to prosper, and help to liven up the chastened resignation with which the frequenters of the County Council's gardens sit and listen to bands, or watch the backs of the big hotels, whose exteriors have only half-managed to divest themselves of the semblance of Government buildings.

"Houses built while you wait" will soon be the *mot d'ordre* of the more enterprising "specimen-dwelling" provider. Edison's moulded house, which can be built in a few hours, has found a welcome, we are told, in Holland. A specimen house has been put up near Haarlem, and the Amsterdam correspondent of the *Manchester Guardian* describes "how it was done." Before the casting or moulding the shape of the house was set up in iron plates. This done, "an engine began to mix the special cement, and when the stuff was liquid enough the tap was turned on, and the cement poured in between the plates." In about four hours the whole house was cast, including the floors and roof. After some days the cement was dry enough to allow the iron plates to be removed and leave the house standing. The house is of "a nice grey colour," and the "joinings of the iron plates lined the walls quite handsomely." This specimen is a two-story house, with several rooms on each floor. The designer is a Dutch architect, Mr. Harms, who has been an assistant of Edison for several years.

The "Royal Academy number" of the *Art Journal* contains one of the fairest and most discriminative reviews we have read of this year's show, which, as the author, Mr. Rudolf Dircks truly says, "rarely yields the satisfaction which is evoked by art of real distinction." The eleven subjects selected for illustration are well chosen and excellently reproduced. There is also the second instalment of Mr. G. Wolliscroft Rhead's paper on "Modern English Fans," some of his own designs and others being given. One, "Love in a Mist," painted by Mrs. Muriel Baker, is especially good; the treatment of the silver filigree and enamel stick by Miss Cecilia Adams admirably grasping the two essentials, the full utilisation of the infinite possibilities of the art for the purpose to which it is applied, and the avoidance of weight of metal, which for a fan-stick should always be worked as lightly as circumstances allow. Miss Adams's work is always characterised by a judicious economy of material, and purpose and design are never sacrificed to the "massiveness" some metal and enamel workers delight in.

Herr Harry Plate, of Hanover, has been made a lifelong member of the Prussian Upper Chamber by special favour of the Kaiser. Plate is a master plumber. The honour bestowed on him has never before been awarded to an ordinary artisan. It is traditionally given to noblemen as a reward for eminent service to the State. Herr Plate is a Labour leader, but an anti-Socialist. Really, Mr. Asquith might take a hint if the big sham fight between Lords and Commons here ever develops into a veritable battle of Armageddon. Pick the five hundred new peers out of the plumbers, who will then

have the double right to sign themselves R.P., and may set to work to solder the new Constitution with the characteristic care and caution of the craft.

WOOLWICH FOOTWAY TUNNEL.

At the [illegible] Municipal and County Engineers [illegible] Town Hall, Westminster, [illegible] James Paton, of Plumstead, [illegible] the chair, Mr. E. H. [illegible] paper on The Footway Tunnel [illegible] Woolwich, now in course of construction.

The tunnel [illegible] resembled the [illegible] years ago at [illegible] of cast iron tube [illegible] diameter connecting two vertical shafts. The length between centres was 1,200ft. As it was found that [illegible] would be almost entirely in chalk, which would probably be saturated with water, arrangements were made for the whole of the shaft-sinking and tunnelling to be carried out under compressed air. The two shafts each consisted of a steel plate caisson 34ft. 6in. in diameter, with an inner skin of 27ft. 6in. diameter. The annular space between the skins was filled with concrete. There was a cutting edge at the bottom, and about 8ft. 6in. above the cutting edge there was a strong steel floor, the shafts being sunk by excavating below this floor under air pressure. Spiral staircases would be provided in each shaft to give access to the tunnel from the streets above. The cast iron lining of the tunnel consisted, as usual, of a series of rings of segments. Each ring was 1ft. 8in. in length, and was built up of eight segments and a key. The metal generally was 1½in. thick, and the flanges were 5½in. deep. The tunnel would be lined with concrete faced with white glazed tiles and paved with York stone, and pipes for water supply and drainage and ducts for electric cables would be provided under the footway. At the lowest point, about 500ft. from the north shaft, two small electrically driven pumps would be installed under the footway for dealing with the accumulation of water caused by leakage and cleansing. The shield, with which the actual excavation of the tunnel was done by hand labour, consisted of a cylindrical structure 12ft. 11in. in diameter outside, and 9ft. 6in. long. The front portion was built up of cast steel segments, and the body was strongly stiffened by horizontal and vertical diaphragms. The tail end consisted of steel plating 1in. thick, so that there was ½in. clearance all round for building the cast iron rings under the protection of this end. Sixteen hydraulic jacks having rams of 7in. diameter were arranged all round the shield, and the heads of these rams pressed against the flanges of the last built ring of lining for driving the shield forward. In normal conditions, the ground was excavated roughly to the shape of the shield for about 2ft. in front of the cutting edge. The shield was then forced forward for the length of one ring (1ft. 8in.), and the annular space left behind the tail of the shield, outside the lining, filled with lime grout forced in under pressure. The rams were then drawn back, and another ring of lining was erected in the back part of the shield. All the iron lining was erected by hand labour. When the ground in front of the shield was at all loose or soft, the face had to be supported by timbering. While the shield was moving this timber was strutted against a cross timber fixed in the tunnel behind the shield. If loose crack the escape of air at the face was very free, and considerable use was made of clay puddle to stop all holes and crevices. A fair day's progress was five rings or 8ft. 4in. in 24 hours, the men working in three shifts of eight hours. About 100,000cub. ft. of free air per hour were delivered to the tunnel at pressures varying from 18lb. to 38lb. per square inch, and for the purpose [illegible] installation of [illegible] compressors, driven by gas [illegible] of 1,011 I.P. and one of 501 I.P., all of Dugald's make. Coal had been provided for engine was supplied by a suction gas producer. The same engines also drove the dynamos for electric transmission and power, and for the smaller air compressors to deliver high-pressure air for grouting purposes. The contract for the construction of the tunnel was placed with Messrs. Walter Scott and Middleton (Limited) in March, 1910, for the sum of £78,850. The north shaft was begun on May 1, and reached its final level in September. Actual tunnelling was started on December 1, and on the 16th of the present month 905ft. of tunnel, or more than half the total length, had been driven. The sinking of the south shaft was now proceeding.

A vote of thanks was accorded to Mr. Tabor, on the motion of Mr. W. Nisbet Blain, St. Pancras, seconded by Mr. T. W. A. Hayward, of Battersea, and the members proceeded in brakes, after luncheon, to inspect the tunnel work, Mr. Tabor acting as guide to the party.

LEICESTER BOARD OF GUARDIANS v. TROLLOPE: DRY ROT.

Writing in the R.I.B.A. Journal, Mr. John Trollope, F.R.I.B.A., of Craven street, Strand, says: "Shortly after the trial, and without any suggestion on my part, the contractors wrote to me that they extremely regretted that the guardians had not seen their way to make them parties in the case, and thus given them an opportunity of putting their views before the Court, that they had no desire to shelter themselves behind the certificates or other legal defences, and desired to submit themselves to the arbitration of the President of the Institute of British Architects (or his nominee) to decide what they ought fairly to do in the matter irrespective of the question of legal liability on their part. Negotiations followed, in the course of which the contractors have placed before me their version of the facts, and, though I cannot acquit them of blame in not obtaining my written authority for the deviation from the drawings and specification, I am satisfied that they acted in good faith under the mistaken belief that the clerk of the works had, in fact, obtained my previous sanction. On my suggestion, Mr. G. T. Hine, F.R.I.B.A., was selected as arbitrator; but it became unnecessary to proceed with a reference, as the contractors and myself have since agreed as to what contribution they should make. In view of the fact that the contractors were not heard in the recent proceedings, I shall be glad if you will give this letter publicity. I would add that there is one lesson that the members of our profession should learn from my experience in this matter—i.e., the advisability of insisting that in all work undertaken the appointment of the clerk of the works should rest with the architect, as by the decision in this case the architect is in future made entirely responsible for the acts of the clerk of the works, no matter by whom appointed."

Nearly six hundred members of scientific societies, including most of the leading scientists of the country, have sent a memorial to the Prime Minister urging the Government not to accede to the present proposal for extending the Science Museum, South Kensington, to the detriment of the Natural History Museum. Replying, in the House of Commons, to Sir William Arnson on Wednesday night, the Premier agreed to have this memorial, and any others he may receive on the subject, printed and circulated.

It was reported to the L.C.C. on Tuesday that the reconstruction, on the underground conduit system of electric traction, of the horsed tramways from Kentish Town road, via Highgate road, to Swain's-lane, has been completed. It was further stated that the reconstruction and widening of the Blackhorse bridge carrying Lower-road, Deptford, over the Grand Surrey Canal, has now been completed. By means of the improvement the width of the thoroughfare has been increased for a distance of 42ft. from 35ft. to 70ft. The contract of Mr. T. W. Pedrette, amounting to £759 1s., for the reconstruction of Roe Bridge, carrying Mitcham lane over the River Graveney, has also been completed. The new bridge is 50ft. wide, while the old structure was 19ft. 2in. only. The Surrey County Council has agreed to contribute one half, not exceeding £375, of the cost of the improvement.

COMPETITIONS.

GIDEA PARK.—The prizes for model houses and cottages at the Town Planning Exhibition which was opened by Mr. John Burns at Gidea Park, Romford, yesterday, were announced on Tuesday night as follows:—For the best house, to cost not more than £500: Gold medal and £250 to Mr. Geoffry Lucas; second prize of £100 to Mr. Reginald T. Longden. For the best cottage, the cost not to exceed £350: Gold medal and £200 to Mr. C. M. Crickmer; second prize of £100 to Mr. Herbert A. Welch. In the class for excellence of workmanship, the prizes in which are given to builders, the gold medal and £100 are obtained by Messrs. Faulkner and Sons, and the second prize of £50 by Mr. F. W. Jarvis. The prizes for the best internally fitted house and for the best garden design will be awarded early in July. There seems to be some dissatisfaction with the previous award, which we reported on p. 680.

LEICESTER.—In the local competition for designs for a hall or park pavilion to be erected adjoining Victoria Park, Leicester, the assessors, Mr. S. Perkins Pick, F.R.I.B.A., of Leicester, and Mr. E. G. Mawbey, borough surveyor, have made the following awards: 1, Stockdale Harrison and Sons, 7, St. Martin's East; 2, Mr. H. H. Thomson, F.R.I.B.A., Halford Chambers; 3, Messrs. Langley and Baines, 16, Friar lane.

MANCHESTER ART GALLERY AND LIBRARY.—Another step forward in the way of raising a new building for art and library purposes on the site of the old Infirmary, Manchester, was made on Tuesday by the Special Infirmary Site Committee of the Corporation. Professor Blomfield, A.R.A., Vice-President of the Royal Institute of British Architects, who was appointed to join the city architect (Mr. Price) in advising the committee in selecting the best designs from the large number sent in, went to Manchester on Monday, and was the guest for the night of the Lord Mayor (Mr. Charles Behrens). On Tuesday the committee met at the Town Hall, with the Lord Mayor in the chair. Ten sets of plans had been selected. This selection the committee accepted. At the next meeting of the City Council the Lord Mayor will announce the committee's decision, and will then open the envelopes containing the names of the selected architects. Then the Council will most probably approve the committee's recommendation that each architect should be asked to complete his designs. This work of completing the designs will, of course, occupy a considerable time, but it is expected that it will have been accomplished by the end of September. The committee will then, with Professor Blomfield's assistance, make a final choice, and submit their selection to the Council.

ROCHDALE.—At a meeting of the Rochdale Infirmary Board on Friday night, the question of the extra accommodation required at the institution was considered, and it was decided that plans be drawn to provide for a new ward of two stories to contain twenty-four beds, a new operating theatre, a steam laundry, an enlargement of the out patients' department, a remodelling of the ophthalmic and X-rays departments, and the construction of an eletric hoist. The estimated cost of the scheme is £15,000 or £16,000. The Board decided that competitive plans be invited from architects in the borough of Rochdale.

Mr. C. A. Lake, surveyor and inspector of nuisances for the Belford Rural District Council, has tendered his resignation, he having been appointed surveyor of highways at Thirsk.

The Premier of the Australian Commonwealth and Lord and Lady Harrowby will visit the new town hall at Stoke-on-Trent on Whit-Monday, when they will be entertained by the mayor. The town-hall has just been completed from plans by Messrs. Wallis and Bowden, of Old Queen-street, W., which were illustrated in our issues of August 27, 1909, and February 4, 1910. The contract has been carried out by Messrs. Willcock and Co., of Wolverhampton, at about £26,000 or about 5d. per foot cube.

Building Intelligence.

BIRKENHEAD.—The foundation-stone of additional buildings for the Shaftesbury Club, Jackson-street, Birkenhead, was formally laid the other day. The new accommodation is intended in the main for lads over the school age, from fourteen up to twenty, and will cover an area of about 340sq.yd. On the ground floor the accommodation includes a library and reading room, small office, and five classrooms. On the first floor the principal room is a gymnasium, 60ft. by 32ft. 6in., and adjoining it there are a retiring-room and a dressing-room fitted with shower bath. The elevation to Thomas-street will be faced with rustic bricks set in white mortar, with blue brick plinth along the bottom and stone dressing to the gables. The scheme is being carried out from the plans of Messrs. Morter and Dobie, architects, the Temple, Dale-street, Liverpool, and will cost about £2,500.

BRIGHTON.—The scheme of the Brighton Palace Pier Company for the improvement and extension of their property has now been sanctioned by the Board of Trade, and the erection of the structure will be proceeded with at once, so that it may be ready for opening in the late autumn. The building, which will be placed within a short distance of the pier entrance, will occupy 180ft. of its length, and is designed to seat 2,000 people. The structure will extend the whole width of the present pier, and it is therefore necessary to extend the pier laterally by 18ft. on each side, so that promenaders will pass round the garden. The bandstand and enclosure is being converted into an open-air concert-room by the roofing-in of the entire space and by enclosing the sides with movable screens. The remodelling of the theatre has already been carried out, and the roof has been laid out as an open-air tea-room. Access to this will be given by two electric lifts.

EDINBURGH.—The cathedral church of St. Giles, which has been closed for four weeks, was reopened last week for public worship. An installation of electric light has been introduced into the cathedral under the direction of Mr. R. S. Lorimer, A.R.S.A., architect to the cathedral board. Opportunity has been taken of the closing of the cathedral to rearrange the seats in the Preston aisle so as to allow of a passage seven feet in width being formed to one of two new archways which lead from the interior of the cathedral to the new chapel of the Knights of the Thistle, built at the south-east corner.—The Lord High Commissioner laid on Saturday the foundation-stone of a new church for St. David's Parish which is in the course of erection at the northern end of Viewforth. The style of the building is Late Renaissance, and is to be seated for 970. There are to be no columns in the church. The stonework is Hailes rubble, and the facings Dumfriesshire red stone. The northern portion of the site is to be left for a hall, which will accommodate between 400 and 500 persons. The architect is Mr. J. D. Cairns, George-street, Edinburgh.

MALVERN.—By the liberality of Mr. C. W. Dyson Perrins, a well-equipped, up-to-date hospital has been erected in Lansdowne-crescent, near Great Malvern Railway-station, and was opened for occupation on Monday, the 29th instant, by Lady Beauchamp. Having regard to the increasing difficulty such institutions experience in securing necessary funds for annual upkeep, the accommodation has been limited to twenty-four patients' beds; an operating and an out-patients' department, all at ground-floor level, with kitchens; dining and sitting-rooms for matron and staff below, and bedrooms above. There are separate large wards for men, women, and children respectively, as well as single-bed wards. A special feature is the provision of balconies opening from each large ward, which it is hoped may be fully utilised for patients likely to benefit by outdoor treatment. The design of the building, and its supervision during construction, was entrusted to Mr. William Henman, F.R.I.B.A. The building throughout is fireproof, reinforced concrete being extensively employed. Walls are faced externally with Cradley stone, having stone dressings backed by brickwork. The building contractors were Messrs. T. and A. Brazier.

NEWCASTLE-ON-TYNE. — The General Post Office is being enlarged at a cost of £23,000, and the extension, which will be completed in June, covers an area of 840sq.yd. The new portion is of steel and brickwork construction, the steelwork being encased in expanded metal and coke-breeze concrete, with a covering of plaster. In the basement, a messenger boys' institute has been provided and also a boys' kitchen and a delivery room. The front portion of the basement has been allocated to the telegraphic engineers' department. The public office has been altered and improved so as to meet modern requirements. The sorting office has been greatly enlarged, and in it have been erected two watching galleries. On the first floor all branches of the service have been given a suite of two rooms, comprising a retiring-room and a cloakroom. A dining room, 80yd. by 30yd., has been provided on the second floor, lighted by skylights and lantern lights. There are also a room on this floor for the telephone staff, a kitchen, and also rooms for the women superintendents and the medical officer. The heating is on the low-pressure system, and electric lighting has been installed throughout. The work has been carried out by Messrs. Kirk and Brown, contractors, Newcastle, to plans prepared by Mr. W. Pott, A.R.I.B.A. Mr. C. P. Wilkinson, Government architect, has been present during the building, and the resident H.M. clerk of works has been Mr. G. Petrie.

PORTISHEAD. — The foundation-stone has been laid of the school chapel which is being built in connection with the National Nautical School at Portishead. The chapel will be in Early Renaissance style, and was designed by Mr. Edward Gabriel, of Bristol, to harmonise with the school buildings. The plan consists of a nave 63ft. long and 33ft. wide, with narthex at the west end. The chancel will be 29ft. 6in. long by 33ft. wide, with apse at east end 9ft. by 22ft. There will be north and south transepts, organ-chamber, and vestry, with heating-chamber in the basement. The accommodation consists of sittings for 360 in the nave (for officers and boys), 50 seats for visitors in the north and south transepts, and 25 seats for the choir. The general contractors are Messrs. Samuel Martin and Co., of Orchard-street, Bristol, and Mr. Warlow is acting as clerk of works.

WOORE, STAFFS.—The church of St. Leonard, Woore, attained some notoriety about a year ago from the fact that its single bell was hung in a tree in the churchyard owing to the partial demolition of the bell turret. The bell is now housed in a new tower over the porch at the west end of the church. The new tower, vestry, and west doors were dedicated by the Bishop of Lichfield on Thursday in last week. The architects are Messrs. Chapman and Snape, of Newcastle, and the contractor was Mr. S. Wilton, jun., of Newcastle. The old vestry over the porch has been enlarged, and the tower, supported by steel girders, rises above the central portion of the vestry. The tower is of brick, with cement casing, and contains a clock-chamber and belfry. It is in harmony with the Early Victorian style of the church, and its height from the ground is about 50ft.

Mr. Griffith, New South Wales Secretary for Public Works, proposes to establish State lime-kilns. He estimates that the Government departments can be supplied with the highest quality of lime at half the present price.

The Canadian Dominion Government is calling for tenders for extensive harbour and railway terminal facilities at the ports of Halifax, Nova Scotia, and St. John, New Brunswick. The sum of £200,000 will be spent on the new docks at Halifax. At St. John there will be extensive dredging operations in connection with the new harbour. At Courtenay Bay a dry-dock and ship-repairing plant will be built.

Engineering Notes.

BLACKPOOL. — The widening of the promenade at Blackpool, between the North Pier and the Claremont Esplanade, which has been in progress for some months from plans and under the supervision of the borough engineer, Mr. J. S. Brodie, is expected to be completed in July. The works comprise a promenade with a minimum width, opposite the Hotel Metropole, of 100ft., and also terrace seats and a lower walk 30ft. in width, with a concave sea-wall towards the sea. The lower walk will form a continuation of the North Shore lower walk round to the westward of the hotel, rising by a gradient of 1 in 16 to the level of the promenade near the North Pier. A slade, 20ft. wide, will start at a point at the south end of the middle walk at Cocker-street, and will rise in a southerly direction with a gradient of 1 in 12, crossing the Lower Walk on the level, and terminating at the level of the foreshore nearly opposite to the middle of the frontage of the hotel. The concrete sea-wall and apron by which the mass of sand is supported, is over 400yd. long, varies in height between 26ft. and 37ft., and is 11ft. thick at the base at a depth of 8ft. below the sand. The outlay has been about £40,000.

CHIPS.

The death of Mr. Robert Neville Holbeche, land agent and surveyor, of Bennett's Hill, Birmingham, has occurred at his residence at Moseley, after a long illness.

The water committee of the Middle Ward Committee of Lanarkshire have appointed Mr. James M'Millan, C.E., Airdrie, as water superintendent, in succession to the late Mr. W. L. Bolmer. Formerly in the service of Airdrie and Coatbridge Water Company, Mr. M'Millan has for nine years been water engineer for the burgh of Motherwell.

The art-gallery committee of the Newcastle-on-Tyne Corporation have decided to recommend the council to authorise the erection of a Shipley gallery in Higham-place at the north end, north of the present Laing art-gallery. The new building would cover an area of about 800 yards. If this recommendation is approved, it is intended to advertise for competitive designs.

Mr. W. O. E. Meade-King, an inspector appointed by the Local Government Board, has held an inquiry at Erdington on the application of the urban district council for sanction to borrow £1,025 for improvements to Brookvale Park. The clerk explained that the loan was required for the erection of park-keeper's lodge, with children's lavatories adjoining, at the Witton Hall entrance of the park.

At the meeting of the Saxmundham Urban Council held on Friday evening a letter was read from Mr. N. B. Garrard, the council's arbitrator in the matter of the purchase of land for sewerage and sewage-disposal, stating that he and Mr. Robertson (Mr. W. E. Long's arbitrator) had failed to agree to terms, and it had now been referred to Mr. Harry Lofts, of the firm of Messrs. Lofts, Warner, and Co., of London, the umpire. It was decided to write to Mr. Lofts and ask when the matter was likely to be settled.

The New Palace Steamers, Ltd., announce that their popular steamer Royal Sovereign will commence her summer sailings down the River Thames to Southend, Margate, and Ramsgate on Saturday, June 3, and her sister ship the Koh-i-noor to Deal and Dover on Sunday, June 18. Both the steamers have been thoroughly overhauled during the winter months, and have passed all the requirements of the Board of Trade for their passenger certificates. The Saturday afternoon trips to Margate by the Koh-i-noor, commonly known as the "Husbands' Boat," will begin on June 17, and continue throughout the season. The circular bookings with the South-Eastern and Chatham Railway, down by boat and home by rail, which have proved so popular in past years, have again been arranged for, but with greater facilities, the 8s. 6d. first saloon and third rail ticket being now available for fifteen days instead of from Saturday to Monday, as formerly. The catering, so essential to the perfect enjoyment of a holiday, is controlled by the company, the most wholesome food and drink being supplied at strictly moderate charges. There will be a slight alteration in sailings during Coronation week.

PROFESSIONAL AND TRADE SOCIETIES

THE ROYAL ARCHÆOLOGICAL IN

[illegible] Meeting of the Association will be held [illegible] Tuesday, July 25. Visits [illegible] Lichfield Cathedral, St [illegible] Castle, St [illegible] Coity Castle [illegible] Caerphilly Castle and Ewenny [illegible] Margam Abbey, Cowbridge [illegible] Llantwit Major, Penmark [illegible] St. Donat's

PARLIAMENTARY NOTES.

COPYRIGHT BILL. [illegible] Grand Committee [illegible] Bill. Mr. Rees [illegible] Clause 3 [illegible] [illegible] [illegible]

Our Illustrations.

EYFORD PARK, GLOUCESTERSHIRE.

This house is now being erected in the Cotswolds, and occupies the site of an older house, pulled down. The existing gardens, etc., are being remodelled, and terraces, forecourt, and entrance drives made. As the ground falls towards the east, the offices, servants' hall, and basement department are on a lower level. The house is built of stone, with stone ashlar dressings to the windows, pilasters, cornices, and chimneys, etc., and with plain spaces to the walls filled in with stucco of a slightly different colour, finished in the French manner. The roof is covered with stone slates, and the whole house has been treated somewhat after the local 18th-century character in a simple and quiet manner. The contractors are Messrs. Walker and Slater, of Derby, and the architect is Mr. E. Guy Dawber, of London. The drawing reproduced is now on view at the Royal Academy Exhibition. The following are the references to the plan:—1, vestibule; 2, ante-hall; 3, hall; 4, drawing-room; 5, billiard-room; 6, flower room; 7, store; 8, dining-room; 9, business room; 10, lavatory; 11, w.c.; 12, corridor; 13, butler's pantry; 14 plate-room; 15, housekeeper; 16, kitchen; 17, scullery; 18, larder; 19, gazebo; 20, terrace; 21, forecourt.

CINEMATOGRAPH THEATRE, CLARE-STREET, BRISTOL.

This theatre has been erected for "The Provincial Cinematograph Theatres, Ltd.," on a central site in the city of Bristol. The main front in Clare-street, which we illustrate, is carried out entirely in Box-ground Bath stone, and the rear elevation being of brick with stone dressings. The accommodation is shown on the accompanying plan, but there is, in addition, a large smoking-room, panelled in oak, in the basement, where also are situated the boiler house, generator-room, and service rooms. The gallery on first-floor level opens directly from the tea lounge, and an extra emergency exit staircase has been provided leading into the porch. The tea lounge is decorated in the Adams style, Wedgwood plaques being introduced into the mural decorations. The theatre proper is richly decorated with modelled plaster. The general contractors were Messrs. McLaughlin and Harvey, of Belfast and London. The architect is Mr. George L. Alexander, A.R.I.B.A., of London. The drawing here reproduced is now at the Royal Academy Exhibition.

A COUNTRY-SIDE GARAGE AND COTTAGE.

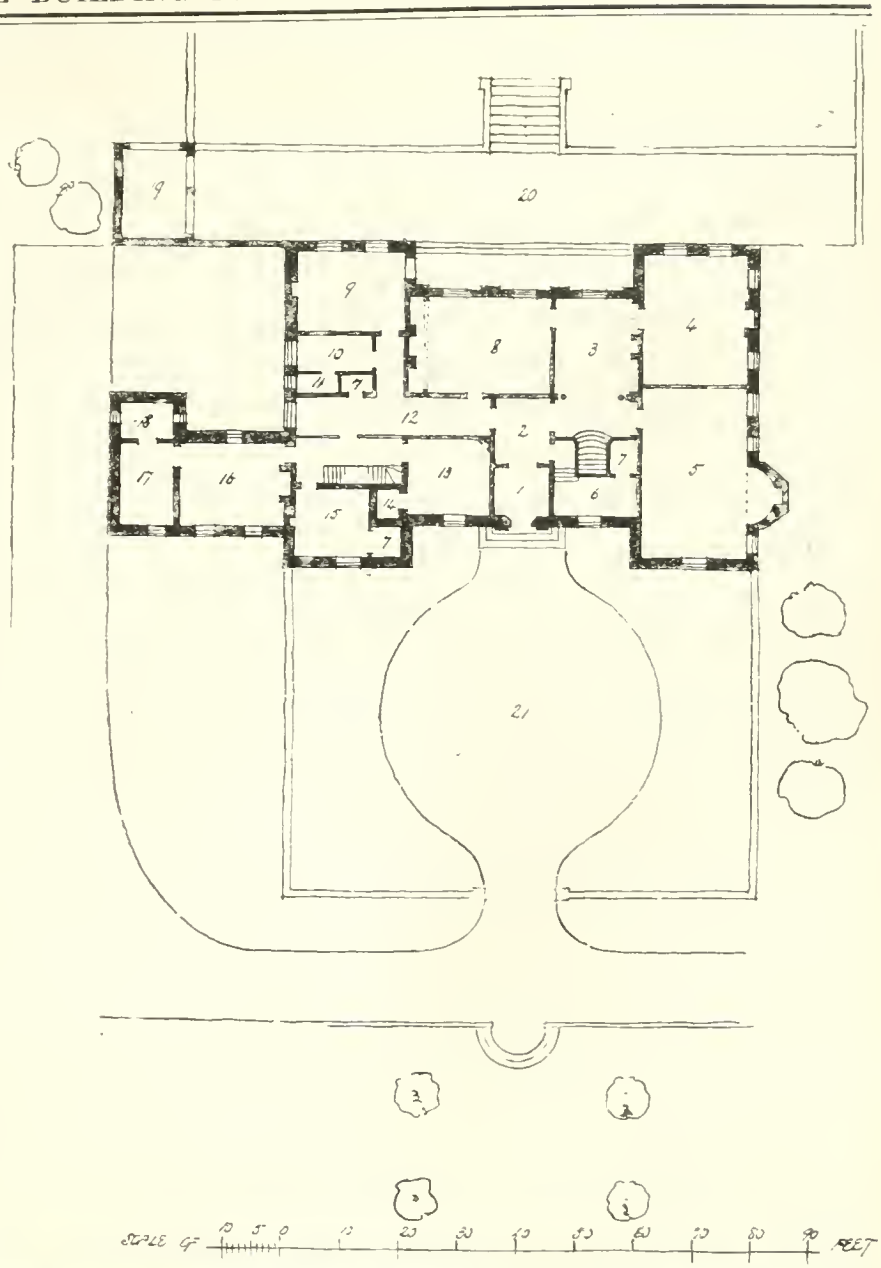
(For the assessor's award in this BUILDING NEWS' Designing Club competition, see page 760.)

BUSINESS PREMISES, REGENT-STREET.

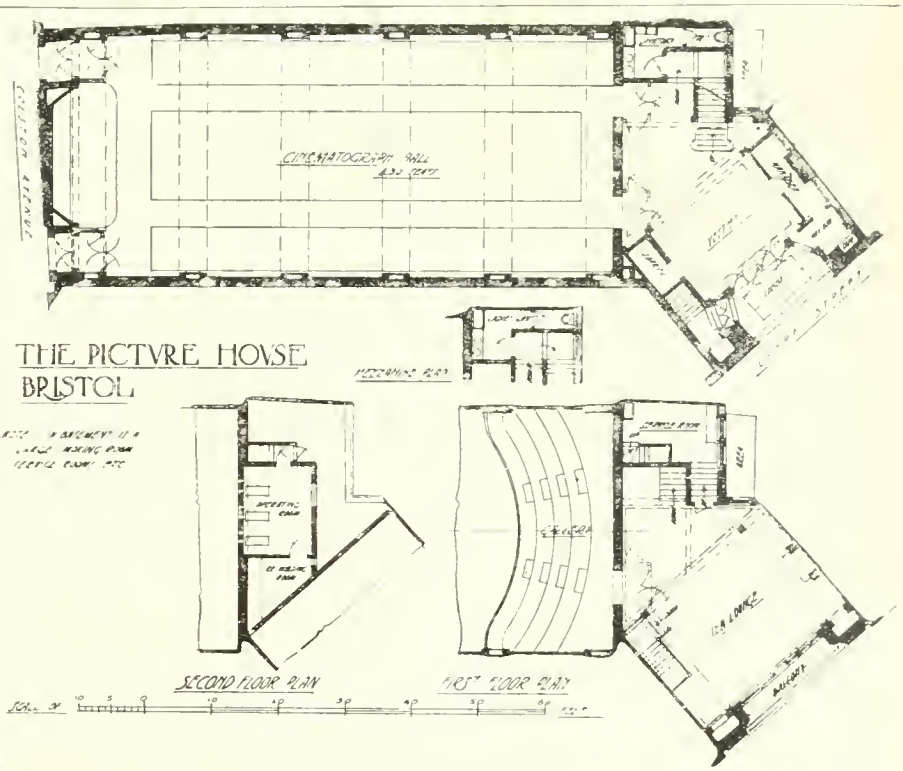
This drawing illustrates the elevation prepared at the request of H.M. Commissioners of Woods, Forests, etc., in consequence of the decision of Mr. Hornblower's clients to rebuild certain of the premises in the block.

WILLIAM RUFUS BUILDING THE TOWER OF LONDON.

This spirited composition forms one of the subjects of the most recent of the decorative panels in the Royal Exchange, which was unveiled the week before last. The artist, Mr. C. Goldsborough Anderson, of 1, Durham-place, Chelsea, is to be heartily congratulated on the vivid realisation of the scene of which the Red King is the central figure, attended by his Norman knights. Mr. Goldsborough Anderson's previous good work at the Royal Academy, the Institute of Painters in Oil Colours, and other galleries, is well known to our readers, and more particularly his exhibition of "Fair Women and Others," at the Grafton Galleries in 1901, and his special exhibit of one picture, "Creed and Conviction," at the Doré Gallery in 1903, and they will endorse our pleasurable anticipation of future opportunities of illustrating further subjects similar to that we give to-day, which does equal credit to the artist and the citizens of London.



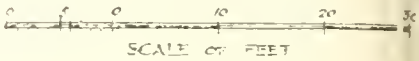
EYFORD PARK, GLOUCESTERSHIRE.



B · N · D · C

DESIGN FOR COUNTRY-SIDE GARAGE WITH COTTAGES ATTACHED

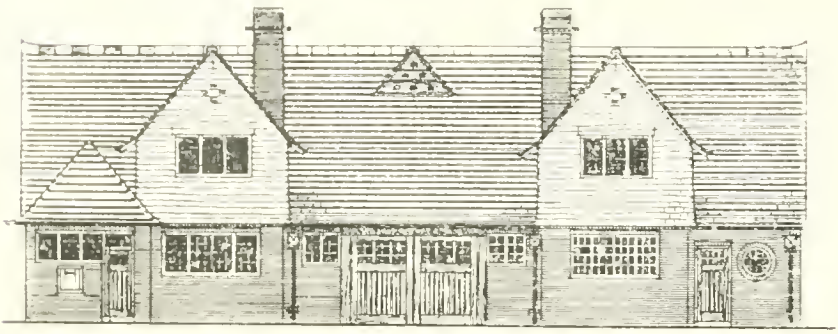
Harvey



Notes

Roofs to be covered with brown sand-faced Tiles. Walls faced with hand-made bricks five courses to a foot, white joints. Upper portion Tile hung. Windows to have wood frames painted white and metal casement.

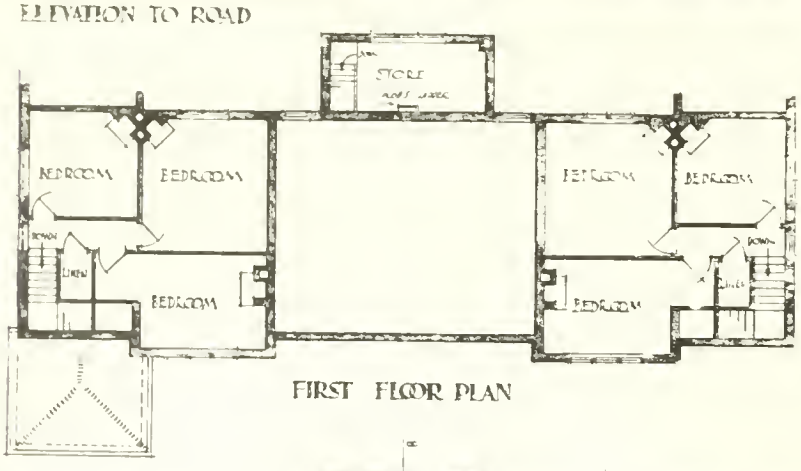
SKETCH



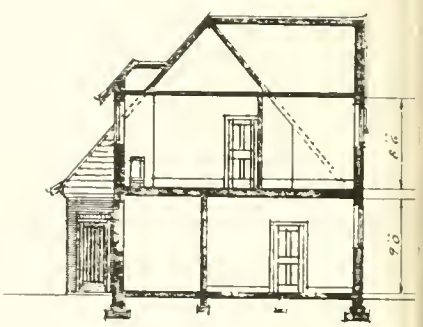
ELEVATION TO ROAD

EAST ELEVATION

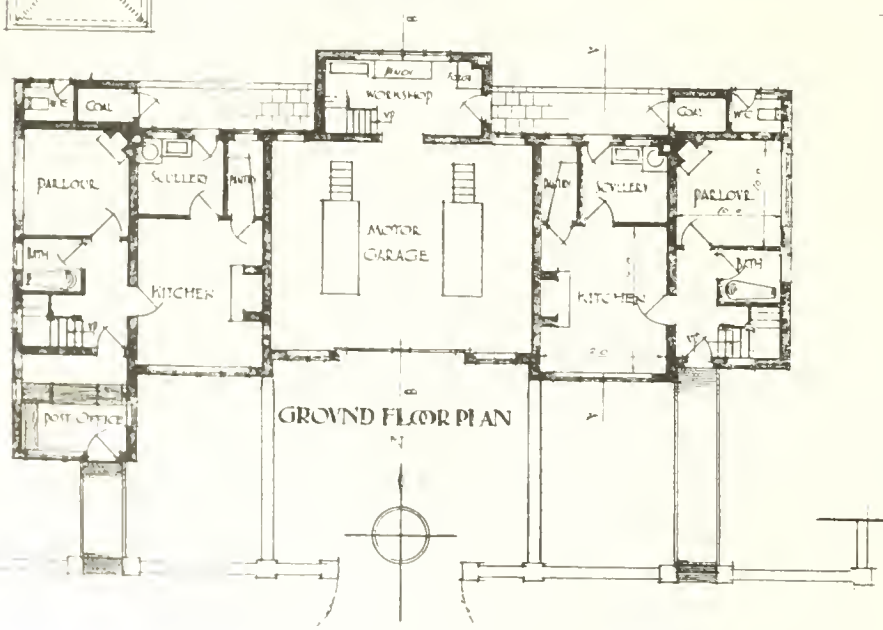
·PLACED ·THIRD·



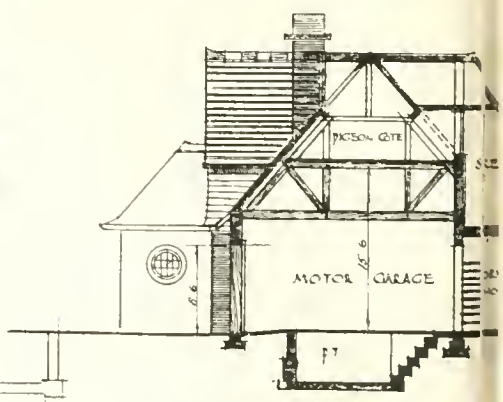
FIRST FLOOR PLAN



SECTION A A



GROUND FLOOR PLAN



SECTION B B.

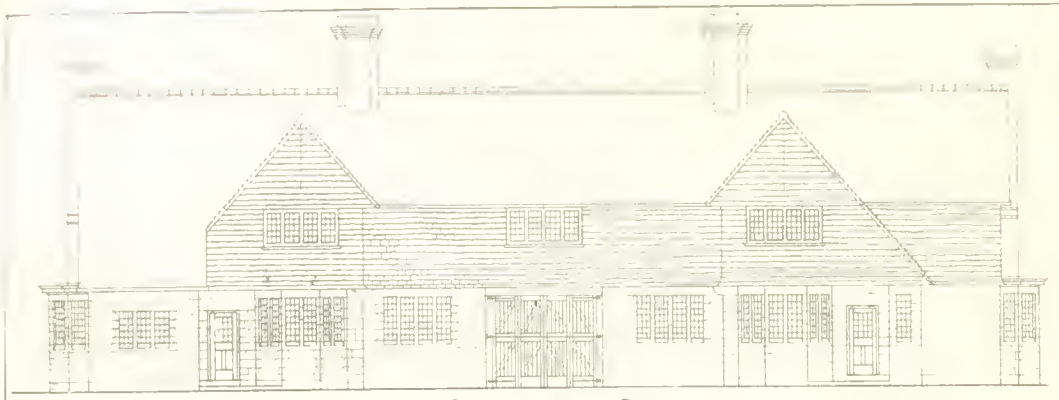
WILLIAM RUFUS BUILDING THE TOWER OF LONDON

B.N.D.C.

A COUNTRY SIDE GARAGE and COTTAGES for MARCH.

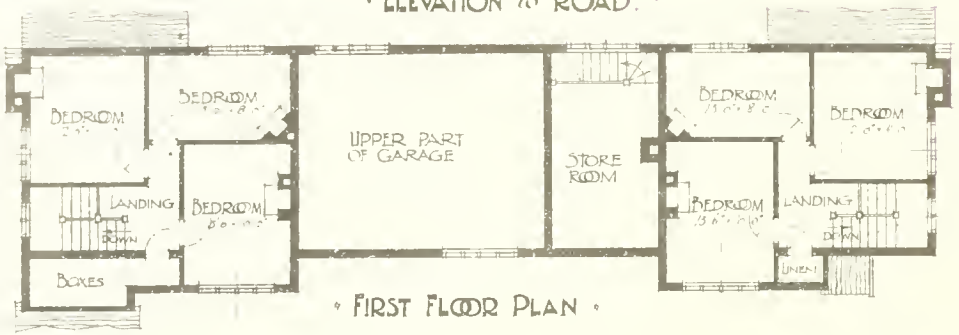
NOTES

hall. Tiles laid with [illegible] hand made [illegible] bricks [illegible] laid [illegible] dressings [illegible] roof [illegible] roofs [illegible] with a [illegible] brick [illegible] brown [illegible] [illegible] [illegible] [illegible]

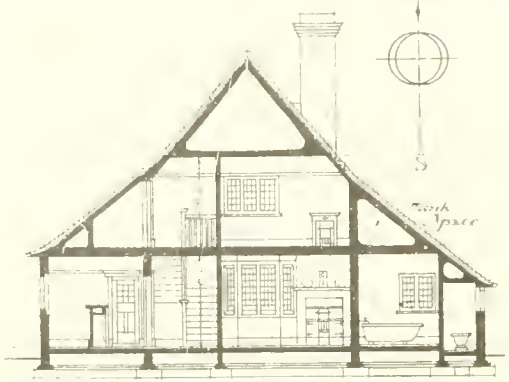


ELEVATION to ROAD.

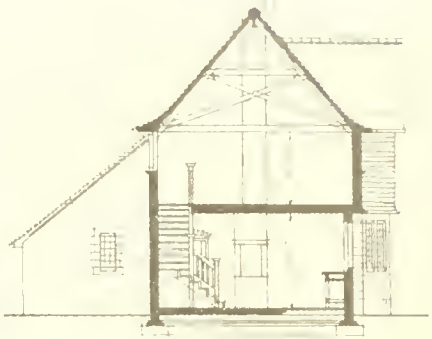
WEST ELEVATION



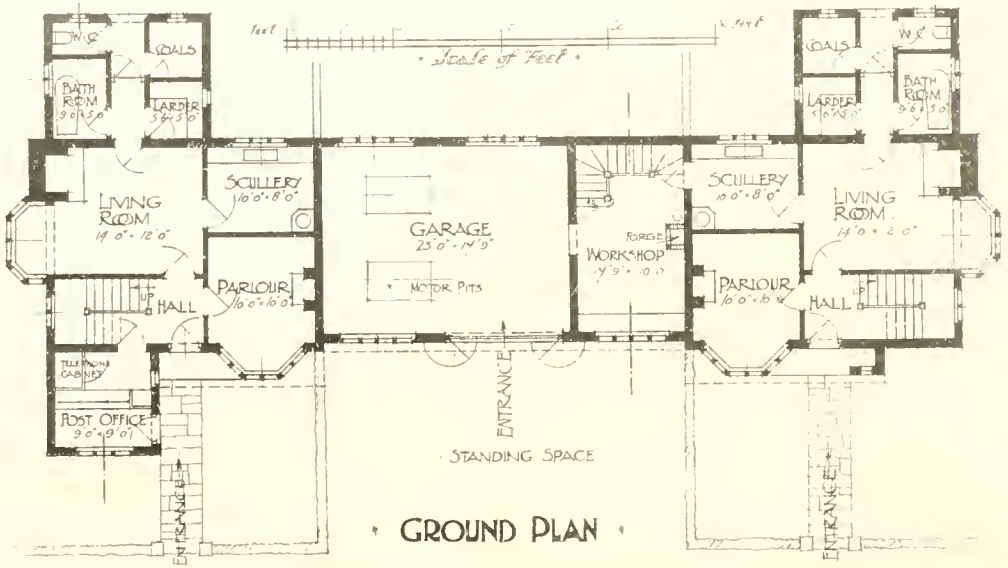
FIRST FLOOR PLAN



SECTION thro COTTAGE



SECTION thro GARAGE

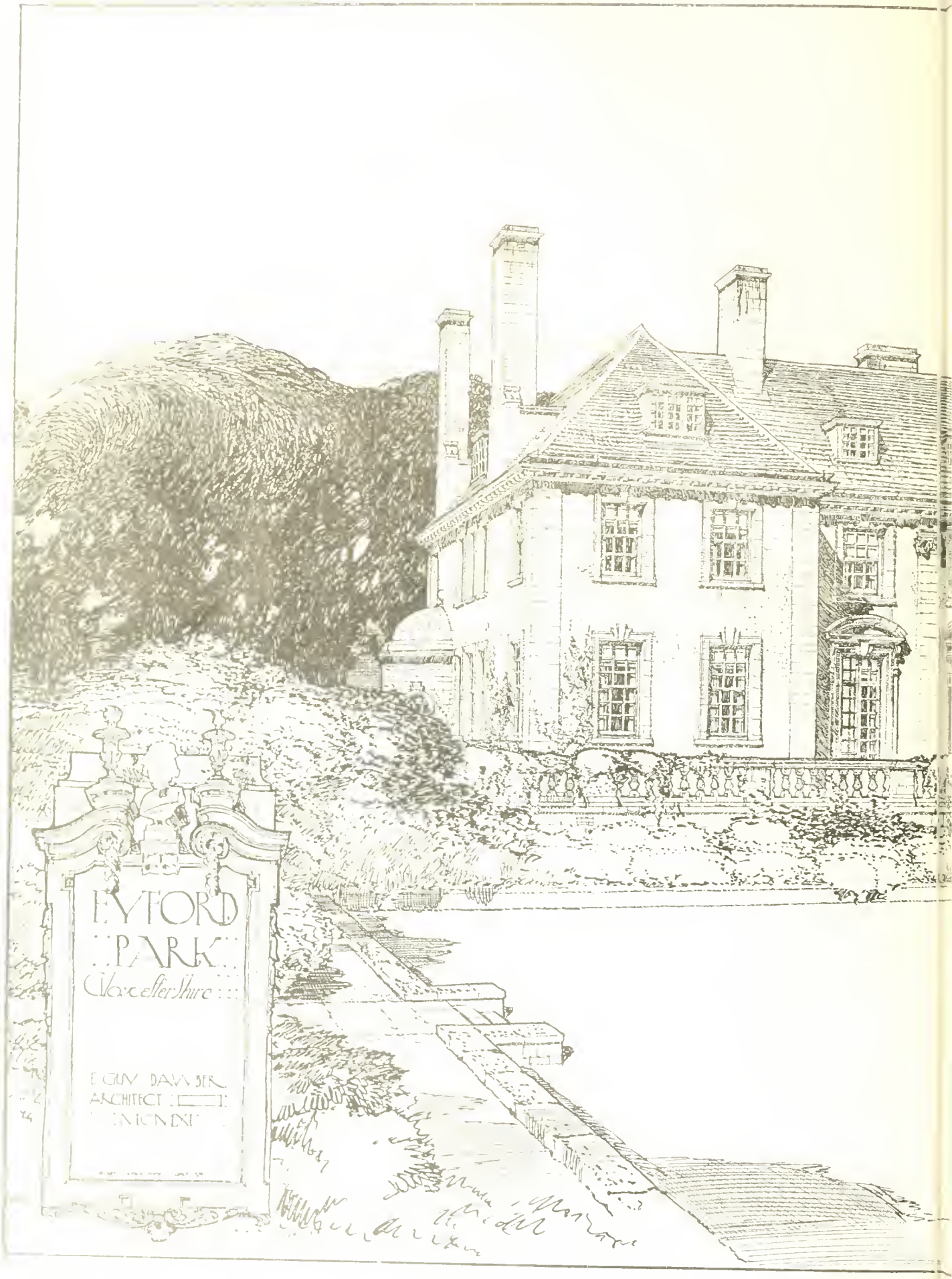


GROUND PLAN

PLACED · FIRST ·

April 1911.

"BUILDING NEWS" DESIGNING CLUB


EYTON
PARK
Worcestershire
E GUY DAWBER
ARCHITECT

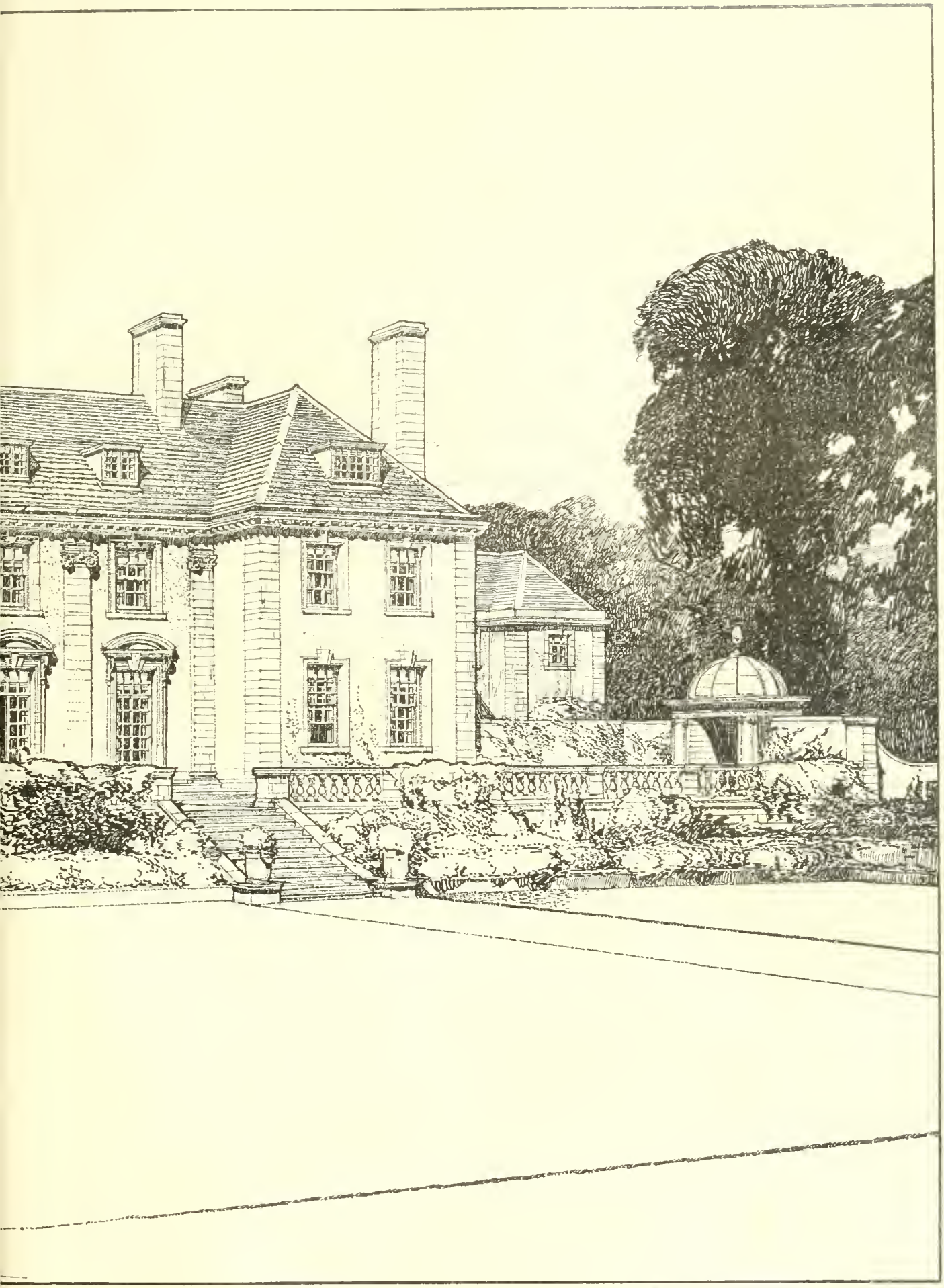
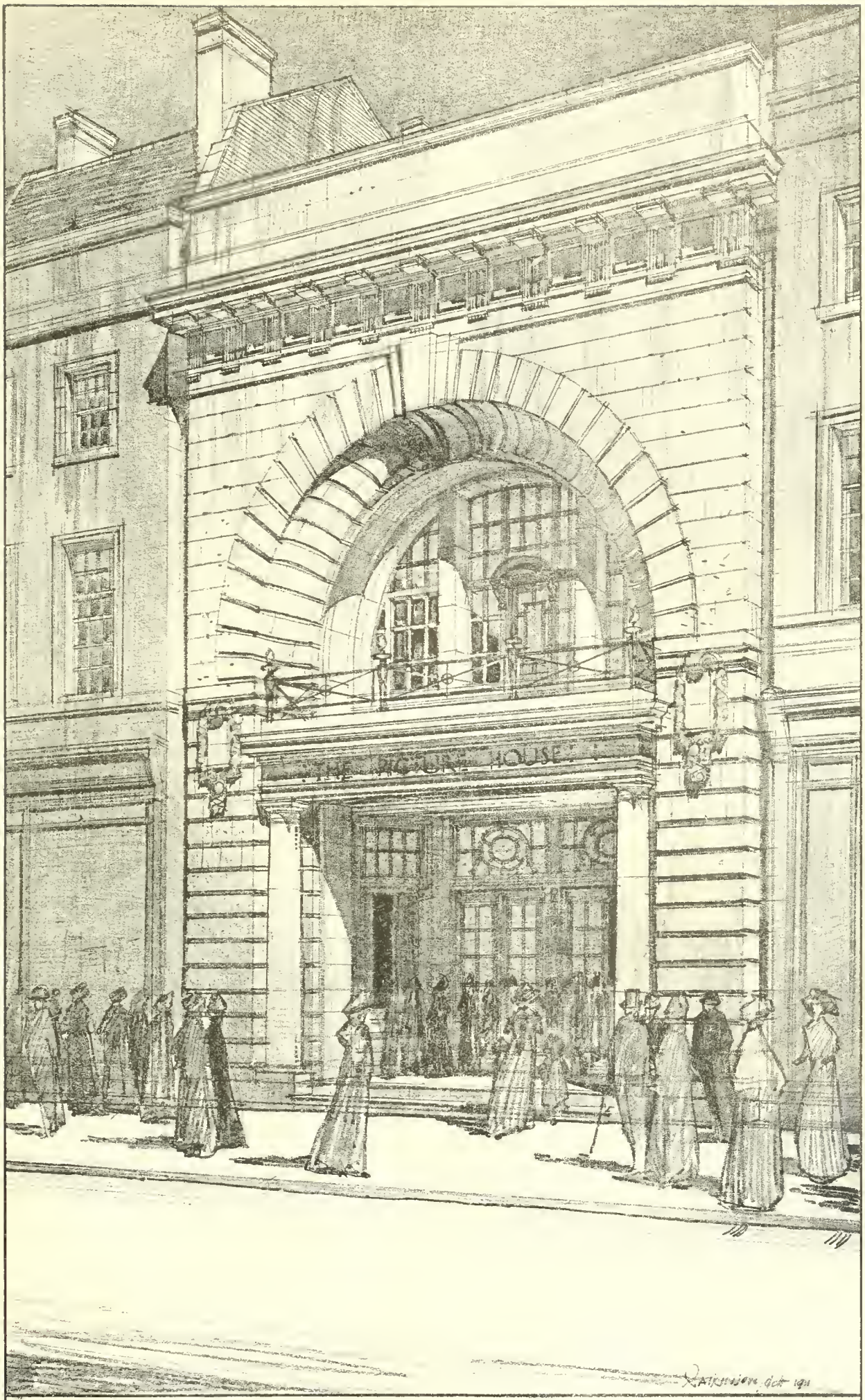


Photo-Lithographed & Printed at the Offices of Alexander & Queen Square, W.C.



THE PICTVRE HOVSE CLARE ST BRISTOL.

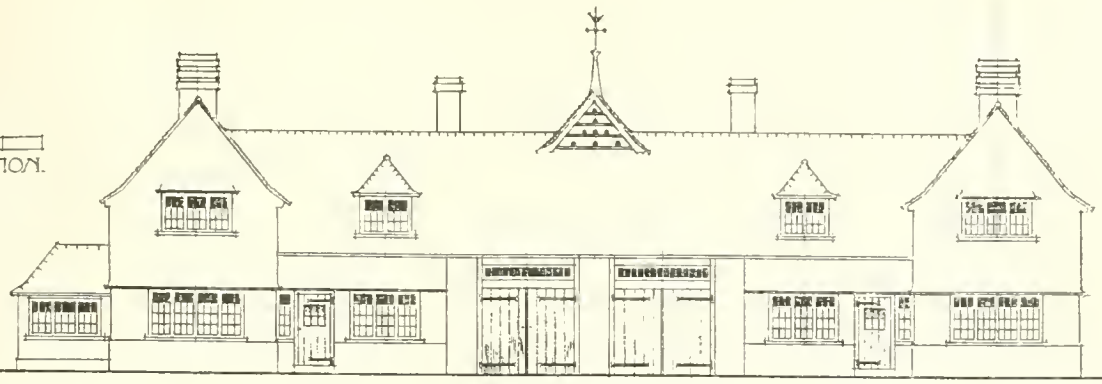
GEORGE L. ALEXANDER. A.R.I.B.A.

"PHOTO-TINT" by James Akerman 6 Queen Square London W.C.

BUSINESS PREMISES, REGENT STREET, LONDON, S.W.

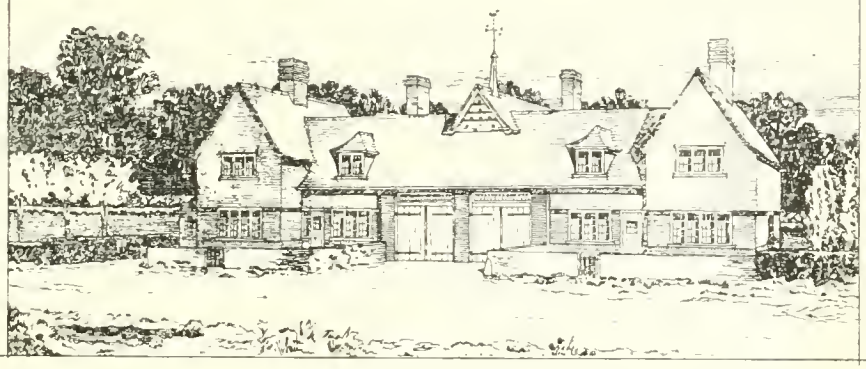
GEORGE HORNBLOWER, F.R.I.B.A., Architect.

FRONT ELEVATION.



BUILDING NEWS DESIGNING CLUB.

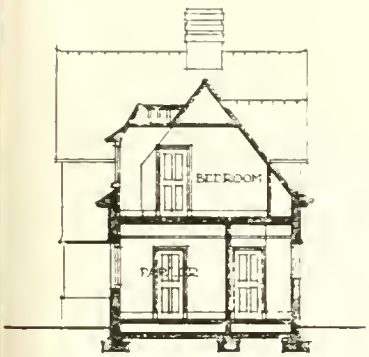
SUBJECT N°7. APRIL 1911.



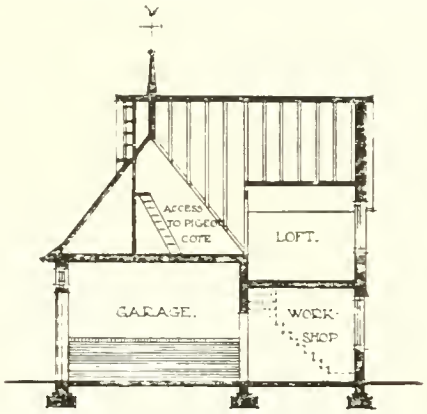
COUNTRY-SIDE GARAGE AND COTTAGES.

DESIGN BY "OXONIAN."

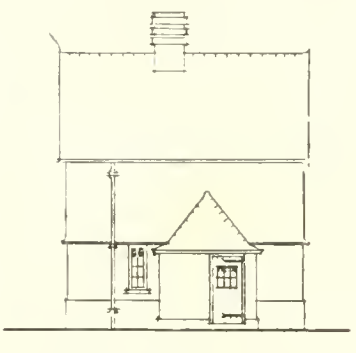
PLACED SECOND



CROSS SECTION THRO COTTAGE

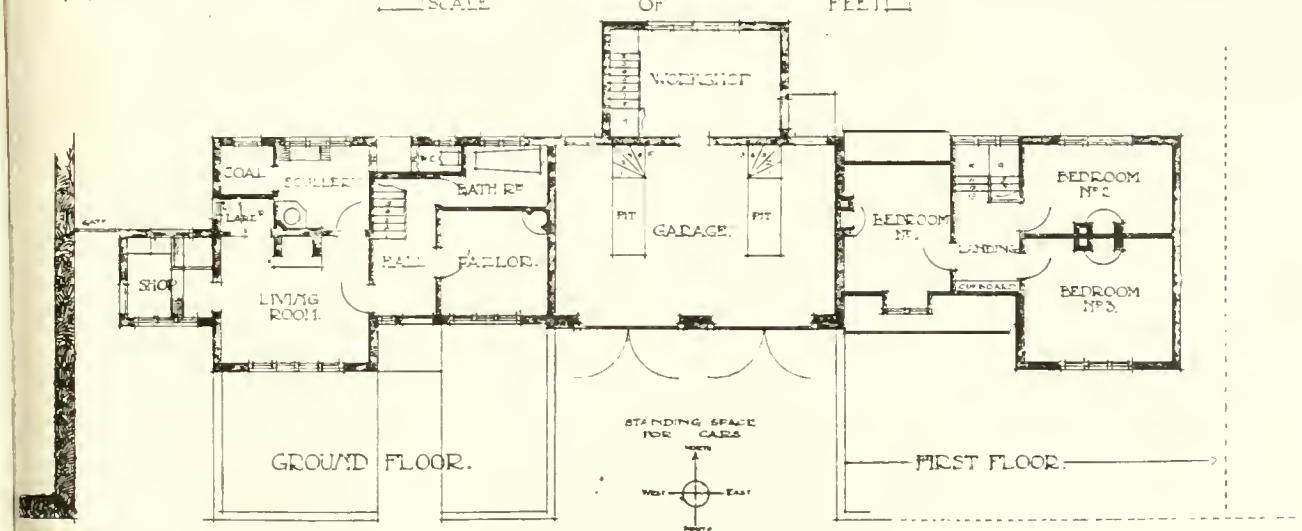


CROSS SECTION THRO GARAGE.



END ELEVATION

SCALE OF FEET



Correspondence.

[illegible] ARCHITECTS' PROTECTION SOCIETY

[illegible] BUILDING NEWS.

[illegible] of this [illegible] to carry, as [illegible] roofing [illegible] our readers [illegible] I note [illegible] architect was [illegible] drawings he had [illegible] the widening of a [illegible] upon sub[illegible] of the drawings [illegible] I expect I am not [illegible] comes along, my [illegible] "What are the pitfalls [illegible] to guard?" I get so [illegible] these, that the actual design, [illegible] point of view, is a secondary [illegible]

A medical friend tells me that his profession runs a protection society, the subscription being about £1 per annum. Cannot a similar scheme be started for architects? Or could not the insurance companies be approached to undertake such risks?—I am, [illegible]

CINQUE CENTO

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

The competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

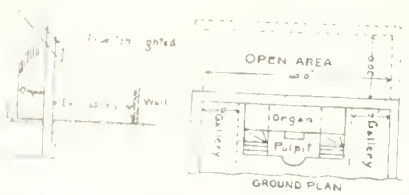
The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. J. E. Todd, 145, Victoria-road North, Southsea.

QUESTIONS.

[13048.]—WELL.—I am building in the country, and have had to sink a well for water, 125ft. deep, through [illegible] sandstone. At the bottom of this is a 2in. bore, about 8ft. deep, up which flows about 3,000 gallons per day. I require more than this. If I make another bore, shall I be sure of getting double quantity of water? Are practical suggestions esteemed by.—Difficulty.

[13049.]—ORGAN IN CHAPEL.—Sketch represents the position of the organ in a chapel. I have been asked to prepare sketches for removing organ to right hand

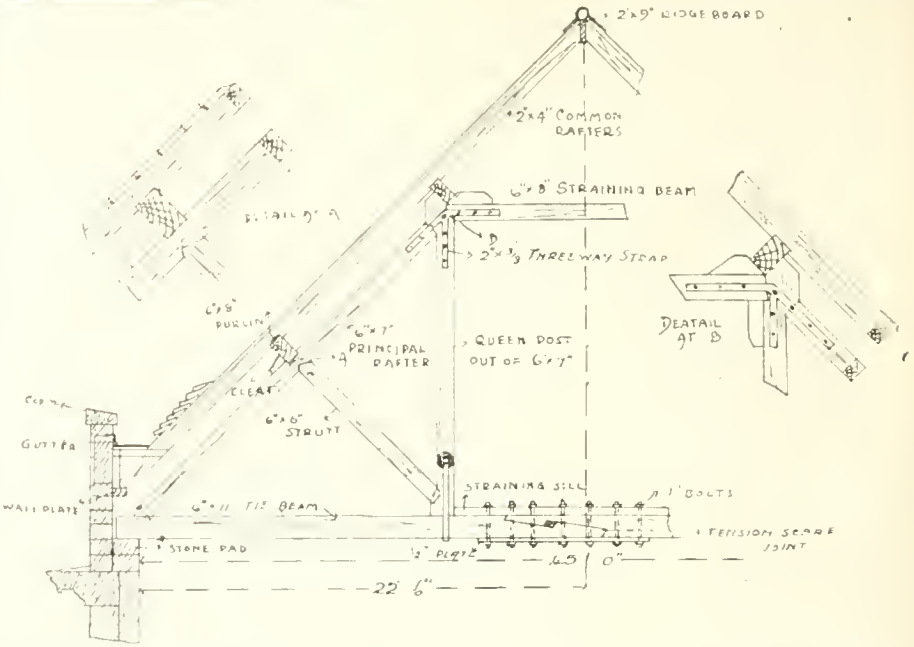


[illegible] of building, [illegible] the open space and forming [illegible] gallery, [illegible] as [illegible] form. Height from floor to [illegible] ceiling which is [illegible] boarded) 25ft., from pulpit platform 22ft. 6in. A rough sketch would oblige. A shows [illegible] to be taken down.—Hamlet.

[13050.]—HEATING CINEMATOGRAPH THEATRE. What is the most economical and efficient means of heating a cinematograph theatre of a capacity of [illegible],000 cubic feet. What amount of apparatus is required, and what will the cost be if it is laid down in the most efficient manner.—F. . .

REPLIES.

[13045.]—ROOF TRUSS.—The [illegible] of which reader is [illegible] about is given in the following sketch. As we see, [illegible] ft. span and 45 pitch for tiles. The [illegible] is termed a "queen post" roof-truss, and is [illegible] commonly used in large roofs. The 15ft. or 18ft. [illegible] [illegible] this kind of roof. The sizes of the timbers are also given on the sketch; also an enlarged detail of the joints. I cannot say whether querist intends taking a parapet wall up, and running a gutter, or letting the eaves overhang.—Phillip G. Lees, 6, Rutter-street, Caldmore, Walsall.

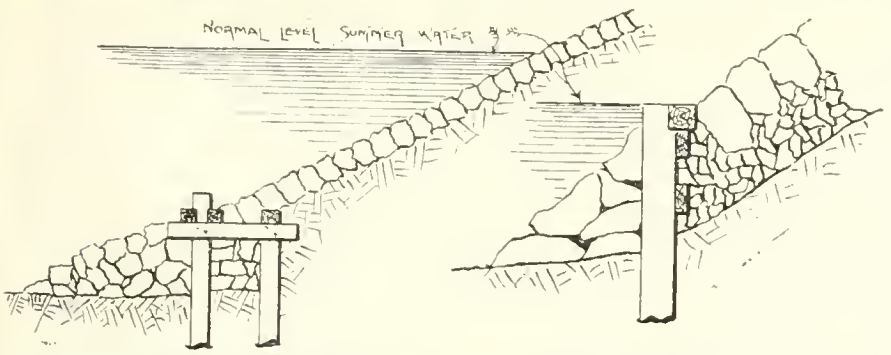


[13046.]—DAMPNESS.—The question of rot in timber is becoming a serious one for architects and builders. It seems to be a plague of the present day only, for never before has it occurred to such a remarkable extent. There is no doubt that were more air introduced in and about floors, much of the rot might be prevented. Taking the example outlined in the paragraph by "Footrule," I first try and imagine the plan of the ground floor of his house. I presume the hall is placed at one side of the house in the direction of front to back, after the style of the terrace-houses seen in the suburbs of London. It is the joists by the outer walls that are affected by the rot, we are told. We are also told that the sleeper walls are built honeycomb. What of the dividing-wall between hall and sitting-rooms? Often has this been found to be built up solid from the footings, thereby making the space beneath hall one long channel, entirely cut off from the rest of the floor under-spaces. Timbers placed over this channel, especially if the least bit under-seasoned, will readily attract the rot. The walls everywhere should be pierced by numerous air-holes, allowing the free passage of air over the entire ground-space of the building. Air-bricks are provided in outer walls; but these in time become stopped, or, in some cases, are too few in number to be effective. Too much confidence can be placed in air-bricks. The dampcourse is invaluable, and ought never to have been omitted beneath the plates of sleeper-walls, as indicated in the information supplied. All door-spaces should be left open from the floor level to the ground beneath. Again, an excellent precaution is to creosote (or gas tar) all ground floor joists when put in, which effectually resists the rot under ordinary conditions. The best thing "Footrule" can do, in my estimation, is to refix new skirtings and joists where rotten; but, before doing so, treat the joists with creosote or gas tar, and the backs of the skirtings and part of the wall against which they are fixed with a strong solution of formalin, which is a 40 per cent. solution of formic aldehyde. This has been proved by the writer to be proof against rot. The skirtings should be fixed away from the bare brickwork on grounds, which I should think must have been ignored in the house in question. If the outside walls are solid, they will probably have become soaked, and have conveyed the damp to the interior of the house in the form of a sort of mildew. A good coating of cement on the outside will prevent further saturation—a common remedy, but a tried one. Of suggesting many cures there is no end, but dry walls and plenty of air under and about the joists, skirtings, etc., will save many "doctor's" bills. I should be tempted to put a layer of good cement concrete over the ground beneath floors, 6in. thick, if such is not too great an item. Attack the rot in one or other of these ways, before it spreads and rots the whole of the woodwork, not only structural wood-work, but furniture and mantels, which I have known it to do.—Leonard F. Smith, c.o. A. W. Vernier, M.S.A., Redhill, Surrey.

[13046.]—DAMPNESS.—From the particulars given it is evident that the whole cause of the trouble is the wall between the hall and the reception rooms, which is a solid one, not being provided with a damp-course; the moisture from the earth filled in under the hall tiling being conveyed to the wall, and so reaching the woodwork adjoining same. To effect a remedy, this wall will have to be provided with a dampcourse, consisting either of two courses of slates laq uered and well bedded in Portland cement, the dampcourse to be inserted in sections by removing, say, two courses of bricks as close to the finished level of the floor as practicable, and above the level of the filled-in earth under the hall, and the brickwork made good in cement; or two or three courses of good quality blue Staffordshire bricks, with the vertical joints left open, inserted instead; either will be satisfactory. It will also be advisable to cover the whole of the site under the boarded floors with a 6in. layer of good Portland cement concrete. The defective woodwork will, of course, have to be replaced; but, before being refixed, the back of the skirting, etc., should first be given two coats of oil smudge.—J. E. Todd, 145, Victoria-road North, Southsea.

[13046.]—DAMPNESS.—This would appear to be a case of dryrot. All the woodwork already affected should be removed, and also all that in immediate proximity to the diseased timber, as it may be affected, although not yet sufficiently so to be noticeable. "Footrule" does not say whether the tile floor is on the solid, but presumably it is; in which case the dampness probably arises through the division-wall between the rooms and the hall, and, therefore, any new work, whether skirting or joists, put in close to this wall should be protected, and the simplest way is to use a piece of bituminous felt dampcourse (any of the standard makes advertised in the BUILDING NEWS will be found satisfactory), about 1ft. 6in. wide, which should be turned into one of the bed-joints in the division-wall a few inches above the top of the skirting, and securely wedged and pointed. The lower edge will then hang down well below the bottom of the new joists. The new joists and the back of the skirting should be twice creosoted or painted with carbolineum or boiling gas-tar, as a further precaution. From the fact that the other joists are sound, and that there is good ventilation, coupled with the fact that it has taken fourteen years for the trouble to become acute, it would appear that the danger is confined to the walls, and I would suggest the remedy described, which I have known to be successful in similar cases, as being the least expensive way of dealing with the trouble.—W. H. Golightly, 403, Caerleon-road, Newport, Mon.

[13047.]—EROSION OF TIDAL FORESHORE.—Having in regard the fact that piles driven even 30ft. will not hold in the ground, owing to the character of the mud, any system of longitudinal dykes—i.e., vertical sheeting driven down between horizontal waling pieces bolted to guide-piles, which are usual under ordinary circumstances—must necessarily be very expensive both in outlay and maintenance; the sheeting would in any case have to be taken down well below the bed of the river, to prevent the scour encouraging the earth behind the dyke escaping laterally. Submersible dykes would offer the most satisfactory remedy, as being the cheapest, quickest formed, and most permanent resistance to the erosion of the banks. They may be executed in rough blocks of stone, concrete cast into blocks and lowered into position, or of masonry. Woodwork fascines or paniers filled with gravel or with rubble stone are sometimes used; but, owing to their upkeep and short life, are not preferable, although, if favoured, I shall be pleased to furnish full details of construction. The feet of the banks may also be protected in the same manner. In almost every case, however, the determining motive in the choice of materials is to be found in their relative cost. The rubble facing may be resorted to if stone is plentiful and at a very low cost, for it is to be observed that the quantities required are very considerable. One peculiar advantage of this system is that the rubble easily slides down into any place where the water has attacked and undermined the banks, and it may be executed under almost every condition of the level of the water in the river. The largest stones which it is possible to obtain ought to be employed, because they are displaced with greatest difficulty. The slopes, when finished, should be dressed tolerably smoothly to a minimum inclination of 1½ to 1; the thickness must depend upon the nature of the bank to be treated, and the degree of erosion it is required to compensate. In the execution of this pitching the most important part is to be found in the foundations, which must be able to resist the undermining effects of the current. As the bed and sides of the river are of a nature to yield easily, it will be necessary to defend the feet by a single, or even double, row of piles, as



shown in the accompanying sketches, the woodwork being kept as low as possible in all cases, the guide-piles being taken down to a secure bottom. The inclination may vary from 1 to 1 to 2 to 1; the longer slopes requiring a less thickness of pitching, and resisting the action of the currents more effectually; at the same time, they will be found to carry waves to a higher point, if the river be sufficiently wide to allow of their formation. The thickness will be regulated by the rate of inclination and the force of the currents; but it is usually from 9in. to 14in. at the summit, and increases at about the rate of 1in. to every foot of additional depth. In order to resist the action of the currents at the water-lines the courses should be inclined, or, at any rate, they should not preserve their horizontality for any great distance. I am afraid the cost of adopting expanded metal reinforced concrete work would be very considerable, although in every way effective, as it would be necessary to construct coffer-dams to keep back the water whilst the reinforcement and concrete work is being placed into position, these dams costing as much as the vertical timber longitudinal dykes themselves. Whichever description of material be adopted, the most important point to be observed is that the work for the defence of a bank should be executed with the greatest rapidity, and before the corrosions can attain any dangerous extent. If "X." can forward me sketch-plans of the situation, with detail particulars of the flow of the river, levels of water summer and winter, and depths, etc., and mention the materials he would adopt, I shall be pleased to give him any further assistance he may require.—J. E. Todd, 145, Victoria-road North, Southsea, Lecturer in Civil Engineering, etc.

[13047.]—EROSION OF TIDAL FORESHORE.—This is a frequent source of trouble, particularly in rivers which have a very roundabout course, and are subject to high tides, like the Usk and the Wye—where the tides this week are 36ft. The erosion only takes place when the tide is in one direction, for if the curve of the river is such as to drive the current on one bank in flood, it will be on the other side during the ebb, though not necessarily to the same extent. In places where the foreshore is soft mud, the most successful remedy appears to be to create an artificial bar almost at right-angles to the flow of the current on the side of the farm from which the current comes. The bar should not be quite at right-angles with the flow, but very slightly with it. This is formed by making a rough raft of 9in. by 2in. deals spiked to 9in. by 3in. cross members, say, every 4ft. This raft should be about 20ft. wide, and the length will be governed by the distance the tide runs out on the foreshore. It can, of course, be made in sections for convenience' sake. This should be floated at high tide and allowed to ground, as the tide drops in the desired position, when an artificial bar is formed by dumping loads of large stones on the top of it. The raft is simply to prevent the single stones sinking into the mud, which they would do if thrown in without some continuous support. When this bar has been formed it will be found that the running current is turned out towards the centre of the river and a "back" water formed behind the bar; this not only stopping the erosion, but tending to build up the bank, as the water carried by the running flow naturally grounds in the back-water. If the river frontage is a long or a continuous curve, a series of bars will be necessary, the distance apart being governed by the curve of the river; but after the first bar is formed the distance at which it becomes ineffective is at once obvious, from noticing at high tide where the back-water ceases and the current is again at full strength.—W. H. Golightly, 403, Caerleon-road, Newport, Mon.

The new workhouse infirmary erected by the Pontypridd Guardians at Llwynypia at a cost of £14,772 has been formally opened.

The Mayor of Dewsbury opened an important addition to the Dewsbury and District General Infirmary on Tuesday. The extension comprises further rooms for the examination and treatment of dispensary patients, and for committees. The addition is of one story, with a flat roof.

A commemoration tablet marking the site of the Roman station which existed at Warrington about A.D. 75-410 was unveiled on Tuesday by Professor Boyd Dawkins, of the Manchester University. The tablet has been placed at a corner of the wall adjoining Wilderspool Brewery by the Warrington Society, and bears the following inscription:—"Site of the Roman station about A.D. 75-410. Relics may be seen in the Warrington Museum."

LEGAL INTELLIGENCE.

AN ARCHITECT SENTENCED TO PENAL SERVITUDE.—At the Central Criminal Court, on Friday, Harold Philip Trevor, 34, architect, pleaded "Guilty" upon three charges of larceny. He was also indicted under the Habitual Criminals Act. Mr. Beard, who prosecuted, said the prisoner had proved himself a dangerous and plausible thief. Detective-inspector Barrett said that the prisoner was educated at Southgate College, intending to become an architect. He had twice been sentenced to terms of eighteen months' imprisonment for thefts, and had also been bound over twice. At the suggestion of the Judge, counsel did not proceed with the case under the Habitual Criminals Act. Judge Rentoul, K.C., sentenced prisoner to four years' penal servitude.

OLD BRICKS.—Colquhoun v. Gordon.—At the Liverpool Court of Passage, on May 25, before Mr. W. F. Taylor, K.C., this action was brought for breach of contract. The plaintiff was John Colquhoun, a builder and general contractor, of Bootle, and the defendant W. M. Gordon, a demolition contractor. Plaintiff's case was that in October he undertook to buy from the defendant 15,000 old bricks, which he proposed to use in the foundation of property he was erecting in Anfield. In the course of three days, carters engaged by the plaintiff took away 2,500 old bricks from the place where they were lying, but when they called again there were no bricks left. Plaintiff had never received the balance of the bricks due under the contract, and was in consequence obliged to use a certain quantity of new bricks in the foundations. The defence was that it was part of the agreement that plaintiff should remove the bricks forthwith, as otherwise there was the danger that defendant would get into trouble for causing an obstruction in the street with the bricks. As this condition was not fulfilled to his satisfaction, defendant sold the heap of bricks to other purchasers. His Lordship gave the plaintiff judgment for £8 15s., remarking that, although there had been a breach of contract on the part of the defendant, he did not think plaintiff had made sufficient efforts to procure old bricks elsewhere before deciding to utilise new bricks for the foundations.

MEASURES BROTHERS, LTD.: FORMER MANAGING DIRECTOR SUMMONED.—In the last lines of our report of this case last week it was erroneously stated that the defendant was committed for trial last Thursday. This was due to a hasty misapprehension by our reporter. We go to press sharp at 3 p.m. on Thursdays, and, anxious to get the finish of the case in on the machine, the reporter went to Bow-street, and was informed there was some more evidence to read over, and that then the committal would follow. This was not so, and we regret the error. The case was adjourned till Tuesday last, when, before Mr. Marsham, Mr. Robert Herbert Measures, formerly managing director of Measures Brothers, Ltd., iron and steel contractors, of Southwark-street, S.E., and Croydon, again appeared to the charge of publishing balance-sheets in which the value of the stock in hand had been overstated. The case for the prosecution having been closed, Mr. Gill applied for an adjournment for a month to enable him to consider the evidence which had been called. The magistrate granted an adjournment until June 27.

ARCHITECT'S DUTIES UNDER BUILDING CONTRACT.—Carmichael v. Stonwod Patent Fireproof Flooring Company.—Court of Appeal, before Lords-Justices Vaughan Williams, Moulton, and Farwell.—Judgment was delivered in this case on the 29th ult. upon the appeal of the plaintiff, a builder and contractor, from a decision of Mr. Justice Bucknill in the King's Bench Division. It appeared that the plaintiff had contracted to erect a house for a Mr. Buckley in Hampshire, and the defendants, as the sub-contractors for the plaintiff by the agreement in question, had guaranteed certain patent flooring laid by them, as such sub-contractors, for a period of three years, fair wear and tear excepted, and it was a term of the guarantee that if the flooring proved unsatisfactory to the building owner the defendants were to refund to the plaintiff the money he had paid them for laying the flooring, unless the architect, Mr. Reginald Blomfield, decided that the faults complained of were due to causes beyond the control of the defendants, the decision of the architect to be binding on both sides. Plaintiff's case was that the flooring was so unsatisfactory that it had to be taken up. The building owner found that the patent flooring when dry came off in a powder, and when washed the surface came off. Mr. Blomfield afterwards arranged a meeting to decide the matter, when the defendants suggested that the foundations must be sunk and that the flooring should be waxed. Mr. Buckley would not agree to the suggestion, and Mr. Blomfield decided that the faults were not due to causes beyond the control of the defendants. Plaintiff's contention was that he was entitled to succeed, and that the decision of Mr. Blomfield was not an arbitrator's award, his function being merely to prevent disputes arising, and not to decide them when they had arisen. It was further submitted on behalf of the plaintiff that there was no sufficient submission to arbitration to satisfy the provisions of the Arbitration Act, 1889. On behalf of the defendants, however, it was contended that, in the circumstances, there was a submission to arbitration, and that the inquiry had, as there was a dispute as to the facts, not being properly conducted. It was further contended that the decision of Mr. Blomfield was *ultra vires*, as the defendants were not given an opportunity of replacing or removing the flooring. Mr. Justice Bucknill held that upon the construction of the document there was a submission to arbitration, and that the inquiry should have been conducted by Mr. Blomfield in a judicial manner, and a signed award made, and, in the circumstances, no proper arbitration could now be held, as the flooring had been taken up. His Lordship therefore entered judgment for the defendants, with costs. Hence the present appeal of the plaintiff. The arguments upon the appeal concluded last week, when their Lordships reserved judgment. Lord Justice Vaughan Williams, in giving judgement, said he differed from the decision arrived at by his learned brothers, and he agreed with the judgment of Mr. Justice Bucknill, who tried the case. It was clear law that if the object of the appointment of a person was that he should act and decide something, and thereby prevent disputes or disagreements arising between those appointing him, then the person so appointed was not an arbitrator, and had no judicial or quasi-judicial duties to perform. It was equally clear law that where a person was appointed to decide a dispute which had arisen, or which it was anticipated might arise, such person was an arbitrator who *primâ facie* had to conduct a judicial inquiry. Having read the guarantee and the material correspondence, his Lordship said that in his judgment the parties to the guarantee intended that the dispute should be decided by arbitration, and did not intend that it should be decided on the personal knowledge of Mr. Blomfield. He thought that, in the circumstances, the course of inquiry pursued by Mr. Blomfield was entirely wrong, and that the two objections taken by the appellant in the Court below failed. For these reasons he thought the appeal should be dismissed, with costs. Lord-Justice Moulton dissented. Having stated the facts of the case, he said that the whole of the building work in question for Mr. Buckley had to be carried out under the supervision and to the satisfaction of Mr. Blomfield, and there was no evidence that Mr. Blomfield, in deciding that the faults in the flooring were not due to causes beyond the control of the defendants, had not acted fairly and bonâ fide. The defendants said that Mr. Blomfield was bound to hold an inquiry subject to the provisions of the Arbitration Act, 1889 and that his award must be in writing, and therefore that the inquiry he had held failed. It was, however, impossible to call the guarantee a written agreement, as it was only signed by one party, and therefore it could not be a submission to arbitration under the Act of 1889, and for that reason the Act did not apply in any way to it, and in deciding the case it must be disregarded. The question, therefore, putting the Act aside, was, What was the true construction and effect of the guarantee? It said that the building owner was entitled to reject the flooring if it was not satisfactory to him, and that the defendants should refund the money to the plaintiff they had been paid by the plaintiff for the flooring in a certain con-

Our Office Table.

We understand that the Education Committee have recommended that Mr. Halsey Ricardo, F.R.I.B.A., should be appointed as successor to Professor W. R. Lethaby, at the L.C.C. School of Arts and Crafts, as a part time Director, with a salary of £800 a year. This recommendation has yet to be submitted to the Finance Committee for their acceptance or rejection. In the case of the former, the proposal will come before the London County Council for their sanction. It will be remembered that in March last the Education Committee advertised for a principal to give his whole time to the duties; but at the salary offered, £1,000 a year, no candidates who were regarded by the committee as possessing the necessary high qualifications as practical artist and administrator presented themselves.

A committee of members of the House of Commons has been formed to secure the recommittal of the Corporation of London (Bridges) Bill, and at a meeting which was held on Tuesday, Mr. Morrell presiding, it was decided to circularise members on the subject. With the circular will be enclosed a memorandum prepared by Mr. Beresford Pite, Professor of Architecture at the Royal College of Art, containing some of the grounds on which the committee desire to secure the recommittal of the Bill. The memorialists express the opinion that the scheme as it stands misses altogether a unique opportunity of constructing an architectural approach to one of the greatest of our national monuments. They ask for support to the motion for recommittal in order to insure that the Corporation, in administering the funds of which they are the trustees, may avail themselves of the best architectural advice, and produce a scheme worthy of the capital of the Empire. When the Bill came on among the private business on Wednesday, the third reading was promptly opposed by Mr. Morrell and other members. It is therefore postponed till after the holidays.

The London County Council received, on Tuesday, a recommendation from the Improvements Committee referring to the new frontage line arranged under Section 22 of the London Building Act (1894), to which buildings should be erected in Euston-road between Tonbridge-street and Mabledon-place. The width of the road at this part varies from 57ft. to 69ft., and this will be increased for a distance of about 735ft. to a uniform width of 100ft. between Tonbridge-street and Judd-street, and to a width varying from 100ft. to 87ft. between Judd-street and Mabledon-place. The land to be added to the public way is unpaved, and inclosed only by a rail and-post fence, and complaints have been made by the owners and occupiers of neighbouring property as to the purposes to which it is put, and the nuisance which arises therefrom. Land added to the public way under the operation of the London Building Acts is usually paved at the cost of the local authority; but as land so surrendered usually consists of comparatively narrow strips, the committee think that some distinction might be made between such cases and the present, in which a very considerable area is surrendered, especially considering that this part of Euston-road is quite close to Euston and King's Cross stations, and the traffic is therefore not confined to that of the locality, but comes from all parts of London. The cost of paving the land actually added to the public way, including the cost of incidental works to side streets, would be about £2,800, while if the existing footway on the south side of the road were repaved as part of the carriageway, the cost would be about £3,450. To enable a satisfactory improvement to be effected, it is essential that this footway should be removed and the site repaved, as otherwise it would remain in the middle of the carriageway and constitute a dangerous obstruction to traffic. In the circumstances, the Committee recommend that the Council, as a special case, and without such action

being regarded in any way as a precedent, should contribute £3,000 towards the total cost of the work.

At the same meeting the Council received a report from the Highways Committee as to the plans submitted by Mr. H. W. Ford on behalf of the Metropolitan District Railway Company, showing revised elevations for the reconstruction and enlargement of Temple Station, authorised by the Company's Act of 1910. Amongst other variations the revised elevation shows an entrance and shop window to a restaurant. The Committee recommended that the revised elevations for the reconstruction and enlargement of Temple Station be approved, subject to the elevation to the Norfolk-street approach being entirely reconstructed of Portland stone, and that consent be given to the use of part of the station as shops. The Highways Committee also reported on plans submitted on behalf of the Metropolitan District Railway Company, showing the proposed method of reconstruction of the viaduct carrying the railway over Ravenscourt-avenue. In the widening of the viaduct it is proposed to substitute for the existing iron girders an arch of brickwork. The Committee were of opinion that, from an æsthetic point of view, the alteration proposed is a distinct improvement, and recommended approval of the plans.

In the annual estimates, the Housing of the Working Classes Committee reported that the estimated expenditure under Part III. of the Housing of the Working Classes Act (1890) is mainly in respect of the further development of the four suburban cottage estates. For the finishing of roads upon the completion of cottages, and for the construction of roads and sewers on the remainder of the Norbury estate, £7,000 has been included in the estimates. Expenditure during the year upon the erection of cottages is estimated at £18,865. The Committee are anxious to proceed as rapidly as possible with the development of the Old Oak estate, as there is a considerable and increasing demand for working-class accommodation in the district. Owing to the complexity of the necessary preliminary work and negotiations, they are advised, however, that not more than £6,100 for roads and sewers, and £20,000 for cottages, can be expended during the year. The final contract for cottages on the Totterdown Fields estate has been let, and £8,750 will be required for payments to the contractors during the year. A sum of £1,900 is provided for completing the surfaces of carriageways and footways. As to the White Hart-lane estate, provision has been made for an expenditure on buildings of £35,250, which includes £25,250 for cottages on the Tower gardens section, and £10,000 for the development of the Lordship-lane frontage by the erection of shops or otherwise, and for building an estate office and a meeting hall for the tenants. In order to facilitate the development of the land, it was desirable that through communication should be provided by means of two new roads between Lordship-lane and White Hart-lane, and provision is made for expenditure of £5,000 under this head during the year. Further sums amounting to £6,300 have been included in respect of the construction of roads and sewers in connection with the sale of a site to the Tottenham Urban District Council for the erection of an elementary school, and for the work of finishing carriageways and footways on parts of the estate as cottages are completed.

The Finance Committee, in their report, referred to the large amount of unrealised recoupment in connection with the Holborn to Strand and other improvements; the figures at the present time representing the value of surplus lands ready to be let or otherwise disposed of are approximately as follow:—Holborn to Strand improvement, £2,580,000; Westminster improvements, £245,000; other improvements, £115,000, making a total of £2,940,000. The Improvements Committee reported that the option given to Mr. G. D. Martin of taking up a building lease for 99 years of a site at the junction of Kingsway, Aldwych, Drury-lane, and Kean street, at a rent of £7,000 a year, had not been exercised, although a deposit of £100 had been duly paid.

An appeal is being made to all who are interested in photography, or in the history, archæology, and science of Kent, to become members and correspondents of the Photographic Record and Survey of the County, and to contribute, if possible, half a dozen prints each year to the collection in the County Museum of Maidstone. More than five hundred views of Kent castles and churches photographed by Mr. Kenrick from water-colour drawings made between the years 1797 and 1808 by Mr. H. Petrie have been added to the collection during the year. At the annual meeting, held in the Museum, Maidstone, under the chairmanship of Mr. H. Snowden Ward, F.R.P.S., Sir David Salomons was re-elected president, with the following officers:—Hon. treasurer, Mr. F. J. Argles; hon. curator, Mr. J. H. Allchin; hon. secretary, Mr. H. E. Turner. The secretary reported that the Woolwich Antiquarian Society and the Tunbridge Wells Society had decided to affiliate with the Survey.

The restoration of the ancient north gateway at Bridgnorth, which was undertaken as a memorial to the late Mr. Thomas Martin Southwell, who built up the carpet industry in the borough, has just been completed. In the work of restoration hard local sandstone has been used for the facing. The original, built of soft sandstone, was so decayed that very little of it is still visible, but the dungeon windows and some of the stones of the principal arch remain. The date of this historical gateway is not known, but there is proof of its existence early in the 12th century. At the final siege of the castle and capture of the town by Cromwell's forces (1645), it was only after a desperate encounter in St. Leonard's churchyard and the defeat of the Royalists that the north gate was opened to admit the cavalry of the enemy. Some years ago the south side was faced with bricks, and the north side was patched up in the more decayed portions. It had become dangerous, and the town council had resolved upon doing some portion of the work when the proposal came from the Memorial Committee. This the council accepted, and to make the work complete the corporation have provided a new roof, new floor, and steps leading to the upper room. They have also opened up the third archway on the west side.

The liver birds which are to surmount as weathercocks the cupolas on the two towers of the offices of the Royal Liver Friendly Society at St. George's Dock, Liverpool, have been designed by Mr. Aubrey Thomas, the architect of the building, and will shortly be placed in position. From the summit of the domes on which they will stand to the tops of their heads they measure 18ft. in height.

At Coventry on Monday night an inaugural meeting of the Citizens' Housing League was held, under the chairmanship of Mr. Wale, for the purpose of determining in a formal manner the basis of the organisation. Broadly, the deductions arrived at were aimed at the securing of good housing conditions and the securing of town-planning for the city and district. One opinion generally expressed was that the League should work in harmony with the city authority, though Mr. Bannington stated the need of existence of the new organisation was due to the fact that the health authority did not do their duty. A woman speaker complained of the highness of cottage rents, and stated that better value could be got for 6s. a week at Port Sunlight and similar places than in Coventry, and that was an argument for corporation house-building. Mr. Poole said local builders were catering only for well-to-do artisans, and not for the people most in need of houses. The corporation should build, and let at rents which would cover erection and maintenance only.

The Council of the Roads Improvement Association has addressed a letter to the local highway authorities in Great Britain on the subject of the repair of the roads. Attention is drawn to the damage and expense incurred by users of vehicles fitted with rubber tires and others owing to loose metal being left upon the highways, and it is suggested that road surveyors should issue instructions to their steamroller gangs that when a road is being repaired no portion should be scarified and left, or re-coated and left with the stone loose, but that only so much stone should be spread as can be rolled or beaten down before the gang ceases work for the night. In regard to roadside grass margins or verges, it is stated that when the verges are cut and trimmed high scarped curbs are frequently left which are undoubtedly a source of great danger. To avoid accidents, it is suggested that roadmen should be instructed always to slope roadside grass verges towards the channel, so as to avoid leaving a high-scarped edge. This can be done by raking the soil from under the turf and beating it down so as to give the desired slope.

There was a representative attendance of motorists, cyclists, and other road users at a meeting held on Friday night at the Midland Automobile Club, John Bright-street, Birmingham, with the object of establishing a Midland centre of the Roads Improvement Association. Mr. A. W. Trevarthen presided, and it was decided that a centre be formed at Birmingham, with Warwickshire, Worcestershire, and Staffordshire as its sphere of operation. The object will be to consider the condition of the roads of the district, and ascertain what improvements are needed. The relative importance of the various improvement schemes will be considered, and the road users' views will be placed before the local authorities concerned. The centre will also consider the questions of the alterations in the construction of the roads, the removal of dangerous corners, the cutting of hedges, the rolling in of loose metal upon the road surfaces, the repairing of roads half the width at a time, the gritting of street surfaces, the watering or greasing of tram-lines, the filling in of ditches, the lessening of dangerous camber, and the dust nuisance.

At the quarterly meeting of the city council of Chester, Alderman J. M. Frost moved the recommendation of the improvement committee that Mr. William Matthews Jones should be appointed city surveyor at a salary of £300 a year, increasing by annual increments of £25 to a maximum of £400. Mr. Griffiths said the council ought not to make the appointment in this way, having three years ago prescribed a standard for the city surveyor, which Mr. Jones had not made the slightest attempt to reach in the way the council desired. He moved, as an amendment, "That Mr. Jones be appointed city surveyor for two years at a salary of £300, the condition of his appointment being that he should become an Associate Member of the Institute of Civil Engineers by examination, failing which, at the expiration of two years, the office of city surveyor shall be vacant." The sheriff (Mr. H. F. Brown) seconded. Eight voted for the amendment and 23 against. Dr. Parry thereupon proposed as a further amendment that the maximum salary should be £300. The amendment was lost, and, on the recommendation that Mr. Jones should be appointed being put, it was carried by a large majority.

In a paper read before the Brooklyn Engineers' Club, Mr. A. H. Sabin reviewed the problems presented by the rusting of iron and steel. Speaking of red-lead, which is so favourably known as a base in paints, Mr. Sabin believed its value was largely due to the insoluble character of the salts it forms with the various acids commonly met with in the atmosphere. These insoluble salts remain on the ironwork, and act as a shield, which prevents or greatly retards the access of the atmosphere to the iron. Thus sulphuric or sulphurous gases, which are common in industrial atmospheres, produce insoluble sulphate; and chlorine compounds, which are commonly found in the air near the sea, produce an insoluble chloride. The sulphates and chlorides and carbonates of most metals are soluble, so that if these

MEETINGS FOR THE ENSUING WEEK.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of correspondents. All communications should be addressed as briefly as possible, as there are many demands upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications intended for insertion or literary matter be addressed to the EDITOR of the BUILDING NEWS, Effingham House, 1, Arundel-street, Strand, W.C., and not to any of the staff by name. Delay is not unfrequently occasioned. All drawings and other documents are sent at contributors' risks, and the Publisher cannot undertake to pay for, or be liable for, any contributions.

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Telegraphic Address:—"Timeserver, London."
Telephone, Gerrard 1291.

THE CORONATION HOLIDAYS.

Owing to the interruption of business caused by the Coronation Holidays, we must publish the "BUILDING NEWS" next Coronation Week on WEDNESDAY, June 21, at 10 a.m.

Pressure of matter necessitates our going to press on the previous TUESDAY (20th inst.), instead of on Thursday at that date as usual. We ask readers to pardon any omission of news they might otherwise reasonably expect.

We beg all correspondents to let us have all communications as early in Coronation week as possible, and by first post on the TUESDAY morning. Advertisements must reach us by 3 p.m. on Tuesday, June 20.

Readers should be able to obtain that week's issue anywhere on the WEDNESDAY before the holidays, and should remind their newsagents in time that they will expect it.

TERMS OF SUBSCRIPTION.

One Pound per annum (post free) to any part of the United Kingdom; for the United States, £1 6s. 0d. (or 6dols. 30c. go d). To France or Belgium, £1 6s. 0d. (or 33fr. 30c.) To India, £1 6s. 0d. To any of the Australian Colonies or New Zealand, to the Cape, the West Indies, or Natal, £1 6s. 0d.

. The special rate to Canada is £1 1s. 8d. = 5dols. 27c. for 12 months, and 10s. 10d. = 2dols. 64c. six months.

NOTICE.

Bound copies of Vol. XCIX. are now ready, and should be ordered early (price 12s. each, by post 12s. 9d.), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XLI., XLVI., XLIX., LIII., LXI., LXII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXIX., LXXX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., LXXXVI., LXXXVII., LXXXVIII., LXXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., XCVII., and XCVIII. may still be obtained at the same price; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

Handsome Cloth Cases for binding the BUILDING NEWS, price 2s., post free 2s. 4d., can be obtained from any Newsagent, or from the Publisher, Effingham House, 1, Arundel-street, Strand, W.C.

ADVERTISEMENT CHARGES.

The charge for **Competition** and **Contract** Advertisements, **Public Companies**, and all official advertisements is 1s. per line of Eight Words, the first line counting as two, the minimum charge being 5s. for four lines.

The charge for **Auctions, Land Sales,** and **Miscellaneous** and **Trade** Advertisements (except Situation Advertisements) is 6d. per line of Eight Words (the first line counting as two) the minimum charge being 4s. 6d. for 40 words. Special terms for series of more than six insertions can be ascertained on application to the Publisher.

Situations and Partnerships.

The charge for advertisements for **Situations Vacant** or "**Situations Wanted** and "**Partnerships**," is ONE SHILLING FOR TWENTY-FOUR WORDS, and SIXPENCE for every eight words after. *All Situation Advertisements must be prepaid.*

. Replies to advertisements can be received at the Office, Effingham House, 1, Arundel-street, Strand, W.C., *free of charge*. If to be forwarded under cover of advertiser an extra charge of Sixpence is made. (See Notice at head of "Situations.")

Rates for **Trade** Advertisements on front page, and special and other positions, can be obtained on application to the Publisher.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

RECEIVED.—E. and B. E. G. Co.—J. and H. P.—J. T., Ltd.—J. K. and Co., Ltd.—V. A. and Co.—J. P. M. and Co.—J. H. and Co.—T. T. G. and Co.—W. L. G.—W., Ltd.—W. E. S.—D. and Mc. C.—B. of D.—P. and R. B., Ltd.—L. P. E. R. A. and Co.—D. A., Ltd.—K. E. C.—S. E. Co., Ltd.—A. G. L.—B. Bros.—N. W. and Co.

R. M. Y.—

T. H. S.—There is one better.

NEEDLE.—We should not risk it ourselves.

F. J.—See our "Directory" pages under "Iron Staircases."

STONEE.—Hypercriticism of that sort is seldom very profitable, especially when anonymous.

G. R. S.—Thanks; our fear is, if we published your story, it might stimulate the imaginations of architects too much, and your responsibility for consequences would be terrible!

DOUBTFUL.—It is tough stuff to work, but there is no doubt about its durability. We once actually used it for cogwheels on an emergency, and it outlasted some cast-iron ones.

BARLEY.—It has been in use in this country for many years, and was formerly known as "Danish asphalte." As you state, there is a much wider field for it, if it was more extensively advertised.

CHIPS.

The Brighton Hove and District Railless Traction Bill was read a third time and passed in the House of Lords on Monday night.

Damage amounting to £15,000 was caused to the cabinet-making premises of Messrs. Greaves and Thomas of Berenden-street, Hoxton, by fire on Wednesday.

The Carnarvon Board of Guardians have approved revised plans prepared by Mr. Rowland Lloyd Jones for a new hospital in connection with the workhouse. The estimated cost is nearly £6,000.

Lieutenant F. A. Heymann, R.E., has been appointed instructor in surveying on the staff of the Royal Military College, Kingston Canada.

The Southampton Board of Guardians are about to proceed with the erection of two pavilions, the extension of the nurses' home, and the making of other alterations and additions to the workhouse infirmary at Shirley Warren at an estimated outlay of £18,300.

Messrs. Kennedy and Macdonald, Edmunston N.B., have started work on their 65 mile contract on the Transcontinental Railway from Grand Falls N.B. to Baker Lake N.B. The construction is in charge of Mr. John Kennedy who hopes to see the work completed on or about December 1, 1912.

Mr. S. S. Platt, the borough surveyor of Rochdale, having submitted an estimate of the cost of substituting granite for the existing paving in main roads, the paving and sewering committee are recommending the corporation that a loan of £6,000 be obtained for such work in several main thoroughfares.

The corporation of Doncaster have adopted a fresh housing scheme in place of the one at Marsh Gate rejected by the Local Government Board. It is proposed to erect sixty houses on the Warmsworth road, Balby, fifty on the Carr House-road, and fifty on a site off Wheatley-lane near the River Don. The whole of the land is owned by the corporation.

The parish church of St. Mary the Virgin at Welwyn, Hertfordshire, originally built in the Early English style, but later rebuilt in the Decorated style, was reopened on Wednesday after thorough restoration at a cost of about £6,000 borne by the Misses Wilshere, of The Frythe, Welwyn. Mr. C. J. Blomfield, F.R.I.B.A., was the architect. The Bishop of St. Albans preached.

The completion of the Wellington Monument in St. Paul's Cathedral is at last within sight. Mr. John Tweed's equestrian figure has been cast, the pediment is almost finished, and it is expected that the completed memorial will be in position in St. Paul's before the end of the year. A model of the equestrian figure and pediment was placed in position on Alfred Stevens's monument in the cathedral, and was open to public inspection early in 1908.

The Bishop of Exeter dedicated on Monday the Hobson memorial reredos which has been erected in St. Mark's Church, Dawlish. It is in Caen stone with alabaster inlays, the panels being executed in gold mosaic. The central portion has three gables, traceried and crocketed. The intermediate buttresses have niches with carved statues of the Four Evangelists, the final terminations to these buttresses being carved angels carrying musical instruments. The three panels represent the Ascension.

In connection with the restoration works at Southwark Cathedral a find of some importance has been made. In digging for the foundation of a wall the remains of a piece of Roman tesselated pavement was uncovered. The discovery was made at a depth of about 18ft., and the pavement would appear to have been extensive. The remains appear to be those of a Roman villa. A small portion of the mosaic will probably be reconstructed and preserved in the cathedral.

LATEST PRICES.

IRON.

Steel Joists, Belgian and German (ex steamer, London) Per ton	£5	12	6	to	£5	17	6
Steel Joists, English	6	10	0	,,	6	15	0
Wrought-Iron Girder Plates	7	0	0	,,	7	5	0
Steel Girder Plates	7	2	6	,,	8	2	6
Bar Iron, good Staffs	6	5	0	,,	8	10	0
Do., Lowmoor, Flat, Round, or Sqnare	20	0	0	,,	20	0	0
Do., Welsh	6	15	0	,,	6	17	0
Boiler Plates, Iron—							
South Staffs	8	0	0	,,	8	15	0
Best Snedshill	9	0	0	,,	9	10	0

Angles 10s., Tees 20s. per ton extra.

Builders' Hoop Iron, for bonding, &c., £5 16s. to £9.

Builders' Hoop Iron, galvanised, £14 to £16 10s. per ton

Galvanised Corrugated Sheet Iron—

	No. 18 to 20.				No. 22 to 24.		
6ft. to 8ft. long, inclusive	Per ton.				Per ton.		
gauge	£13	0	0	...	£13	10	0
Best ditto	13	0	0	...	14	0	0

Wire Nails (Points de Paris)—

3 to 7	8	9	10	11	12	13	14	16	B.W.G.
8/3	8/9	9/3	9/9	10/3	11/-	11/9	12/6	13/6	per cwt.

	Per ton.				Per ton.		
Cast-Iron Columns	£6	10	0	to	£8	10	0
Cast-Iron Stanchions	6	10	0	,,	8	10	0
Rolled-Iron Fencing Wire	8	6	0	,,	8	10	0
Rolled-Steel Fencing Wire	6	5	0	,,	6	10	0
,, ,, ,, Galvanised	7	15	0	,,	8	6	0
Cast-Iron Sash Weights	5	0	0	,,	5	5	0
Cut Floor Brads	9	15	0	,,		—	
Corrugated Iron, 24 gauge	16	0	0	,,		—	
Galvanised Wire Strand, 7 ply, 14 B.W.G.	14	5	0	,,		—	

B.B. Drawn Telegraph Wire, Galvanised—

0 to 8	9	10	11	12	B.W.G.
£10 6 0	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.

	Per ton.						
Cast-Iron Socket Pipes—							
3in. diameter	£6	2	6	to	£6	7	0
4in. to 6in.	6	0	0	,,	6	5	0
7in. to 24in. (all sizes)	6	7	6	,,	6	0	0

[Coated with composition, 6s. 0d. per ton extra; turned and bored joints, 5s. 0d. per ton extra.]

	Per ton.			
Pig Iron—				
Cold Blast, Lilleshall	110s.	0d.	to	117s. 6d.
Hot Blast, ditto	70s.	0d.	,,	76s. 0d.

Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.) :—

Gas-Tubes	75	p.c.
Water-Tubes	72½	,,
Steam-Tubes	67½	,,
Galvanised Gas-Tubes	65	,,
Galvanised Water-Tubes	62½	,,
Galvanised Steam-Tubes	57½	,,

OTHER METALS.

Spelter, Silesian Per ton	£24	7	6	to	£24	10	0
Lead Water Pipe, Town	17	0	0	,,		—	
,, ,, ,, Country	17	15	0	,,		—	
Lead Barrel Pipe, Town	18	0	0	,,		—	
,, ,, ,, Country	18	15	0	,,		—	
Lead Pipe, Tinned inside, Town	19	0	0	,,		—	
,, ,, ,, ,, Country	19	15	0	,,		—	
Lead Pipe, Tinned inside and outside Town	21	10	0	,,		—	
,, ,, ,, ,, Country	22	5	0	,,		—	
Composition Gas-Pipe, Town	20	0	0	,,		—	
,, ,, Country.	20	15	0	,,		—	
Lead Soil-pipe (up to 4½in.) Town	20	0	0	,,		—	
,, ,, ,, Country	20	15	0	,,		—	
[Over 4½in. £1 per ton extra.]							
Lead Shot, in 2cwt. bags	24	16	0	,,		—	
Copper Sheets, sheathing & rods	69	0	0	,,	69	10	0
Copper, British Cake and Ingot	58	10	0	,,	59	0	0
Tin, Straits	201	0	0	,,	202	0	0
Do., English Ingots	196	0	0	,,	196	10	0
Do., Australian	202	10	0	,,	203	0	0
Do., Bars	197	10	0	,,	198	0	0
Pig Lead, in 1cwt. pigs	14	7	6	,,		—	
Sheet Lead, Town	16	10	0	,,		—	
,, ,, Country	17	5	0	,,		—	
Genuine White Lead	21	0	0	,,		—	
Refined Red Lead	19	0	0	,,		—	
Sheet Zinc	32	5	0	,,		—	
Old Lead, against account	13	3	9	,,		—	
Tin per cwt.	11	0	0	,,		—	
Cut Nails (per cwt. basis, ordinary brand)	0	10	6	,,		—	

TIMBER.

CONSTRUCTIONAL.

Per St. Petersburg Standard (100—12ft. by 11in. by 1in.)

Yellow Pine Deals, Quebec, 1st quality	£34	0	0	to	£42	0	0
,, ,, ,, 2nd ,,	24	0	0	,,	26	0	0
,, ,, ,, 3rd ,,	15	10	0	,,	18	0	0
Spruce Deals: St. Johns	6	0	0	,,	11	0	0
,, ,, Miramichi	7	5	0	,,	8	10	0
,, Boards: Swag	7	0	0	,,	8	0	0
Red Deals: Archangel 1st quality	20	10	0	,,	21	10	0
,, ,, ,, 2nd ,,	16	0	0	,,	17	0	0
,, ,, ,, 3rd ,,	11	0	0	,,	12	0	0
,, ,, St. Petersburg—							
,, 1st quality	16	0	0	,,	17	0	0
,, 2nd ,,	13	0	0	,,	14	10	0
,, ,, Wyburg & Ulealborg	10	0	0	,,	12	0	0
,, ,, Gefle, Gothenburg, and Stockholm	10	0	0	,,	17	0	0
White Deals: Crown	10	0	0	,,	12	0	0
,, ,, Seconds	9	10	0	,,	10	0	0
Flooring: White and Planed—							
1st and 2nd quality mixed	9	0	0	,,	9	5	0
1st, 2nd, and 3rd quality mixed	8	5	0	,,	8	10	0
Red Planed, 1st quality	11	5	0	,,	11	10	0
Pitch Pine: Prime Deals and Boards	17	0	0	,,	20	0	0
Lignum Vitæ	6	10	0	,,	12	0	0
Per foot super, as 1in.							
Yellow Pine Logs (waney board)	0	2	9	,,	0	4	3
Pitch Pine Logs	0	1	6	,,	0	1	10
Birch: Quebec Logs	0	2	0	,,	0	2	6
Oak: Austrian Wainscot	0	7	0	,,	0	8	0
Mahogan Gaboon	0	6	1½	,,	0	6	2½

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (50c.ft.)	£20	0	0	to	£21	10	0
,, Java ,, ,,	15	0	0	,,	18	0	0
	Per cubic foot.						
Oak Planks: U.S.A., imported	0	1	9	to	0	2	6
,, Boards ,, ,, Prm.	0	2	4	,,	0	2	9
,, ,, ,, ,, Mdm.	0	1	10	,,	0	2	2
Sequoia (Californian Redwood)	0	3	0	,,	0	3	6
Birch: Quebec logs	0	1	8	,,	0	2	2
,, ,, sawn planks	0	1	0	,,	0	1	2
Oak: Austrian Wainscot	0	6	0	,,	0	7	0
Walnut: Prime boards & planks	0	5	0	,,	0	6	0
,, Mdm. ,, ,,	0	3	4	,,	0	3	6
Greenheart: Hewn logs	0	3	6	,,	0	4	6
Cedar: Cigar box	0	3	6	,,	0	4	6
Satin Walnut: Imp. sawn boards, prime	0	2	3	,,	0	2	6
Orham: Imp. sawn boards, prime	0	1	10	,,	0	2	2
	Per foot of 1in.						
Mahogany: St. Domingo, Cuba, and Honduras	0	0	5½	to	0	0	6
,, African, Assinee, &c.	0	0	4½	,,	0	0	9
,, Lagos and Benin	0	0	3½	,,	0	0	4½
,, Sekondi and Cape Lopez	0	0	2½	,,	0	0	3½
,, Gaboon	0	0	1½	,,	0	0	0
Satinwood: West Indian	0	0	10	,,	0	2	2
Rosewood Per ton	7	0	0	,,	12	0	0
Lignum Vitæ ,,	4	0	0	,,	11	10	6

STONE.*

Red Mansfield, in blocks per foot cube	£0	2	4	
Darley Dale, ditto ,, ,,	0	2	3	
Red Corsehill, ditto ,, ,,	0	2	2	
Closeburn Red Freestone, ditto ,, ,,	0	2	0	
Ancaster, ditto ,, ,,	0	1	10	
Greenshill, ditto ,, ,,	0	1	10	
Chilmark, ditto (in truck at Nine Elms) ,, ,,	0	1	9	
Beer, ditto ,, ,,	0	1	6	
Hard York, ditto ,, ,,	0	2	10	
Ditto ditto 6in. sawn both sides, landings, random sizes per foot sup.	0	2		
Ditto ditto 3in. slab sawn two sides, random sizes ,, ,,	0	1		

* All F.O.R. London.

Bath Stone, delivered on rail at quarry stations per foot cube	£0	1	0				
Delivered on road waggons, Paddington Depot ,, ,,	0	1	6½				
Ditto ditto, Nine Elms Depot ,, ,,	0	1	8½				
Beer Stone, delivered on rail at Seaton Station ,, ,,	0	1	0				
Ditto, delivered at Nine Elms Station ,, ,,	0	1	6				

Portland Stone, in random blocks of 20ft. average :—

	Brown Whit Bed.				White Base Bed.		
Delivered to railway depot at the quarry ...per foot cube	£0	1	6½	...	£0	1	7½
Delivered on road waggons at Paddington Depot ...	,, ...	0	2	1	...	0	2	2½
Ditto, Nine Elms Depot ...							
Ditto, Pimlico Wharf ...							

SLATES.

	In.	In.	£	s.	d.			
Blue Portmadoc	20 × 10	..12	12	6	per 1000 of 1200 at r.stn.			
,, ,,	... 16 × 8	.. 6	12	6	,,	,,	,,	
Blue Bangor	20 × 10	..13	2	6	,,	,,	,,	
,, ,,	... 20 × 12	..13	17	6	,,	,,	,,	
First quality	20 × 10	...13	0	0	,,	,,	,,	
,, ,,	... 20 × 12	...13	16	0	,,	,,	,,	
,, ,,	... 16 × 8	... 7	6	0	,,	,,	,,	
Eureka unfading green	20 × 10	..15	17	6	,,	,,	,,	
,, ,,	... 20 × 12	..16	7	6	,,	,,	,,	
,, ,,	... 18 × 10	..13	5	0	,,	,,	,,	
,, ,,	... 16 × 8	..10	6	0	,,	,,	,,	
Permanent green	20 × 10	...11	12	6	,,	,,	,,	
,, ,,	... 18 × 10	... 9	12	6	,,	,,	,,	
,, ,,	... 16 × 8	... 6	12	6	,,	,,	,,	

BRICKS.

(All prices net.)

Hard Stocks	£1	6	6	per 1,000 alongside, in river			
Rough Stocks and Grizzles	1	6	0	,,	,,	,,	
Picked Stocks for Facings	2	10	0	,,	delivered at railway station.		
Flettons	1	6	0	,,	,,	,,	
Pressed Wire Cuts	1	15	0	,,	,,	,,	
Red Wire Cuts	1	14	0	,,	,,	,,	
Best Fareham Red	3	12	0	,,	,,	,,	
Best Red Pressed Ruabon Facing	6	0	0	,,	,,	,,	
Best Blue Pressed Staffordshire	3	16	0	,,	,,	,,	
Ditto Bullnose	4	0	0	,,	,,	,,	
Best Stourbridge Fire Bricks	3	14	0	,,	,,	,,	
2¾" Best Red Accrington Plastic Facing Bricks	4	10	6	,,	Net, delivered in full truck loads in London.		

	Per 1,000		
3½" Accrington Best Red Plastic Facing Bricks	£2	10	0
3½" Ditto Second Best Plastic ditto	2	2	6
Ditto Ordinary Second Bricks	1	11	3
Ditto Plastic Engineering Bricks	1	17	6
Sewer Arch Brick, not more than 3½" at thickest part	2	0	0
3½" Chimney Bricks fit for outside work	2	6	0
3½" Ditto Ditto through and through	2	0	0
3½" Beaded, Ovolo and Bevel Jambs; Octagons; 2½" and ½" radius Bullnoses; Stock patterns	3	7	6
Accrington Air Bricks, 9" × 2 course deep, each	0	0	6
Ditto Ditto 9" × 1 course, each	0	0	3

Accrington Camber Arches :—

3 course deep, 4½" soffit, per foot opening	...				0	1	3
4 ditto 4½" ditto ditto ditto	...				0	1	8
5 ditto 4½" ditto ditto ditto	...				0	2	1
6 ditto 4½" ditto ditto ditto	...				0	2	6
3 ditto 9" ditto ditto ditto	...				0	2	1
4 ditto 9" ditto ditto ditto	...				0	2	11
5 ditto 9" ditto ditto ditto	...				0	3	9
6 ditto 9" ditto ditto ditto	...				0	4	6

Net, free on rail or free on boat at works.

GLAZED BRICKS.*

HARD GLAZES. (PER 1,000.)

	White, Ivory, and Salt Glazed. Best.	Seconds.	Buff and Cream. Best.	Other Colours.	Second Colours.
Stretchers—	£10 17 6	£9 7 6	£12 7 6	£16 7 6	£10 17 6
Headers—	10 7 6	8 17 6	11 17 6	16 17 6	10 7 6
Quoins, Bullnose, and 4½in. Flats—	13 17 6	12 17 6	16 7 6	19 17 6	14 7 6
Double Stretchers—	16 7 6	14 17 6	19 7 6	22 17 6	16 7 6
Double Headers—	13 7 6	11 17 6	16 7 6	19 17 6	13 7 6
One side and two ends, square—	17 7 6	15 17 6	20 7 6	24 17 6	17 7 6
Two sides and one end, square—	15 7 6	16 17 6	21 7 6	26 7 6	18 7 6
Splays and Squints—	15 17 6	14 7 6	20 7 6	23 7 6	15 17 6
Plinth and Hollow Bricks. Stretchers and Headers—	5d. each	4d. each	6d. each	6d. each	5d. each
Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres—	5d. each	4d. each	6d. each	6d. each	5d. each
Rounded Internal Angles—	4d. each	3d. each	5d. each	6d. each	4d. each

MOULDED BRICKS.

Stretchers and Headers—	8d. each 8d. each 8d. each 8d. each 8d. each
Internal and External Angles—	1/2 each 1/2 each 1/2 each 1/2 each 1/2 each
Cill Bullnose, Stretchers and Headers—	5d. each 4d. each 6d. each 6d. each 5d. each

	Per 1,000
Majolica or Soft Glazed Stretchers and Headers	£21 17 6
,, ,, ,, Quoins and Bullnose	26 17 6
Compass bricks, circular and arch bricks of single radius £6 per 1,000 over above list for their respective kinds and colours	Not exceeding 9in. × 4½in. × 2½in.
Camber arch brick, any kind or colour, 1s. 2d. each	

Stretchers cut for Closers and Nicked Double Headers, £1 per 1,000 extra.

* These prices are carriage paid in full truck loads to London stations.

	s.	d.	
Thames and Pit Sand	7	0	per yard, delivered.
Thames Ballast	5	6	,, ,,
Best Portland Cement	28	0	per ton, ,,
Best Ground Blue Lias Lime	19	0	,, ,,

Exclusive of charge for sacks.

Grey Stone Lime ... 11s. 6d. per yard, delivered

Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. stn.

TILES.

	s.	d.	Delivered
Plain red roofing tiles	42	0	per 1000 at rly. stn.
Hip and Valley tiles	3	7	per doz. ,, ,,
Broseley tiles	50	0	per 1000 ,, ,,
Ornamental tiles	52	6	,, ,, ,,
Hip and Valley tiles	4	0	per doz. ,, ,,
Ruabon red, brown, or brindled			
do. (Edwards)	57	6	per 1000 ,, ,,
Ornamental do.	60	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	0	,, ,, ,,
Selected "Perfecta" roofing tiles :—Plain tiles (Peake's)	48	0	per 1000 ,, ,,
Ornamental do.	48	6	,, ,, ,,
Hip tiles	3	10½	per doz. ,, ,,
Valley tiles	3	4½	,, ,, ,,
"Rosemary" braud plain tiles	48	0	per 1000 ,, ,,
Ornamental tiles	60	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	6	,, ,, ,,
Staffordshire (Hanley) Reds or Brindled tiles	42	6	per 1000 ,, ,,
Hand-made sand-faced	45	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	6	,, ,, ,,
"Hartshill" brand plain tiles, sand-faced	50	0	per 1000 ,, ,,
Pressed	47	6	,, ,, ,,
Ornamental do.	50	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	6	,, ,, ,,

OILS.

Rapeseed, English pale, per tun	£28	15	0	to	£29	6	
Do., brown	,, ...	26	15	0	,,	27	5	0
Cottonseed, refined	,, ...	29	0	0	,,	30	0	0
Olive, Spanish	,, ...	39	10	0	,,	40	0	0
Seal, pale	,, ...	21	0	0	,,	21	10	0
Cocoanut, Cochin	,, ...	46	0	0	,,	46	10	0
Do., Ceylon	,, ...	42	10	0	,,	43	0	0
Do., Mauritius	,, ...	42	10	0	,,	43	0	0
Palm, Lagos	,, ...	32	5	0	,,	33	6	0
Do., Nut Kernel	,, ...	35	0	0	,,	35	10	0
Oleine	,, ...	17	6	0	,,	19	6	0
Sperm	,, ...	30	0	0	,,	31	0	0
Lubricating U.S. per gal.		0	7	0	,,	0	8	0
Petroleum, refined	,,	0	0	6½	,,	0	0	6¾
Tar, Stockholm per barrel		1	6	0	,,	1	10	6
Do., Archangel	,,	0	19	6	,,	1	0	0
Linseed Od per gal.		0	3	10½	,,		—	
Baltic Od	,,	0	4	2	,,		—	
Turpentine	,,	0	4	0	,,		—	
Putty (Genuine Linseed Oil)	per cwt.	0	11	0	,,		—	
,, Pure Linseed Oil, "Stority" Brand	,,	0	10	0	,,		—	

GLASS (IN CRATES).

	15oz.	21oz.	26oz.	32oz.
English Sheet Glass: Fourths	1¾d. ...	2¾d. ...	3¾d. ...	4¾d.
Thirds	2¼d. ...	3¾d. ...	4d. ...	5d.
Fluted Sheet	2¾d. ...	3¾d. ...	6d. ...	6¾d.
Hartley's English Rolled Plate:	⅛in.	3/16in.	¼in.	
	2¼d. ...	2¾d. ...	3d.	
Figured, Rolled, and Repoussine:	White.	Tinted.		
	3¼d. ...			

VARNISHES, &c.

	Per gallon.
Fine Pale Oak Varnish	£0 8 0
Pale Copal Oak	0 10 0
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for [illegible]	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic [illegible]	0 16 0
Fine Pale Maple	0 18 0
Finest Pale Durable [illegible]	1 1 0
Extra Pale French [illegible]	1 8 0
Egyptian Hatting	1 4 6
White Copal Varnish	0 12 6
Extra Pale Polishing	0 16 0
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak stain [illegible]	0 9 0
Brunswick [illegible]	0 8 0
Berlin [illegible]	0 16 0
Knotting [illegible]	0 10 0
French [illegible]	0 10 0

TRADE NOTES.

[illegible] Upton Park [illegible] Sheffield's warm air ventilating [illegible] Manchester stoves by Messrs. E. H. Shorland [illegible] Bolton, Ltd., of Ealsworth, Manchester.

Messrs. W. [illegible] Peel and Sons, Ltd., clock manufacturers, of Leeds and Newcastle, have received orders to make and fix a large clock, [illegible] to be [illegible] and shown [illegible] the Imperial Exhibition at St. Paul's Church, [illegible] Bay, North Wales. [illegible] large quarter-striking clock with three [illegible] dials and [illegible] Coleman Institute and new clock to Adelphi Hotel at Langworth Church, Yorkshire, were [illegible] this week.

CHIPS.

Mr. [illegible] & Palmer has been appointed surveyor to the Boston Rural District Council.

A [illegible] concrete sleeper has been on trial for the last two years, with apparently promising results. The concrete consists of one part of cement, one part of sand, and two parts of broken stone, and the reinforcement of fine wire and expanded metal.

The Leek and Moorlands Co-operative Society has just erected a block of buildings on the Fields Estate in the centre of the town. The architect was Mr. Reginald T. Longden, I.R.I.B.A., and the work has been carried out by Messrs. J. Heath and Sons, of Leek, at a cost of £6,200.

Mr. James George Henry Glass, C.I.E., of The Cabots, Mitcham, Surrey, formerly Chief Engineer and Secretary of Roads and Buildings in the United Provinces, and afterwards in Bengal, and a member of the Provincial Legislature, who died on April 21 last, aged 67 years, left estate of the gross value of £216,885, with net personalty £216,691.

The Ennis Urban District Council have received the sanction of the Local Government Board to the borrowing of £13,760 for the purpose of erecting seventy-six cottages. Of these thirty-six artisans' dwellings will be built in the vicinity of the court house, and forty labourers' dwellings will be erected on the Clare-road. The engineer is Mr. Martin F. Tierney, Ennis.

Council chambers and offices have been erected for the urban district council of Newburn-on-Tyne, which are nearing completion, and will probably be opened at the end of June. Mr. E. Gratney, of Newcastle and Wallsend, has designed the building. The building is of the Georgian type, and advantage has been taken of the sloping site by designing three stories at the rear and two in front. From a flight of steps in Newburn-lane access is gained to the entrance hall, in front of which the collectors and surveyors departments are placed. A staircase leads to the council chamber and committee rooms on the upper floor. The front is faced with hard-made bricks, and the doorway is enriched with carving carried out by Mr. J. E. Hughes, of Newcastle, from the architect's [illegible].

OGILVIE & CO. Telephone: DALSTON 1388

Many years connected with the late firm of W. H. LASHMORE & CO., Ltd., of Bunhill Row.

Amhurst Works, **DALSTON LANE, N.E.**

EXPERTS in HIGH-CLASS JOINERY.

ALTERATIONS & DECORATIONS. ESTIMATES FREE

FOR

Olivers' Seasoned Hardwoods,

APPLY TO

WM. OLIVER & SONS, Ltd.,
120, Bunhill Row, London, E.C

TENDERS.

*** Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender; it adds to the value of the information.

BEVERLEY.—For the erection of footbridge over the Grove-hill and Chantry-lane railway crossings:—
Page, G., and Son, Beverley (accepted).

BIGGLESWADE.—For bacteria beds, &c., at sewage disposal works, for the urban district council. Mr. J. T. Eayrs, M.I.C.E., Corporation-street, Birmingham, engineer:—

Firth, B., Wakefield	£3,824 16 1
Moss, W., and Sons, Ltd., Mead-way, Hendon, N.W.	3,316 12 0
Cousins, E. E., St. Albans	3,294 3 8
Lambrick and Co., Burton-on-Trent	3,274 8 7
Buckley, H. E., Bradford	3,227 4 7
Price, A. H., and Co., Nottingham	3,226 3 1
Brigg, W., Bradford	3,213 8 0
Pickthall, W., Leeds	3,133 2 5
Barry, H. H., Radcliffe-on-Trent	3,076 0 3
Wilmott, W. G., Rushden, Northants (accepted)	2,936 18 7

BRAMPTON, HUNTS.—For drainage works at Bell End, Brampton, for the Huntingdon Rural District Council:—
Allen, M. J., and Sons (accepted) £236 0 0

BUDE.—For the erection of a shelter in the Summerblaze, for the urban district council:—

Bedlly, W. A.	£73 0 0
Cann, F. (accepted)	13 10 6

CALCUTTA.—For the supply and delivery of 1,200 casks of Portland cement, for the Bengal Nagpur Railway Co.:—
Johnson, I. C., and Co., Ltd., Rochester (accepted).

CAMBERWELL, S.E.—For diverting the local sewers in Southampton-street and Camden-road North, Camberwell, to enable them to be connected with the southern low-level sewer No. 2, now in course of construction, for the London County Council:—
Griffiths and Co., Ltd. (accepted) £875 0 0
(Contractors for the low-level sewer No. 2.)

CHELMSFORD.—For alterations and additions to the Friars Council School, for the education committee. Mr. W. H. Pertwee, Chelmsford, architect:—

Eglin, J. C., and Co., Broomfield	£1,642 11 0
Mason and Son, Haverhill	1,520 0 0
Smith, J., and Son, Witham	1,497 0 0
Bartwell, F. W., Brentwood	1,489 0 0
Potter, H., and Son	1,417 0 0
Parren, J., and Son, Earith, Hunts	1,405 0 0
Grimwood and Sons, Sudbury	1,395 10 0
Choat and Soo	1,384 0 0
Trudgett, J. W., Colchester	1,370 0 0
Fryd, A. H., Southend	1,367 0 0
Johnson and Hawkes	1,365 9 6
Gibson, G. H., and Son, High Wycombe	1,354 0 0
Bailey, T. J.	1,344 0 0
Rayner, J., East Hanningfield*	1,285 0 0

* Accepted. Rest of Chelmsford.

CLAPHAM, S.W. — For reconstructing the heating apparatus at the St. Andrew's-street school, Clapham, for the London Education Committee:—

Stevens and Sons, Southwark-bridge-road	£1,055 0 0
Cannon, W. G., and Sons, Ltd., London-road, Southwark	1,000 0 0
Grundy, J., Ltd., City-road	987 0 0
Yettoo, J., and Co., Ltd., Carr-street, Limehouse	959 0 0
Tilley Bros., Kingsland-road	937 4 6
Canoon and Hefford, Stanbury-road, Peckham	826 0 0
Brightside Foundry & Engineering Co., Ltd., Victoria-street	825 0 0
Cash, H. J., and Co., Ltd., Caxton House, Westminster*	798 0 0

* Recommended for acceptance.
Architect's estimate, £820.

EAST ISLINGTON, N.—For strengthening the floors of the upper halls at the "Forster" school, Isliogton, for the London Education Committee:—

Lawrance, E., and Sons, Ltd., Wharf-road, City-road	£489 0 0
Williams, G. S. S., and Son, Richmond-street, Barnsbury	474 0 0
Leng, T. D., Evelyn-street, Deptford	474 0 0
Roberts, L. H. and R., Rheidol-terrace, Islington	471 0 0
Mclaughlin and Harvey, Ltd., Brecknock-road	465 14 4
Johnson, W., and Co., Ltd., Wandsworth-common	426 0 0
Roberts, C. P., and Co., St. Paul's-road, Highbury	407 0 0
Bowyer, J. and C., Ltd., Upper Norwood (accepted)	387 0 0

HETHERSETT.—For the erection of eight cottages at Hethersett, for the Heostead Rural District Council:—
Taylor, J., Cringleford, Norwich £1,289 0 0
(Accepted. Lowest of eleven tenders received, highest, £1,808.)

INGLEBY GREENHOW.—For forming a footpath with (A) concrete flags, and (B) scoria bricks at Ingleby Greenhow, for the Stokesley Rural District Council:—

	A	B
Pearson, W.	£39 11 6	£42 14 6
Smith, G.	32 11 10	32 11 10
Ingledew, G. (accepted for both)	30 6 7	33 1 0

KELVEDON.—For the erection of an institute at Kelvedon. Mr. J. W. Start, F.S.I., Colchester, architect:—

Lewis and Sons, Witham	£1,883 0 0
Wells and Co., Southend	1,284 0 0
Saunders, E., Dovercourt	1,215 0 0
Theobald, W. C.	1,195 0 0
Smith, J., and Son, Witham	1,193 0 0
Johnson and Hawkes, Chelmsford	1,189 0 0
Fryd, A. H., Southend	1,177 0 0
Deaves, C., Bures	1,176 0 0
Beaumont, R., Lexden	1,169 0 0
Chambers, W., Colchester	1,137 0 0
Trudgett, J. W., Colchester	1,050 0 0
Spalding, Sons and Co., Norwich*	1,050 0 0

* Accepted.

KENNINGTON, S.E.—For the supply of fittings at the fire station in Kennington, for the London County Council:—

Bryden, J., & Sons, 90, Gloucester-road, S.W.	£349 0 0
Tilley Bros., Kingsland-rd., N.E.	276 10 0
Leonard, W., & Co., 4, Soho-st., W.*	205 0 0

(Chief engineer's estimate, £260.)
* Recommended for acceptance.

LEEDS.—For the erection of a hostel for women, in connection with the Leeds Training College, for the city council:—
Atkinson, H., and Sons, Ltd. ... £11,184 0 0
(Accepted.)

LEIGH-ON-SEA.—For the erection of a dwelling-house, Leigh-road East, Leigh-on-Sea, Essex, for Mr. Thomas Deane. Mr. A. Green, Leigh-on-Sea, architect:—

Gimbrett, W., Westcliff-on-Sea	£630 0 0
Green, F. T., Leigh-on-Sea	610 0 0
Davey, F. & E., Southend-on-Sea	593 0 0
Johnson, H. E., Leigh-on-Sea*	555 8 0

* Accepted.

LEEK.—For concrete work at generating station, for the urban district council. Mr. W. E. Beacham, Town Hall, Leek, engineer. Quantities by engineer:—

Heath, J., and Son, Leek	£294 19 9
Mitchell, F., and Son, Manchester	278 16 0
Grace, T., Leek (accepted)	262 5 0
Sanders and Torrance, Stoke-on-Trent	237 7 10
Salt, S., Leek	234 0 0

Engineer's estimate, £280.

LONDON.—For the supply of 3in. by 9in. by 4in. jarrah wood paving blocks, delivered free, either by van or barge, during a period of approximately 12 months ending 30th June, 1912, as follows:—(A) 10,000 to Metropolis Wharf, (B) 35,000 to Deptford Wharf, (C) 10,000 to Battersea Wharf, (D) 75,000 to Belvedere Wharf, for the London County Council:—

For delivery by van:—

Millar's Karri and Jarrah Co. (1902), Ltd., Palmer's Hall, E.C.—

A.	B.	C.	D.
£10 2 6	£9 16 0	£9 16 6	£9 16 0

Improved Wood Pavement Co., Ltd., Queen Victoria-street, E.C.—

10 0 0	9 13 0	10 0 0	9 17 9

Griffiths, W., and Co., Ltd., Hamilton House, E.C.*—

9 18 6	9 17 6	10 0 0	10 0 0

Acme Flooring and Paving Co. (1904), Ltd., Victoria Park, N.E.—

10 1 0	10 1 0	10 1 0	10 1 0

Lee, J. B., and Sons, Ltd., Gracechurch-street, E.C.—

10 1 0	9 19 6	10 2 6	10 2 6

For delivery by barge:—

Lee, J. B., and Sons, Ltd.—

£10 4 0	£9 18 0	£9 18 0	£9 18 0

Acme Flooring and Paving Co. (1904), Ltd.—

10 1 0	10 1 0	10 1 0	10 1 0

Griffiths, W., and Co., Ltd.—

9 19 0	9 14 0	9 15 0	9 15 0

Improved Wood Pavement Co., Ltd.—

—	9 12 0	—	9 14 9

Millar's Karri and Jarrah Co. (1902), Ltd.*—

—	9 12 0	9 13 6	9 12 0

* Recommended for acceptance.

[Price 1,000 for delivery to A.—Metropolis Wharf. B.—Deptford Wharf. C.—Battersea Wharf. D.—Belvedere Wharf.]

LONDON.—For the supply of (i.) horizontal hack-sawing machines, and (ii.) pneumatic lifting jacks, for the third section of the central car-repair depot:—

Horizontal hack sawing machines:—

Holroyd, J., and Co., Ltd., Rochdale	£322 10 0
Barton, Griffiths, and Co., Ltd., Ludgate-square, E.C.	127 10 0
The Judson-Jackson Co., Westminster, S.W.	123 18 0
Herbert, E. G., and Co., Ltd., Manchester	123 0 0
Buck and Hickman, Ltd., Whitechapel-road, E.*	102 6 0

Pneumatic lifting jacks:—

Heywood, S. H., and Co., Ltd., Reddish	£178 0 0
Reavell and Co., Ltd., Ipswich	143 0 0
Rowlands, F. W., and Co., Birkenhead	120 0 0
The East Ferry-road Engineering Co., Ltd., Millwall, E.*	79 0 0

* Recommended for acceptance.

Estimates of the chief officer of tramways, £120 for the sawing machines, and £180 for the lifting jacks.

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THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House, Strand, W.C.

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New Buildings, Queens' College, Cambridge. Mr. Cecil G. Hare, Architect.

House at Harefield. Mr. Ernest Newton, A.R.A., Architect.

St. Tarcisius' Church, Camberley. Messrs. H. R. and B. A. Poulter, Architects.

Band Stand for the Carnegie Dunfermline Trust. Messrs. Thos. H. Mawson, Hon. Associate R.I.B.A., and C. E. Mallows, F.R.I.B.A., Architects.—Glyn Cory Model Village, near Cardiff. Mr. Thomas H. Mawson, Hon. Associate R.I.B.A., Garden Architect. (From "Civic Art," by Mr. Mawson.)

The Effect of Fire on Large Timbers.

ART IN YOUTH AND AGE.

At what age does an architect produce his best work? Is it when he is young and half-trained, or when he is older and more experienced, or when his years are so many that "The soul's dark cottage, battered and decayed, Lets in new light through rents that time has made"? Such an inquiry might be invidious if the object of it were still on earth, to be injured or advanced by it, as the case might be. And one of the first things that suggests itself in this connection is that the best of Wren's towers was one of his earliest. The campanile of St. Mary-le-Bow was begun in 1671, when the author was thirty-nine years of age, and was not finished till 1677, when he was forty-five. Consequently, it was an early experiment, built before most of the steeples or "lanterns," and perhaps invented even before the Great Fire of London cleared the ground for it in the autumn of 1666. A "crowned" tower of the type of St. Nicholas, Newcastle, seems to have stood there before it; but now that the existing work shows Wren at his best, few people would lament the loss of its predecessor, were it even as much finer than St. Nicholas's tower, as to excel the "crowns" of St. Giles, Edinburgh, and Aberdeen.

Wren's work before he was thirty, had he left nothing later to be remembered by, would have given little promise of the greatness he was at last to obtain. St. Mary-le-Bow, perhaps first showed what an architect he was, and reached a height of excellence to which he seldom quite soared again. St. Lawrence, Jewry, built in 1667, is of interest if it shows us the master feeling his way by experiment to the incomparably finer lantern of Bow Church; but though it may have been useful as a means, it can hardly be thought successful as an end. The towers of St. Michael Bassishaw (1676), of St. Nicholas Cole Abbey (1677), of St. Stephen's, Coleman-street (1676), of St. Benetfink, Threadneedle-street (1673), and of St. Mildred, Poultry (1673), have many of them been pulled down, and little of permanent worth seems to have been lost thereby. There is no market in which a great architect's first attempts acquire after his death a tenfold value, as a great painter's first sketches do, or all these buildings might remain to this day. All these, except St. Lawrence, were designed when their author was between forty and fifty, when, apparently, he was overburdened with tedious mechanical work, and perhaps not seldom scolded for not getting on faster, by ignoble noodles whom the Muse of History has willingly forgotten. England was England, then as now. Our Jerusalem was never backward, any more than the ancient one, in "stoning her prophets and slaying those who were sent to her." Let us hope that it is rather the result of stupidity than of deliberate ill-will. Wren, soon after the Great Fire, was appointed Deputy-Surveyor-General and principal architect for rebuilding the City; and those appointments, apparently, go to the credit of the king who, by his enemies' account, "Never said a foolish thing, Nor ever did a wise one." Now that nearly three centuries have passed, Charles II. may at least take credit for having done a wise one then. He believed in Wren, and, in his way, supported him, giving him only too much to do—most of it obviously uncongenial to a man whose real power lay in artistic matters, and not in judicial ones. Charles, however, when he assisted Wren, did wisely for once in his life. He put the right man in the right place, and the London of to-day is the visible result of it.

Wren had always plenty of ideas in his head, good and bad. Perhaps in some of the less conspicuous of his churches, such as St. George, Botolph-lane (1674), St. Mary, Aldermanbury, St. Mary-at-Hill (1672), St. Olave, Jewry (1673), All Hallows', Bread-street, St. Mildred, Poultry (1677), and St. Michael, Queenhithe, much was left to the master masons, who had not then been absolutely prohibited to design some of their own details, as their successors in the 19th and 20th centuries have been. The proportions are rarely bad (for Wren's eye for proportion seldom failed him), any more than his genius for permanent construction, and a mere man, appointed architect for rebuilding the City of London and the City churches, with the new St. Paul's to think of in his leisure time, may be pardoned if some of his less important work were handed over now and then to subordinates. At any rate, he can have had little time to spare, and if he built a cathedral and a dozen towers that are an everlasting treasure, he did pretty well with his ninety years of life and labour.

St. Bride's (properly St. Bridget's, Fleet-street) was his next great steeple after St. Mary-le-Bow. It was built in 1680—that is, in its designer's forty-eighth year, and its steeple is as clever within as that of Bow Church is beautiful without. Did Wren ever examine the seven towers of Laon Cathedral? In St. Bride's, as you see it from the street, there is little to suggest that he ever did, or was ever at Laon. In the plans and sections of the tower there is everything to suggest it, but little that can be seen from below. St. Bride's is plain mechanical, and unattractive on the outside; it is a wonder of complicated polygons, cornices, and corbellings within, all covered over, like the vital organs of some living thing, and hidden away behind a skin of uninteresting stonework. St. Bride's steeple was at first 242ft. high, whereas Bow steeple, to the top of the dragon, is 221ft. 9in. St. Bride's, however, was struck by lightning soon after it was built; whereupon the sapient builder thought it wise to reduce the height seven or eight feet. Chimney-builders and spire-builders live amongst dangers seen and unseen, and before Franklin's time they seem to have thought that when the powers of Nature once lowered the work of a man's hands, it was a signal to him not to rise so high, or to attempt so much. To-day, the builder would try to square matters by offering a few yards more of lightning-conductor, and all would be well. But those were the times of men's ignorance, when "steeplejacks" had not yet arisen.

After building St. Bride's tower, in which quantities of the most ingenious work are hidden away where no one can see it, it occurred to the same great architect to put some of his cleverness where people would not only see it, but profit by it. Put in the nave, and not in the lantern-tower, the most zealous Protestant could tolerate, if he could not admire, it, for there it allowed him to catch, without obstruction, every syllable of the sacred sermon for the sake of which, and which alone, he fondly believed that all churches were built. So Wren's ingenuity found admirers where his art did not, and at St. Stephen's, Walbrook, he was allowed to put up a clever adaptation of the ancient church of Santa Fosca, Torcello (near Venice). On a drawing of the plan the internal columns seem little in the way, though an inspection of the actual church proves that, as they stand on projecting pedestals, the actual interference with sight is very considerable. The time, however, is long past when matters like this pleased the promoters on the one hand, or alienated Puritans on the other. The architect who happens to have an idea can use it or omit it as he pleases. Few people feel much interest in him now, and whether he puts it in or leaves it out, "nobody," as the celebrated case of the Jackdaw of Rheims, "is likely to feel one penny the worse." St. Stephen's, Walbrook, with its cleverly-constructed dome, in which few people, unless they were architects, would be likely to see any cleverness at all, must have taken up a fair share of Wren's 39

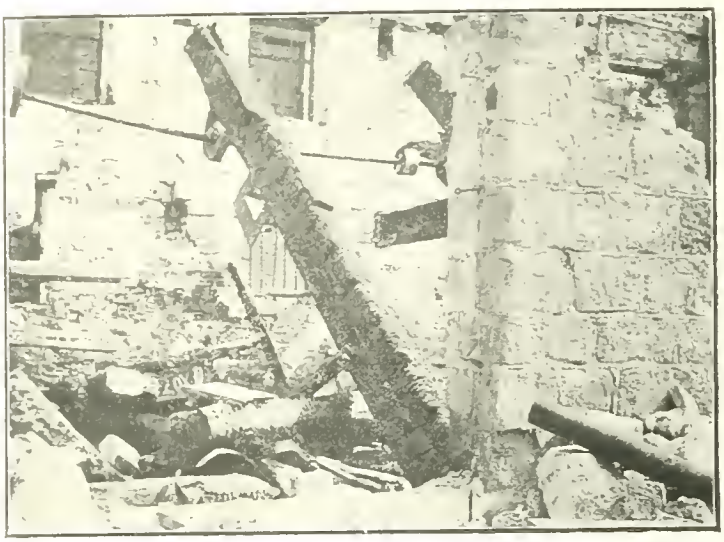


FIG. 1.—Timber Girder (Red Deal) 20in. by 15in. 30ft. long, which passed through extreme heat of fire.

large number of woollen and worsted mills, the writer took some observations and photographs which, from a timber standpoint as a constructive medium, are of interest and which illustrate to what extent large timbers resist fires.

Now a remarkable thing in all these factory fires is that the walls are usually left intact, and many remains may be noticed in the twin manufacturing counties of the Roses, this, of course, being the various processes of manufacture, these being heavily lubricated. The "mill grease" on the floor, and the amount of oil contained in the wool and machines, all assisted in creating a tremendous amount of flame and fire.

No. 1 photo. shows a timber girder 20in. by 15in., 30ft. in length, notched out for joists, as seen in the illustration. On examination, the notches were found to be only charred to a depth of $\frac{1}{4}$in., while the

FIG. 2.—Two Girders (Red Deal) which passed through the intensity of the heat.

left in position, and, as a matter of fact boards 10in. by 1in. in nine cuts were used out of same. In this particular case the factory had in it stored a large number of bales of wool, filled as they are with oil and fatty matter before being cleaned; also a large number of machines used in

[illegible] expansion of timber, however the fire has been, whereas if iron had been used, either cast or wrought, the expansion or the cracking of the cast iron would have pushed out wards the walls and as a general rule, the whole building collapses.

Some years ago at a certain factory fire, [illegible] pitch pine girders 40ft. long, 18in. by 15in. whilst all the floors to such a remarkable extent that the timbers were only [illegible] depth of 1in. all the way round, [illegible] everything else was, as [illegible] beam itself was burned to a depth of 2in. It is of interest to notice that no twist occurs in the timbers, as would have been the case if either cast or wrought iron had been the material, and also that in no case of some 20 girders was to be found one cracked in twain.

No. 2 photo. shows the butt-ends of two girders sawn after the fire, and also which were in the greatest intensity of the flames, but so slight was the effect of heat on them, that practically battens 15in. by 6in. and 16in. by 8in. could be sawn longitudinally out of them some 20ft. or 30

length. In most of the cases the ends of these timber girders suffered comparatively very little from the fire at all, the ends, it is to be noted, being safeguarded by being received in pockets in the sandstone-built walls, and which were pointed up on the outside of the pockets,

Fig. 3.—Wrought-iron Girder: the twisting effect on same, due to fire.

so that the flames had very little chance of getting to the ends of the girders—that is to say, practically in building no air-space was left at the end of the girders, as is done in modern construction.

No. 3 photo. illustrates the effect on an iron girder, which it will be noticed is very much twisted in its length, and the same effect occurred on the machinery and mild steel shafting, the contrasts between the lines of straightness of the two materials,

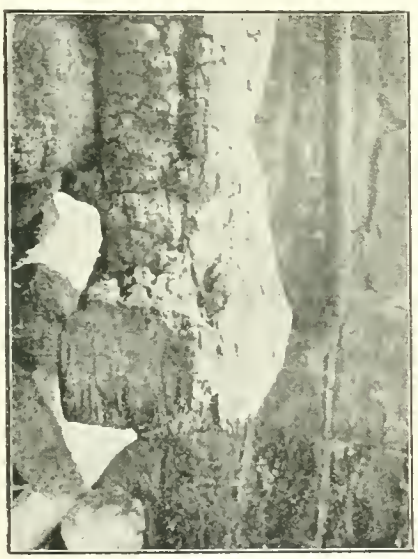


Fig. 4.—End of Timber Girder (Red Deal), showing the effect of the fire on the bearing length.

wood and steel, being very remarkable. One piece of 6in. circular steel shafting, on which were fixed a number of pulleys, adopted a snake-like appearance, while in some places it was 10ft. out of the straight, although it is also to be noted that where pulleys were attached to the shafting they seemed to have the tendency of staying the twisting effect; for what reason it is difficult to estimate or reason on.

No. 4 shows the end of the girders that gotted into the wall-pockets with about the to 14in. bearing, and how the gotteints of the flames of the fire were foiled in their action on the ends, and which left them (except charred) with practically full-sized ends, equal to the length to which they were received in the pockets. Where the girders rested on the stone seats, or what is called by Northern builders stone templates, 12in. by 9in., the

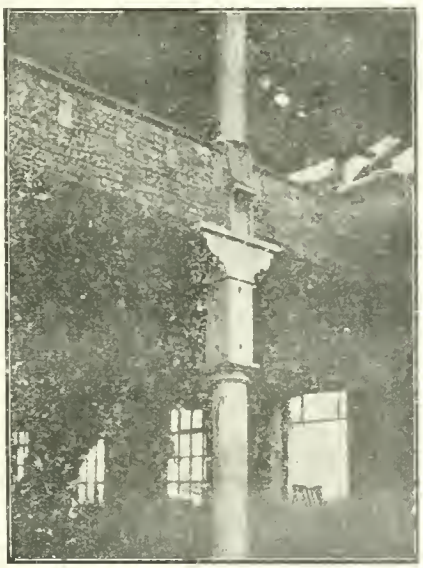


Fig. 5.—Effect of Fire on a Double F[illegible] supported by Iron Pillars, by which the ends of girders are supported.

fire had no effect—that is, on the underside.

No. 5 shows the effect of the fire on the underside of a floor, the ends of the girders in the centre of the building being received by pockets in the cast-iron pillars, and although the action of the fire was intense at this particular part, the ultimate effect on the beams themselves was small in com-

Fig. 6.—The effect on a King-Post Roof-Truss. It should be noticed that the bearers for the shafting are carried by same.

parison to the great heat; the ends being so cased in the iron pillars that the flames got no assistance from the air, and the effect was a charring on the outside of the beams, as before remarked.

No. 6 photo. shows part of the roof, with a king-post roof-truss. It will be noticed in this, most particularly on the right-hand side, that where small scantlings were exposed to the flames, the destruction was very perceptible; but that the heavier timbers of the truss, such as the tie-beam, king-post, and principal rafters, remain, the left side in the photograph being carried away with the weight of the fall of the sandston-slated roof itself, supported by the lighter rafters.

In all these factory fires, especially in the cases of old mills which were built during a period of a great expansion in the textile trade—e.g., woollen and cotton—in the counties of Lancashire and Yorkshire, and also constructed e.g., floors and roofs—principally of timber, it is very remarkable to what extent the timbers—mostly soft woods—resist the flames of fire.

THE ARCHITECT AND THE ENGINEER.*

By Luzerne S. Cowles, Assistant Designing Engineer, Boston, Mass., Elevated Railway Company.

While engineering and architecture were not in the beginning dissociated, it must be admitted that the tendency in the United States to keep them widely separated has until recently been decidedly marked. That this tendency has proven a detriment to the proper æsthetic development of our communities cannot be denied. In many European countries the harmonious and artistic development of civic centres during modern times is a matter of history. Such development has proven a boon to the cities or communities so favoured. Evidences of this are seen on every side, and the efforts in this direction have been generally successful. In ancient times the architect acted as his own engineer, inasmuch as the exact science of figuring stresses and strains was unknown. Judgment and precedent were governing features in the design of structures, which were usually built of wood or masonry. There was little haste in completing a project once commenced, and artistic treatment requiring much time and labour was rendered possible. The ultimate aim of securing the best results was frequently attained, since time and labour were less important factors than they are to-day. A century ago, engineers were either military or civil, the civil engineer being chiefly occupied with surveying. The architect seldom required the services of an engineer except in the capacity of surveyor. Sizes of members for building construction were usually determined by "rule of thumb," such determination being strictly an architectural or builder's problem. As time went on, the art of bridge building with materials other than stone was gradually developed. The somewhat primeval state of this country was such that the demand for anything more than utilitarian was seldom expressed. To keep pace with the rapid growth of the railroads and other projects, the expense incurred by the erection of even the cheapest classes of structures consistent with good design was necessarily very great. The public demanded, as a rule, service, caring little for the appearance of bridges and buildings. The adoption of the cheaper methods of construction no doubt accelerated the growth and development of the country at large. Although the Government was financially able to erect elaborate structures, public service corporations, and the like, constantly confronted with heavy charges for construction and equipment, were compelled to limit the cost of their structures frequently at the expense of appearance. Municipalities have proven many times to be grave offenders in this respect. To satisfy urgent demands, the erection of hideous structures has been permitted, with slight hesitancy. This radical spirit recently asserted itself in the otherwise conservative city of Rome. A steel bridge was erected over the Tiber in the midst of an atmosphere utterly antagonistic to this type of structure. The excuse for such a blot on the landscape was no doubt that an iron structure could be built cheaply and quickly, and would be at best but temporary. The word "temporary" in connection with a structure may mean three

* Paper presented before the Congress of Technology at the Fiftieth Anniversary of the Granting of the Charter of the Massachusetts Institute of Technology.

provided the local building laws are in a measure complied with. Little regard for the feelings of one's neighbours is frequently [illegible]. Public service corporations are beginning to realise the importance of erecting only first class structures, perfect not only from an engineering but an architectural standpoint. The Pennsylvania Railroad station in New York and the Forest Hills Terminal of the Elevated Railway in Boston are typical examples of the combined efforts of the engineer and architect. The same co-operation is desirable in the construction of bridges. The original bridge was the fallen tree of the aboriginal, surely more agreeable to look upon than some modern efforts. One frequently considers the engineer as the sole person to consult in the construction of a bridge. Exceptionally pleasing results have, however, been obtained in the construction of the nine span masonry arch bridge crossing the Connecticut River at Hartford, and the eleven span steel arch bridge over the Charles River between Boston and Cambridge. This was rendered possible by the close union of engineer and architect. This close association has many advantages other than the gain in æsthetics. The architect, after such association, plans his work so as to make the arrangement of his supporting structure perhaps more orderly than might otherwise obtain. The engineer endeavours to plan his work so that the architect may have ample freedom to exercise his art. Their combined efforts rebound to the advantage of their employer, whether municipality, corporation, or individual, the result being the best possible under the particular conditions involved. It is only by the close union so frequently noted to-day that results most favourable to the public at large may be obtained. Many architects' offices now employ a so-called structural architect who might properly be called an architectural engineer, while any large engineering office surely requires the services of at least one man well versed in the general principles of architecture. The training of architects in close proximity to engineers should be encouraged. The architect's work embraces the design of large buildings whose design is dependent on engineering theory and experience. This proximity need in no way influence the architect's artistic tendencies, but by promoting the scientific method of thought, will train his mind to better work out his own particular problems. The alliance of engineer and architect insures better structures, with, possibly, a more orderly arrangement, and frequently a saving in material and labour. This result is a distinct advantage to the community, as it means economical construction, together with an æsthetic treatment of what might otherwise be unsightly or commonplace.

CIVIC ART PARKS AND BOULEVARDS *

[WITH ILLUSTRATIONS.]

Incidental to the improved lay out of cities and their environments, and even to more modest suburban developments, it is obvious that recreation grounds, parks, and gardens must be dealt with, and no undertaking of the kind is likely to turn out a success unless the competent gardener is consulted and ample provision is made for cultivated open spaces and playing fields. Urban district communities must recognise this, and must comprehend it, while their consideration will be helped by such subjects as those which Mr. Thomas H. Mawson has gathered together under the term of "Civic Art." The competition of one neighbourhood with another alone renders such developments inevitable. But all the forethought of promoters will prove barren should the inertia of residents prevail, and especially in so-called "garden cities," all the time folks take no public interest in their surroundings, or, perhaps, have neither the time nor the energy to cultivate the plots of land attached to their homes.

Mr. Mawson has certainly added to the literature of public parks and gardens by the issue of his pleasing and popular treatise, now produced by Mr. B. T. Batsford under the title of "Civic Art." He shows many schemes of distinction with which he has been personally associated, and in the appendices of his book he gives a list of trees and shrubs for town planting adapted to streets, parks, and urban shrubberies of varied positions and soils.

The plates, many of which are excellent, comprise for the most part various architectural designs, as well as bridges, sculptures, and fountains, a few being in colour; also a number of plans for pleasure-grounds, and the lay-outs of properties and for town improvements, as well as an assembly of pictorial photographs of royal and civic centres, historic and modern churches and towns, cathedral closes or their surroundings, and Continental gardens and "Places."

Among the latest projects upon which the author has been engaged are the improvements of Bolton, in which Mr. Mawson was helped by Mr. Frank Atkinson, A.R.I.B.A. There is also the fine scheme at Southport, termed "The Montpelier of the North," and here Mr. C. E. Mallows, F.R.I.B.A., made the drawings and helped with the architecture. Pittencrieff Park and Glen, at Dunfermline, for the Carnegie Trust, is not only a big undertaking, but must have been a very difficult problem to master successfully. It is not quite easy to understand how many or how much of the designs illustrated so beautifully from Mr. Atkinson's drawings have been realised; but there can be no doubt as to the ability displayed throughout. Mr. Mawson's competition design for the surroundings of the Peace Palace at the Hague for Mr. Carnegie exemplifies his ability, and he is now associated with its completion. He speaks of M. Cordonnier's design for the Palace as "a most forceful and commanding presentment, unified and co-ordinate as a conception, and free from all attempts at self-conscious cleverness." Anyhow, as the landscapist, he "accepted the building as an accomplished fact, and endeavoured to adjust it becomingly to the position it is to occupy." This is reassuring, and as it should be.

Lever Park, Bolton, a beautiful and romantic spot of four hundred acres in extent, is grandly depicted by Sir Alfred East, R.A. Here Mr. Mawson shows a sketch of tower and garden-house for Rounton Cottage, and for a bridge, with other varifications in bricks and mortar or stone in good taste. We give a view of the model village, Glyn Cory, seven miles from Cardiff, as designed for the late John Cory, of Duffryn, and drawn by Mr. Robert Atkinson, and to show the diversity of the subjects illustrated, we also reproduce the illustration of the bandstand in the centre of the colonnade opposite Park buildings, designed by Messrs. Mawson and Mallows for the Carnegie Dunfermline Trust. It will thus be seen how artistic and practical the volume really is.

THE CHAPEL ROYAL OF HOLYROOD.

Under the direction of Mr. W. T. Oldrieve, F.R.I.B.A., of Parliament-square, Edinburgh, chief architect to the Board of Works in Scotland, the foundations of the transepts and choir of the Chapel Royal have been exposed, in the hope of throwing further light on the history of the building. The roofless nave of the chapel has also been carefully treated to prevent further decay. In uncovering the foundations in the Palace gardens, some interesting discoveries have been made. The style and extent of the choir and transepts can now be verified; the base of a central shaft which supported the Chapter-house vault has been uncovered, and, most interesting find perhaps of all, are the foundations within the choir of the Chapel Royal, of what undoubtedly had been an early Christian place of worship, with a cemetery on its south side. In this cemetery about forty ancient graves, with human remains, were found, some in a marvellous state of preservation. They have not been disturbed, but at a later date one [illegible]

* Civic Art Studies in Town Planning. Parks, Boulevards, and Open Spaces. By Thomas H. Mawson, Hon. A.R.I.B.A. Crown folio, gilt, 42s. net. London: B. T. Batsford. 1911.

of the graves may be reopened, so as to have expert opinion upon them.

The ancient Chapel Royal of Holyrood was founded by David the First in the early half of the 12th century. Its foundation charter is still extant, and the successive enlargements of the chapel and its spoliations have been the subject of careful investigation by able historians. One of the early drawings of the church shows it to have consisted of a nave and aisles, which now exist in a roofless condition, transepts, and choir. It had two towers at the western end rising on either side of the doorway, the southern one of which was removed when King Charles the Second rebuilt the Palace. About the middle of the 16th century the Chapel Royal was several times burned by English armies, and to this was due the curtailment of the Royal Chapel to its present diminished size, and the abandonment of the choir and transepts.

The recent excavations, as indicated, had for their object the tracing of the foundations of the ancient choir and transepts, and these have been in all respects successful. By the removal of the surface earth, and at no great depth, the outer walls, buttresses, and pillars of choir and transepts have been revealed. It was found that the builders had not troubled themselves carrying down the foundations to any great depth below the surface—only a foot or two at the most. The north transept was about 26ft. in width and 40ft. in length from north to south. It was in two bays, and had on its eastern side a chapel about 38ft. by 14ft.

The choir proper was not quite so long as the nave. Taking the measurement from the centre of the eastern pillar of the tower at the intersection of nave, transepts, and choir, the choir as revealed by the excavations was 110ft. in length, the nave being about 128ft. Its eastern wall just abuts on the eastern boundary wall of the garden, all the ruins being thus contained within a ring fence of the grounds. It seems probable that there had been an ambulatory at the eastern end of the choir carried round the back of the high altar, as at Glasgow Cathedral. Underneath, slightly to the north of where the high altar stood, was exposed a solidly-built vault with a step or two leading down into it. It measures 7ft. by 5ft.

The interesting discovery was made that apparently the Chapel Royal had had no southern transept. Search was made for the foundations of the walls of such a part of the church, but none could be found. Indication of a second line of pillars was, however, disclosed on the southern side of the choir, from which it would appear that the choir on this side had two aisles. In connection with the permanent exposure of the foundations, a reasonable compromise has been effected between archæology and amenity. A part of the face and a good edging of all the walls, buttresses, and pillars have been left exposed and pointed with cement, and the space on the top turfed.

In excavating to the south of the choir workmen came upon the base of a pillar, octagonal in form, which was doubtless the central pillar carrying the groining of the Chapter-house. It has a moulded base, and is 5ft. 6in. in diameter. The Chapter-house was octagonal in form, but irregular, measuring from east to west 36ft., and from north to south 43ft. Three of what now prove to be buttresses of the Chapter-house have long been visible above the ordinary garden ground level to the extent of 2ft. or thereabouts, crowned with soil and some rock plants.

What has been of peculiar interest to the excavators has been the discovery that David the First's Abbey of Holyrood was built on the site of an early Christian church, the foundations of which have now been exposed to the light of day after many years. The foundations of the walls of this earlier church are quite different from those of the mediæval building. The latter are of rough-hewn stones; the former are chiefly of round boulders, such as might have been gathered on the hillside of varying sizes, and held together by strong lime. The ancient church [illegible] brought to light is all included within the choir of the Chapel Royal. It is of the Early Christian rectangular cell type. [illegible] gotten.

about 40ft. in length by 20ft. in width, and its outer north wall is almost exactly in the centre of the mediæval choir. It is perfectly oriented. The walls are of considerable thickness, varying from 10ft. to 7ft. across, and in their case also the face and an outer top edge have been left exposed. The rest of the surface has been turfed.

Immediately to the south of this ancient church the cemetery, usually attached to such early Christian ecclesiastical edifices, was found, and in it a large collection of human remains. In those early days no coffins were used. A shallow grave was dug, the body was placed in mother earth, and a few slabs laid on the top. The graves were found from 18in. to 2ft. only below the surface level of the ground, and the wonder is that neither the mediæval builder nor the modern gardener did not disturb these graves long ago. They had not all escaped in the founding of the choir columns. About 40 in all have been discovered, and the position of each grave has been marked by cutting a small cross in the grass and filling with gravel. Later on experts will be asked to examine this early Christian cemetery in more detail, in order to determine, if possible, the date of the chapel and the remains of those lying around it. In their excavations the workmen found one stone coffin or cist. It had no lid, and there were no remains in it. In 1857, when building the present boundary wall to a line further east than that existing, the workmen found the two stone coffins now exhibited in the nave aisle.

The path along the east end of the ruined nave of the Chapel Royal, being now above the level of the choir excavations, has been protected on each side by a low rustic fence of oak.

THE STREET OF TO-DAY AND TO-MORROW.*

By GUY WILFRID HAYLER, M.Inst.Mun.E., M.R.San.I.

THE STREET OF YESTERDAY.

In considering the street of to-day and to-morrow, it might not be amiss to first consider the street of yesterday. Roads there have always been since prehistoric times; for man, as a nomadic animal, always desired to reach from one point to another as readily as possible. First, the beating of a track through the primæval forest or over the moor was possibly the first suggestion of what is now the modern street. Continuous traffic, the carrying of heavy loads, etc., incited the idea of a permanent highway, first composed of rough logs or stone, and then developing into a thought-out formation. The old civilisations of India, Egypt, Greece, and Italy had their fine main roads over vast stretches of country, and the Romans have left a legacy behind them as the greatest of road-makers of the ancient world. To carry their roads the most direct route, they not only overcame great engineering difficulties by piercing mountains and throwing bold arches over rivers, but on a scientific basis they laid the foundation of the art of roadmaking. Roads came before cities, and not until the few congregated houses had developed into the city, by long stages and through many eras, did the street as we know it arise. In the cities of ancient and Mediæval times the street plan was rarely treated with artistic regard, large outlook, or firm grasp—except, perhaps, in the instance of Piræus, which, as the seaport of Athens, was laid out by Athenian engineers. Blind, tortuous, and narrow streets were the rule in them, relieved now and then by splendid temple or palace and noble squares. It has remained for modern times, with great traffic and building considerations to grapple with, to insist on street reforms. A sense of the civic responsibility has been aroused by the unseemly conditions prevailing, and out of this the passing of the Town Planning Act of 1909 in our own country may be considered as the forerunner of further legislation to secure to the municipality and the State the right of control in matters which have previously either been left to chance, or else allowed to fall into the hands of those whose sole interest is land and property exploitation. The streets of our already built towns and cities exist, and any quarrel with their widths, beginnings, terminations, or general lay-out can at present only be remedied by expensive and cumbersome methods. In the suburbs and parts yet unbuilt, it is to be hoped that the scientific principles of modern town planning will prevail. In both cases, the street must be viewed, first, from the point of traffic considerations; secondly, building considerations; and thirdly, æsthetic considerations.

TRAFFIC CONSIDERATIONS.

Paving.—The first consideration—viz., traffic—precipitates us into questions of paving as primary factors. Good and suitable paving is essential to the ideal street. The standard type of old, the cobblestone, has, happily, passed away—or, at any rate, where it does exist, it may be generally taken that its retention is mainly affected. From that we have passed on to many developments in road-making, varying widely according to districts, traffic, etc. Economic and hygienic considerations come most into play, and, however largely traffic may develop in the future—possibly entirely of the nature of motors and self-propelled vehicles—these must remain as essentials. A committee of the borough councils of London, reporting this last March, showed that the streets of London are paved with thirteen different kinds of material. Most of these are laid on a foundation of concrete, and include: (1) Jarrah and karri wood from Australia; (2) deal and fir from Norway; (3) beech, larch, and red gum from California; (4) rock asphalte from Eastern France and Northern Italy; (5) basalt lava from Germany; (6) tarred slag-macadam from British ironworks; (7) lithophalt blocks and flints, etc. London has over 2,000 miles of streets, and all manner of varieties of stone, wood, asphalte, etc., even indiarubber, have been, and are, used. We have travelled very far since the days of the old macadam paving, and the only portions of that now left in the city are a small portion of the Victoria Embankment and the Guildhall yard. It has been stated that London streets have cost over £3,000,000 to make them as they are to-day, and every year over £400,000 is spent in keeping them in repair. There is, therefore, some degree of truth in the legend that the streets of London are "paved with gold." The general consensus of opinion is that the motor traffic is injurious to macadamised roads, but that it does not materially affect the surface of asphalted streets; and this leads one to the opinion that asphalte is the road material of the future. It is general in the great capitals of the Continent, and in America, since first being laid in Washington, in 1878, it has never looked back in the States. It is not to be asserted that asphalte is always preferable. Not only may a better pavement be yet discovered, but there are places where wood, granite, brick, or macadam may be chosen over asphalte without a moment's hesitation. The point is that good paving is a *sine qui non* of the ideal street, and it is foolish to talk of good planning, vistas, street adornments, etc., if the street itself is badly or poorly paved.

Repairs and Cleansing.—Next to the paving surface, the great essential of the good street is its repair and cleanliness. All the considerations of traffic hinge upon these three fundamentals. The incessant dislocation of traffic in our English streets consequent upon the constant sewering, gas, water, electric light, etc., operations, as well as the repair necessary from use, is one of the great problems which beset the municipal engineer. Beyond the contemporary carrying out, as far as possible, of this work, little can be done except by the construction of special subways for all pipes and cables in main thoroughfares, which is now done in very many instances. The immense benefits of a regular subway system in our cities are evident when one thinks

* A paper read before the Institution of Municipal Engineers, London, May 31, 1911.

...that should lead one to regard ... as having an aesthetic ... property whatsoever.

...HOUSE CONSIDERATIONS

... next considerations—... perhaps, wider in scope ... and has all the vexed ques... by-laws, and building ... impressing it. First of all ... uniformity of design in ... of our streets. However ... be entranced by the glorious ... picturesque old English towns, ... to imagine that they can be ... taken as a model for present-day civic con... We are now laying out new cities ... Americans are leading in our building ... must make the transition from the ... new we've as happily as we can ... spirit of any style of architecture is ... its dominating feature, and gives the ... of its cities by the houses they ... the buildings they erect for ... or their pleasure. In our ... we see the vast commercial ... sometimes reflected in its buildings ... manufactories on the one hand, and ... on the mean streets on the other. The ... of many great problems lies with ... The municipality can give the impetus ... erection of noble civic buildings, and ... history, as in Florence when the ... the Palace of the Signoria, and the ... Churches of Santa Croce and Santa ... Novella sprung into being almost in ... same years, and that proud and ambitious ... awakened its citizens to new life and ... aspirations. The tendency of the time ... towards garden suburbs is decidedly good; ... but the progress towards making the business ... quarters of the city mere "canyons" of high ... buildings is not very inviting. The tall ... building may be the symbol of commercial ... daring, as one writer put it; but considera... tions of air, light, fire, etc., give them more ... than an individual importance. In America, ... there being no restrictions to ancient lights, ... skyscrapers have attained extraordinary ... dimensions; but it is interesting to know that ... even there the governing authorities have set ... limits of upward expansion varying in ... different parts of the city, according to the ... widths of the streets and the nature of the ... district. This has already been done in ... Washington, Boston, and recently in ... Chicago. It seems absolutely illogical to ... allow great business houses, factories, work... shops, etc., to crowd together on narrow ... streets, because, not being dwelling places, ... they are not required to have the air-space ... the by-laws stipulate in these cases. While ... continuity in the frontage line of the ... thoroughfare should be allowed, there should ... be provision made for air space in the front ... and rear of such premises in proportion to the ... height. Professor Beresford Pite, speaking ... of street architecture, summed up the situ... ation very pointedly by saying: "A whole... hearted acceptance of the doctrine of a frank ... modernism in design and construction in ... business premises by architects is sufficient ... requirement to make of them for the estab... lishment and growth in our midst of healthy ... street architecture, expressing the movement ... of the age in its requirements, and reflecting ... the intellectual attitude of trained and ... artistic minds applied to a commercial ... problem in building. The pitiless and ... stupid antipathy that is supposed to exist ... between commercial requirements and artistic ... character should thus, at all events, in archi... tecture cease to be professed, and having ... performed the attitude of art to business life, ... we can the more sincerely and successfully ... hope and attempt the resuscitation—for it ... once existed in pure and noble beauty—of ... living art in the commercial world."

Fronting Lines.—Coming more into detail ... with the building considerations of the street, ... one of the most important points is the ... question of frontage lines, which in so many ... of our streets have been permitted to ... entirely spoil the aspect. There is much ... be said for the rigid restrictions which ... enforced in this regard on the Continent. ... There may be individual hardship in ... cases, but it has insured the creation ... maintenance of great and noble the...

fares. As we have passed the stage when four plain walls and a roof passed for a building, let us hope we are on the way to an era when the erection or alteration of a building will be impossible without strict harmony with its neighbours and its general surroundings. A particularly objectionable proceeding which is frequently observed is the setting back of buildings in the centre of a block and the bringing forward of the two end buildings. Even if gardens are provided, the street line is spoiled, and is later on still further "uglified" by shops brought forward to the boundary line. Granting the very great importance of light and air in our streets, it should be possible to insist on greater regard being paid to the frontage line of the street without sacrificing these.

Building Legislation.—Very many of the problems of street building have been created by by-laws of an insufficient character, and allowing buildings to be judged too much on their merits. There are, of course, local conditions existing everywhere, but they can be too local, and they have led to much abuse and general detriment of the locality in many cases. At the same time, by-laws should be so compiled that the unfairness of enforcing restrictions which might properly apply for crowded property would be avoided in the case of estates laid out on modern lines, with houses erected at four to twelve in the acre. The monotony of the streets of our great industrial towns has been, to a great extent, due to the by-laws being interpreted in this way in the past. It is the crowded property which produces the slum, and if relaxed by-laws are allowed in garden suburbs, a rigid insistence on the maintenance of open space should be upheld, as it is so soon found that all sorts of erections make their appearance on this class of property. A great deal has been said for a consolidating Public Health Act, and it would undoubtedly be a great gain to have building by-laws, regulations, and Acts put upon a similar footing, and revised periodically, especially in view of the rapid progress made by the modern methods of construction since they have come into vogue. This would at once set up a civic standard of building, and make the street of to-morrow a much better place than the street of to-day. For building legislation is different from much other legislation, inasmuch as it can prevent violation as well as punish the offender.

ÆSTHETIC CONSIDERATIONS.

Art in the Street.—The last consideration of the street from an æsthetic standpoint is one which deserves more attention than it usually obtains. We are proud to consider ourselves a practical people, and, unfortunately, ideas of beauty are not bound up with this. Anglo-Saxons are too prone to consider art as a luxury; but it can be shown that "to clothe in an artistic form that which civilisation has made useful in the public life" is, in the end, financially profitable. But, apart from that, as the ideal street requires to be well planned and well constructed, it is the last human touch, that of harmony and beauty, which will give it character—as essential in the material make-up as in the individual. The example of the beautiful Continental cities is continually alluded to, and while their main principles may be possible of adaptation, it must not be overlooked that we can only evolve on our own lines. Other countries, with other customs, mean other ideas. The Latin peoples view the street as their larger home. Climate makes this possible with them; but for only a small fraction of the year would it be possible with us. A writer has said of the Parisian: "He comes downstairs to the street; he descends to his thoroughfare as the millionaire expects to descend to his breakfast-room or his study. Whatever the gloom of the house, his street, catering to his need of colour, variety, beauty, and movement, helps him to feel good." If we view the city as Aristotle viewed it—a place "where men live a common life for a noble end"—we cannot but agree that the city can well afford to yield to so great and joyous a need.

The Trees.—In any consideration of the gotten needs of the street, the natural of trees, flowers, and grass must come first. The place of the tree in the street is only slowly being conceded in England. At present it is carried out in a most haphazard fashion, seemingly on the principle that any vacant space calls for a tree. This is surely a wrong way to proceed, as the fine air of spaciousness is constantly marred by uncalled-for clusters of trees, and while wide open space may be spoiled in this way, the planting of trees in thoroughfares of a less width than 80ft. is, again, likely to be unsuccessful. But much depends on a regular system in street tree-planting, and due consideration being given to the main points which arise, consideration of individual merits of the case. Paris has over 100,000 street trees, and spends over £12,000 annually on their care and cultivation. But Paris has wide streets and boulevards, whereas our English towns have generally narrow streets, where, if the light was obscured by trees, it would be extremely prejudicial. But we have very many thoroughfares which would well admit of tree planting, even business thoroughfares, and in London we may well look forward to realising in the not distant future the "green girdle," at least round the Metropolis, so eloquently advocated by Mr. D. B. Niven. The trees planted in Paris are principally plane trees, sycamores, and chestnuts, while acacia has been introduced, and thrived splendidly. The choice of trees is a matter of serious consideration, as so many of the existing specimens in our streets, struggling bravely on amidst countless disadvantages, lead the man in the street to regard the subject as a costly fad. Plane and poplar trees planted in the North of England have been failures, while successful in London, but it needs the advice of an expert in these matters.

Parks.—The tree-lined street leads one to realise the position which parks, gardens, and squares must occupy in the street planning of a well-ordered city. The first merit is, of course, the fact that parks are more and more essential as the lungs of a city, offering physical exercise, recreation, and amusement to the thousands who perforce are compelled by the exigencies of modern civilisation to spend the major portion of their lives in its midst. But beyond the physical merits, colour in the street softens architectural outlines, and so adds to city beauty, and the clumps of park foliage, colour, and brightness of flowers, refreshing lakes, bring æsthetic charm into town life. Happily, there is no need of argument for parks; but it would be well if the various parks of a city were made into a system by means of tree-lined streets or boulevards, connecting them with the city proper. At the same time, as parks are so often on the outskirts, it would be well if they were connected, as far as possible, in a circle of boulevards round the city. This would achieve, to some extent, the same result as Continental cities have already achieved by the great boulevards encircling their cities, on the lines of the old fortifications. Continental cities in the matter of their parks and gardens view them as public property in a way quite foreign to England, and they are rarely walled in or railed, but free access is allowed at all times. This privilege is rarely, if ever, abused, and one thinks if only the public in England were allowed a similar concession, it would add much more to the enjoyment of city life, and the vandalism of which complaints are now made would gradually disappear. There should be no reason why the exclusiveness of the Britisher should come in when public property is concerned, and an unrailed park or garden would bring the spirit of Nature more into the street and the city than anything else could possibly do. How much more delightful the squares of London would be if they were, at the most, guarded only by low rails, and likely enough a move in this direction in the case of parks owned by local authorities would lead to the opening out of the privately-owned squares.

Advertisements.—Next to the part which natural surroundings play in the ideal street is the matter of advertisements. No more vexed question affects city life, and while there is a general consensus of opinion that the regulation of advertisements is urgently required, very little is really done. The architect and artist have every reason to grumble because the advertiser who disregards the dignity and propriety of the streets degrades the best elements of their arts. Paris, Brussels, Berlin, and Rome have restricted the advertiser in many ways; but the restrictions in England have not, so far, been strong enough to effect more than slight reforms. It is possible that the Housing and Town-Planning Act may be used to regulate, restrain, and prevent public hoardings, and in London the County Council seems disposed to put some check on the advertising displays on house-fronts. All this, together with the gradual adoption of the permissive by-laws of the Advertisements Regulation Act of 1907, may, it is hoped, lead in time to a better view being taken of the street in an æsthetic sense.

Statuary, Fountains, etc.—When offensive public advertising is abolished, it will naturally follow that the street embellishments will be better cared for and cultivated. The function and placing of statuary in the streets, which is almost non-existent in England—that is, in comparison with the Continent—will be better understood. Public statuary has an educative and cultural mission. As the Column of July in Paris, the Column of Victory in Berlin, the Statue of Liberty at New York, have all served to keep alive national traditions in these various places, let us hope that the beauty of the new Victorian Memorial in the Mall, and the proposed King Edward Memorial, will awaken a new consciousness in our midst. One of the greatest signs of progress is the fact that the new Victorian Memorial has been erected in a wide public thoroughfare, and not in a park. English cities, unfortunately, have few open spaces capable of accommodating such a memorial; but with the better development of the street in the future, the function of sculpture and the fountain is bound to be recognised. The Fountain of St. Michel in Paris is a striking example of how a city might grace the junction of two great boulevards.

Smoke and Noise.—The two last æsthetic considerations of the street are smoke and noise. The former is solving itself mainly by the aid of improved scientific combustion; but the latter is, unfortunately, increasing, owing largely to scientific progress in locomotion. A writer in the Press recently analyzed the traffic chorus in the Strand, and showed how the very nature of the street, the presence of innumerable side streets, narrowing of the thoroughfare, etc., was largely responsible for an increase in the noise of warning by vehicles. Indeed, all the various traffic considerations which govern the street help to create the nuisance of noise. The presence of two kinds of traffic—fast and slow—in our streets, and the condition of the road surface, cause as much noise as the vehicles do by being imperfectly built. By the better development of the street as a traffic artery, the improvement of the road surface, and regulation and restriction of speed, alone will come an abatement of noise. Until then, traffic noise must be tolerated on grounds of public safety.

THE STREET OF TO-MORROW.

Progress towards the better street, in which the whole profession of the municipal engineer is so intimately bound up, must be on lines both logical and harmonious, and the demands for comfort and well-being must appeal to all as reasonable. The wish for a better street will always be visionary until the want of it is felt. The Civic Renaissance which broke over Italy in the 15th and 16th centuries was preceded by just such a rational movement. In the middle of the 13th century stone bridges began to span the rivers, and city streets and squares were paved with flags. In the 14th century the cities were a "spectacle of solid and substantial comfort," and the way, so prepared, heralded the Renaissance. The requirements of progress remain the same to-day, and with municipalities taking the first steps, perhaps unconsciously, in the making of the better street of to-morrow, they are helping in laying the surest foundations of the ideal city, and to give effect to the words of Ruskin, who, speaking of the blocks of London houses, intersected by railways,

[illegible] art [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible]

CURRENTE CALAMO.

The Bill providing for the construction of St. Paul's new bridge over the Thames will come on for debate upon the third reading in the House of Commons on Wednesday next. A motion will then be proposed by Mr. Morrell, and seconded by Lord Claud Hamilton, to recommit the Bill, on the ground that the importance of the relation of the great new thoroughfare to St. Paul's Cathedral and the architectural advantages which it offers have not been considered by the promoters. A non-political appeal is being addressed to Members of Parliament, asking for their support, which we trust every voter who reads this will endorse, in the course of which it is stated that if the motion is successful, an instruction will be moved to the Committee not to agree to any scheme for the proposed new bridge until they are satisfied that it has been prepared under architectural advices, and that both in respect of architectural design and convenience of traffic, it is the scheme best adapted to the needs of the public and the character of the site. Meanwhile, it is authoritatively announced that the Corporation have come to terms with the following, among others, whose property is affected by the bridge scheme:—The Dean and Chapter of St. Paul's, the Merchant Taylors', Vintners', and Armourers' and Brasiers' Companies, the London and South-Western Railway, Liebig's Extract of Meat Company, Ltd., Messrs. Henry Tate and Sons, Ltd., Messrs. Cook, Son, and Co., Messrs. G. G. Sandeman and Co., and Messrs. Major and Field. The agreements have been sealed in duplicate this week.

The truth is, people in the City and elsewhere are only just waking up to the wretched failure the new bridge will be if the Corporation of London has its way. The *City Press* recently published some illustrations which professed to show the future view of St. Paul's from the north end of the bridge. In its last issue there appears the following letter:—

"SIR,—Having only just seen the illustrations in a recent issue professing to show the future view of St. Paul's from the north end of the new bridge, I ask your permission, as a known lover of fair play, to state my opinion as an architect retired from practice, but being, I believe, the oldest Fellow of the 'Royal Institute,' that both the said views, by whomsoever prepared, are most misleading, and are what artists technically designate as 'cooked,' and for the reason following: Both illustrations show the new warehouses or offices abutting upon the new street between the bridge and St. Paul's Churchyard, as being not more than three stories above the ground story, and with flat roofs, whereas every man of business knows—and certainly the Corporation well knows—that no one will agree to take a lease of the said building sites unless he be entitled to erect at least four or five stories above the ground story, plus the height of sloping roofs. Assuming I am correct, what, I ask, will become of the view of the beautiful central feature of St. Paul's from the north end of the bridge? I answer that, without doubt, it can only appear as a truncated or mutilated dome.—I am, etc.,

"HENRY DAWSON, F.R.I.B.A.

"Hillbrow, Warren-road, Purley."

The *City Press* protests that, "This letter is based upon a misapprehension. The drawings in question were certainly not faked. They represent sketches made from a window on the south side of the river on a level with the approach of the new bridge. In suggesting that the houses will be of a certain height, our correspondent is assuming too much. An architect will be called in to design and to formulate conditions as to getting on the new approach, and doubtless the Corporation will take all proper matters into consideration. Whether the roofs shall be flat or not is altogether, of course, with all these other matters of detail, not yet been decided." With past experience, we are certainly not going to leave "all those other matters of detail" to the City of London and the architect who is to be "called in"!

Architects are always gratified at the tardy appraisement, year by year, of their contributions to the Royal Academy by the leading journal. This year the *Times* dismisses the architectural subjects in about fifty lines at the tag end of its fifth notice. There is a "wrong notion," we are assured, that "representations of architecture ought to be works of art in themselves." Whenever possible, they "should consist of photographs"; when it is not, they should be "drawings as plain and accurate as possible." Therefore, "Since many of the drawings in the Architecture Room are more or less picturesque water-colours, and since there are no photographs of buildings already in existence, it is impossible to pass any practical judgment upon the exhibits." Here is all the thunder Jupiter cares to spill, anyhow:—

"Mr. Lutyens's design for a War Memorial at Johannesburg (1492) looks elegant, but rather unmeaning. Mr. E. J. May's interiors, 'Webbington House, Somerset' (1506), look clever but irrational. Sir Aston Webb's 'Imperial College of Science' reminds one of a conservatory (1542). Mr. Ernest Newton's 'House at Hambledon' (1568) makes no effort to be picturesque, but has a quiet simplicity and dignity. Messrs. Williamson and Foss seem, in their 'Church and College of St. Ignatius, Stamford Hill' (1616), to have achieved a kind of bald grandeur with very plain materials, and Mr. Beresford Pite appears to have solved a difficult problem with both honesty and ingenuity in his 'Cathedral of St. Paul, Uganda' (1651). We may guess also that there is merit in Messrs. Nicholson and Corlette's 'New Boarding-House, Winchester' (1589); but it is all guesswork, and there are very few drawings in the room that could help anyone to choose an architect. We wonder that architects have not yet attempted to make the exhibition more useful to their profession, and at the same time more interesting to those who care about the building of their own time."

We wonder! And, just a little, too, if we may venture to congratulate the *Times*' critic on having "achieved a kind of bald grandeur with very plain material," and to ask whether he does or doesn't know why architectural exhibits at the Academy grow fewer year by year?

The provision of the Insurance Bill by which the unemployed workman who lacks technical skill may be offered a suitable course of technical instruction was considered by the Association of Education Committees last Friday. It was resolved to ask the Government to provide funds for meeting this new responsibility. We dealt with this matter at some length, it will be remembered, in our issues of May 12 and 19, and it is one of considerable importance in many ways. All must recognise that if the proposal is carried out, extra accommodation will have to be provided, in many cases, at very considerable cost. If men are sent to the classes to learn their trades, new or enlarged premises will have to be provided, and a great deal of machinery will have to be laid down. Is this additional burden to fall exclusively on the local education authorties? Is it really likely that they will efficiently meet their new responsibilities? In many respects, Mr. Lloyd-George's Bill will want much amendment, and perhaps more so than in most as regards the co-ordination of ways and means. Else we shall muddle on for years, as usual, wastefully, and perhaps disastrously.

Are art unions "gambles"? An interesting discussion took place last Friday at the meeting of the Liverpool City Council Committee controlling the public Art Gallery on a proposal to approve the formation of an art union in connection with the annual autumn exhibition of paintings held in the gallery. It was stated that the attention and interest of the public in the exhibition were distinctly on the decrease, and for several years the receipts had been waning, and it was thought an art union might stimulate interest. Mr. P. Charles Kelly moved:—"That this committee, while unable to undertake an art union, regards favourably the proposal to form one, as it may be expected to help the exhibition by increasing public interest and adding materially to the sales of works of art." Mr. F. C. Bowring moved an amendment to postpone the matter pending fuller information and consideration. The art unions, he said, were in the nature of gambling, and while they might make a few thousand pounds out of an art union, if it led the people into gambling would it pay? A number of members did not vote, and the amendment was carried by four votes to three.

The outbreak of fire at the Crystal Palace last Tuesday, which, fortunately, was stopped before it had assumed large proportions, emphasises the ever-present danger at most exhibitions and shows, especially during this hot weather, on which we commented last week. It began near one of the refreshment-rooms, and had got a good hold upon the woodwork before it was discovered. A large number of visitors who were in the Fair of Fashions at the time were hurriedly removed, as it was at first feared that the blaze would spread to that part of the exhibition. Had it done so, there would quite probably have been loss of life. We are not unduly nervous; but if the next fortnight passes without some great catastrophe at one or other of the great attractive exhibitions to panic-stricken crowds, or in some of the thronged centres of Coronation sightseers, to and from which ingress and egress will be practically almost impossible for hours, no matter what happens, we shall hardly be surprised. We certainly do permit risks, in the absence of proper precautions, that almost amount to manslaughter!

The Kensington Borough Council recently adopted resolutions urging the London County Council:—(1) To claim, in aid of the rates, the profits of the Middlesex Deed Registry, estimated at £15,000 a year, following the example of the Yorkshire county councils, who receive the profits of the Yorkshire Registries; and (2) to take action in accordance with the recommendation of the Royal Commission on Land Transfer to obtain the extension of the Middlesex Deed Registry to the whole County of London, which, it is estimated, would increase the profits to £27,000 per annum. The movement has already obtained the support of the following Metropolitan borough councils:—Battersea, Bermondsey, Chelsea, Fulham, Hammersmith, Poplar, Stoke Newington, Wandsworth, and Woolwich. The Local Government Committee of the London County Council have the proposals under consideration. The movement is a commonsense one, and should be supported.

Rubber roads are to be among the promises of good things to come at the forthcoming Rubber Exhibition, which opens at the Agricultural Hall on Monday week. So far, of course, the chief objection to the use of rubber for road surfacing has been its cost;

PRESERVATION OF ANCIENT MONUMENTS

[illegible] of the Inspector of Ancient Monuments, Mr. C. R. Peers, for the year ended March 31st, 1911, has just been issued. The number of ancient monuments and historic buildings now under the care of the Commissioners of His Majesty's Works and Public Buildings is 101, these being divided into two classes: 1) Monuments in private possession transferred to the charge of the Commissioners; 2) monuments which are the property of the State. They include thirteen castles, two town walls and gates, thirteen dolmens and chambered mounds, and ten circles and standing stones in England and Wales; and nine castles and eighteen ecclesiastical buildings in Scotland. The number of monuments placed under the protection of the Ancient Monuments Acts during the year are fifteen in England and Wales and three in Scotland. Among these were the hut circles on Holyhead Mountain, Anglesey; Castle of Northland, Castle, and Pierowall Church, Orkney; and the Abbot's Fish House, Meare, near Glastonbury. Another section of the Edward I. castle at Berwick-on-Tweed was also brought under the Acts.

Public attention having been called to a proposed scheme for repair and refitting of the cathedral church of St. Magnus, Kirkwall, the Inspector visited Kirkwall and by the direction of the First Commissioner of Works drew up a report, which is appended. In 1905, under the will of the late Sheriff Thomson, some £60,000 was left to the provost and magistrates of Kirkwall for the restoration and repair of the cathedral. Under this provision schemes were invited, and one submitted by Mr. J. M. Watson, of Edinburgh, was selected. "The points in Mr. Watson's scheme which are most open to criticism," says the Inspector, "are to be traced to the effort to spend the large sum of money available." The Inspector adds that the acceptance of the proposals involving restoration by the local authorities "is only one more piece of evidence for the need of some system of control over the lives of our monuments of the country."

Mr. Peers states that the first Ancient Monuments Act has now been in operation for twenty-nine years. Of the fifty-one prehistoric monuments scheduled by it as worthy of preservation by the State twenty-six have been placed under its provisions. In regard to the rest, the position of the State is entirely unsatisfactory, and the monuments are in a worse condition than they had not been scheduled under the Act.

The North Tyne Urban District Council, the clerk of Mr. R. A. Bryan, engineer, by £30 against £25 elected Mr. D. M. Jenkin, Darlington, engineer, by £30 to £25 votes.

At the last meeting of the Spen Rural District Council, the scheme prepared by Messrs. H. Wade and Son, of Newcastle, for the water supply of Spennymoor, Tudhoe, Church Kelloe, and Sunderland Bridge was adopted. The scheme includes a pumping station, a pumping system, a filtration plant, a service reservoir, and house connections. The cost of the scheme will be £27,000, and will be carried by the sale of the Great North Road Railway. The estimated cost is £27,000.

Plans of the Leeds and Castle Neaton Railway, prepared by the Marquess of Lincolnshire, Mr. A. E. Wilson, on Thursday [illegible] of work, comprising five [illegible] respectively [illegible] Newmarket and Railway [illegible] Road and New Kent [illegible] Road [illegible] the [illegible] Railway [illegible] Tunnel [illegible] and will [illegible] by [illegible] the [illegible] and [illegible] New Kent Road. Messrs. [illegible] and Rowe were

THE INSTITUTION OF CIVIL ENGINEERS.

The following is the programme of the Conference on Education and Training of Engineers, to be held on June 28 and 29, 1911.

WEDNESDAY (June 28, 10 a.m.)—Opening of the Conference in the Theatre of the Institution. Mr. Alexander Siemens, President, in the Chair.

" (10.30 a.m.)—Sectional Meetings of the Conference.

THURSDAY (June 29, 10 a.m.)—Sectional Meetings of the Conference Resumed.

" (1 p.m.)—Closing of the Conference in the Theatre of the Institution. Mr. Alexander Siemens, President, in the Chair.

DETAILS OF SECTIONAL MEETINGS.

WEDNESDAY, JUNE 28.

In the Library, at 10.30 a.m.—Sections I. and II. (Joint Meeting). Chairman, Mr. Anthony G. Lyster, Vice-President Inst.C.E. Opening remarks by the Chairman. Discussions: "The extent to which mathematical and scientific subjects should share with other subjects of literate education the attention of schoolboys who intend to enter later the engineering profession." Introduced by Dr. J. Gow and Prof. Silvanus Thompson. "The question of specialised entrance examinations for university or college courses of study in Engineering Science with a view to the curricula to be followed, and also of the inclusion in the latter of courses in modern languages." Introduced by Prof. A. K. Schwartz.

In the Theatre, at 10.30 a.m.—Section III. Chairman, Mr. R. Elliott-Cooper, Vice-President Inst.C.E. Opening remarks by the Chairman. Discussions: "The requirements of practical training and of scientific study and the apportionment of time to them." Introduced by Mr. A. F. Yarrow and members of his Staff and Mr. W. H. Allen. "Practical training in workshops or on works of construction, with special reference to training in the engineer's office." Introduced by Mr. W. B. Worthington and Mr. H. F. Donaldson.

THURSDAY, JUNE 29.

In the Library, at 11.30 a.m.—Section II.—Discussions: "The value of a university degree in engineering science in relation to professional competence." Introduced by Prof. S. M. Dixon and Prof. C. F. Jenkin. "The position and uses of engineering laboratories in relation to education at college." Introduced by Prof. W. E. Dalby, Prof. John Goodman, and Prof. Bertram Hopkinson.

In the Theatre, at 10 a.m.—Sections II. and III. (Joint Meeting).—Chairman: Dr. W. C. Unwin, B.Sc., F.R.S., Vice-President Inst., C.E. Opening remarks by the Chairman. Discussion: "The relation of engineering employers and colleges from the point of view of the practical training of college students." Introduced by Prof. J. E. Petavel and Mr. J. W. Horne. At 11.30 a.m.—Section III.—Discussions: "The relation of practical training to college study; whether, or to what extent, before, sandwiched, or after its conclusion." Introduced by Prof. Archibald Barr and Prof. Henry Louis. "Workshop training as a preliminary to practical training in other branches of engineering." Introduced by Mr. John A. Brodie, Mr. J. Mitchell Moncrieff, and Prof. J. J. Welch.

METHOD OF GAUGING VOIDS IN SAND AND AGGREGATE IN CONCRETE

A simple method of determining the voids in sand and broken stone or gravel for concrete involves the use of a galvanised dust-bin, and a weighing machine available up to 500lb. The procedure is as follows:

(1) Weigh bin empty; denote weight by W.

(2) Weight bin full of water; denote weight by W$_1$.

(3) Weight bin full of dry sand or aggregate; denote weight by W$_2$.

(4) Weight bin full of sand or aggregate and water; denote weight by W$_3$.

The foregoing method, which has been largely adopted by the Aberthaw Construction Company, of Boston, is said to be accurate, convenient, and rapid.

The death is announced from Providence, Rhode Island, of Mr. Franklin I. Sawtelle, a well-known Fellow of the American Institute of Architects. Mr. Sawtelle was sixty-five years of age.

The Managing Committee of the Heritors of the Parish of Dunfermline had under consideration on Monday a report recently received from Sir R. Rowand Anderson, architect, on the condition of the external stonework of the walls of the Abbey Church. In his report Sir Rowand stated that the decay of the stone is only superficial, and that the structure is not in any way endangered. He recommended that a portion of the decayed work on the north-east and south sides of the church should be dealt with this summer. The committee adopted his recommendation, and gave instructions for having it carried out.

SHEET-METAL PROTECTION FOR TRESTLE TIMBER.

The covering of trestle caps and stringers with galvanised iron, for fire protection, is a matter of ordinary practice, and incidental prolongation of the life of the timber has been observed where such covering has been used. Some years ago Mr. Hunter McDonald, chief engineer of the Nashville, Chattanooga, and St. Louis Ry., became so impressed with the preserving effect of such covering on the timber that he worked out special plans for applying it in a manner to more effectually exclude water from entering the timber than had been the case where fire protection was the only object in view.

Yellow pine timber used in the top chords of combination trusses, which had been covered with tin on top and weather-boarded on the sides, was found to be entirely sound after twenty years of service, and was used again for trestle stringers. Trestle caps which had been covered on top with galvanised-iron sheets were found to be sound after a service of nineteen years, and stringers which had been in service on the Cincinnati Southern R. R. twenty-one years had shown remarkable preservation, notwithstanding the fact that the galvanised-iron covering had not been driven through the sheet-metal covering on both the caps and the stringers mentioned, in accordance with ordinary practice, no regard being paid to the perforation of the sheets. As local decay was observed about the drift-bolt holes, it was obvious that wherever such perforation could be avoided it should be done. The value of this method of protecting timber trestles from decay was so convincing that all stringers and caps which have been renewed on the Nashville, Chattanooga, and St. Louis Ry. during the past eleven years have been so protected, and the work has been described by Mr. McDonald in a paper read before the Engineering Association of the South.

In order to prevent drift-bolting the timber, as far as possible, and to take measures for prevention of the entrance of water where such drift-bolting must be done; and to facilitate renewal of the sheet metal when corroded, Mr. McDonald has adopted the following plans:—Trestle stringers are permitted to rest directly upon the caps without sheet metal between them, and the cap is protected by sheet covering in three sections, one coming between the two lines of stringers, and the other two sections outside the stringers. The galvanised-iron sheets covering the caps are bent upward against the sides of the stringers, and extend about 3in. over the sides of the cap, and are bent downward at an angle of about 45° over the top edges of the cap, so that the drippings from the covering fall clear of the cap. The part of the galvanised sheet bent upward against the side of the stringer is overlapped, or, rather, overhung, by the extended and downwardly-bent covering of the stringer, so that both the stringers and the caps are entirely protected against the entrance of water. In order to avoid drift-bolting the stringers to the caps, the former are anchored to the cap by means of a malleable casting which enters the packing space between the stringers, engaging the lower packing-bolt, and a flange on the lower part of this casting is then spiked to the side of the cap. In other words, this casting is a packing-ring with a tailpiece extending downward against the side of the cap; and in addition to the spiking of this tailpiece to the cap, it is secured to the pile beneath by means of a hook-bolt.

The drift-bolting of the ties to the stringers has not been dispensed with, but the bolts are applied in such a way as to prevent perforating the covering in a manner to admit water. This is done by driving the bolt into the tie from the bottom upwards. The bolt is securely driven into the stringer, in a bored hole which is first filled with creosote oil. In order to make a clean-cut perforation of the sheet covering the top end of the bolt is cut off in a lathe instead of being sheared in the usual way. The sheet covering of the stringer is perforated from the bottom upwards, and in order to prevent the entrance of moisture around the drift-bolt a 1½in. washer is placed on top of the stringer around the bolt, so that the galvanised covering is bulged upward as the sheet is settled home by the weight of the tie. A recess for this upward bulge is a hole 2in. in diameter and ¼in. deep, bored in the bottom of the tie concentric with the dowel-hole. In short, the arrangement is such that the tendency of the water about dowel-holes through the sheet is to drain away from the holes, instead of entering them by capillary action.

Of course, the life of the galvanised sheets is comparatively short, lasting only about five years, and experiments have been conducted to test the durability of various samples of galvanised sheets of both charcoal iron and the ordinary steel, the latter being commonly called "galvanised iron." These experiments have not as yet been concluded, but the indications are such that there has arisen a question as to whether the ungalvanised black iron painted with two coats of red-lead would not be more economical than galvanised iron.

The method of applying the sheet coverings is such that it can be renewed conveniently. The coverings on the caps is readily accessible, while on the stringers it is only necessary to jack up the ties clear of the stringers and the drift bolts in order to remove the old sheets and insert the new ones.

The plans also cover the use of galvanised-iron protection for the caps and stringers of trestles with ballasted floors. In this work the protection for both the caps and stringers is applied as in open deck trestles, but the spiking of the creosoted floor-plank to the tops of the stringers is avoided by lag-screwing to the bottoms of the plank angle castings, the lower legs of which are spiked to the sides of the stringers. It is desirable to avoid spiking the planks to the stringers for two reasons:—In the first place, spikes driven through the creosoted plank would admit water which would start decay in the interior fibres of the plank where the creosote has not penetrated, and the spikes would also perforate the sheet covering of the stringer.

It is found that the first cost of covering caps and stringers in this manner amounts to about half of the expense required for creosoting the timbers protected. As the galvanised covering must be renewed at intervals of about five years, it could probably be shown that the ultimate economy should be in favour of the creosoted timbers were it not for the fact that the creosoted stringers and caps require covering for fire protection, the same as do the untreated timbers. There is still the further consideration that the sheet covering can at once be applied to existing stringers that are in good condition without going to the expense of substituting creosoted ones, thus immediately converting the trestle into one with a ballasted top, if desired. To secure the best results with creosoted timbers, they should be framed in advance of the creosoting. Such advance framing is always recommended by the timber-treating specialists; but for purposes of renewals on old structures it is a practice that is very difficult, or practically impossible to carry out. The absence of spikes to secure the planks to the stringers also permits jacking up the floor clear of the stringers for inspection of the condition of the stringers, as well as the renewal of the sheet covering, which would not be the case with planks spiked down upon creosoted stringers.—*The Railway and Engineering Review.*

The foundation-stone of a schoolroom now being added to the Baptist Chapel at West-row, Mildenhall, West Suffolk, was laid last week. The architect is Mr. Arthur Leonard, of Newmarket, an old pupil of the school, whose plans were selected in competition, and the builder is Mr. Clarke.

Mr. E. Battiscombe has been appointed Conservator of Forests, East Africa Protectorate, in succession to Mr. E. Hutchins, who has retired. Mr. Battiscombe was educated at Edinburgh and in Germany, and became Assistant Conservator of Forests in the East Africa Protectorate in 1904 and Deputy Conservator three years later.

Building Intelligence.

HAMMERSMITH.—As a memorial to a deceased parochial worker, Miss Mary C. Sutherland, the east end of the church of St. Peter, Hammersmith, has been decorated. The artist chosen to paint the two pictures was Mr. H. G. Murray, of Britannia Studio, Caroline street, Sloane-square. The subject of the panel on the north side of the chancel window is "Our Lord's charge to St. Peter." The Saviour is clothed in white, the nimbus being of gold. St. Peter, kneeling at His feet, wears a brownish-white tunic, with a blue mantle lined with yellow. His nimbus is red, edged with gold. The scene is by the side of a lake, with city and mountains in the distance. The circular painting over this panel is the pelican on her nest feeding her young, and symbolises the Church. On the south side of the chancel window the subject of the panel is "Our Lord's appearance to St. Mary Magdalene in the garden." As in the other panel, the Saviour is clothed in white, Mary being robed in a rich red dress, with a purplish blue mantle. The garden as a background gives a view of the sepulchre in the middle distance. The circular panel is the Agnus Dei, the white figure and flag with red cross being placed on a blue ground. The wall spaces around the panels are arranged as pilasters and frieze, and the reveals and soffits of the window are covered with suitable decorative colours, picked out in gold where desirable, with circles containing the inverted cross of St. Peter, and crossed keys and crown. The work has been carried out under the direction of Mr. A. O. Collard, F.R.I.B.A., the architect.

HEXHAM ABBEY. — Mr. Temple Moore, F.R.I.B.A., has been instructed to prepare plans of a new pulpit and reading-desk for Hexham Abbey, and also the filling up with panels of two bays in the choir triforia. The woodwork throughout will be by Messrs. Holloway Bros., of London, who have already done similar work for this abbey church. The reading-desk will be unobtrusive, as it will be concealed on the west side by the remains of an interesting relic of the ancient 12th-century stone rood-screen.

The South-Western Polytechnic in Manresa-road, Chelsea, is about to be enlarged from plans by Mr. F. G. Knight, F.R.I.B.A., of Victoria-street, S.W.

At Stoke-on-Trent an inquiry by an inspector from the L.G.B. will be held on Wednesday next into an application of the corporation for sanction to the borrowing of £66,000 for electricity supply purposes.

The chairman of Castleford Urban District Council has opened the public baths erected in Florence-street, Castleford, at a cost of about £5,000. The main plunge-bath has a swimming area of 75ft. by 30ft., and the children's bath 28ft. by 14ft. Ladies' and gentlemen's slipper, shower, and vapour bathrooms are provided.

Mr. M. K. North, M.Inst.C.E., has held an inquiry with reference to the application of the Sleaford Rural District Council for sanction to borrow £1,825 for works of water-supply at Burton Pedwardine, a village of only 154 inhabitants and 43 houses, for the most part scattered over a considerable area. Mr. Marsden, engineer to the council, explained the plans.

Sawing through a ninety years' old oak tree, felled on Lowther estate at Penrith, the workmen at Mr. T. Armstrong's timber yard at Cockermouth found their tool turned by a large round stone, 26lb. in weight, and two iron horse-shoes embedded in the heart of the trunk, 8ft. above the surface roots. It is conjectured that the tree must have commenced to grow round them about seventy years ago.

Mr. Thomas Battershill, builder, Lemon-street, Truro, died on Friday at the age of sixty-seven years. A native of Truro, he formerly carried on business with his uncle, Mr. William Battershill, and on the latter's death he took over the business. He carried out many important contracts, including the Free Library at Truro, which he built in conjunction with Mr. M. Clemens. During latter years Mr. Battershill was assisted in the business by his son, Mr. R. Y. Battershill. He leaves a widow, four sons, and three daughters, all grown up.

Engineering Notes.

CHIPS

PROFESSIONAL AND TRADE SOCIETIES.

ASSOCIATION OF KENT SURVEYORS. A meeting of this body was held at [illegible] on Thursday. The members [illegible] the town hall on the [illegible] and proceeded to Folkestone [illegible] sewerage works in pro[illegible] and [illegible] the works in Per[illegible]. In company with the mayor, Sir W[illegible] Crundall, the party afterwards made [illegible] the harbour, viewing the Harbour Board's new works and the St. Margaret's Northern Road, and finding close to the new [illegible] works for closer inspection of the [illegible]. Tea was provided at the town [illegible] by the mayor, and a short paper by Mr H. N. Hagger, dealing with a recent sewer [illegible] in Folkestone, was read and discussed.

INSTITUTION OF MUNICIPAL ENGINEERS. A meeting of the South-eastern District was held at the council chamber of the Institution, at the office, 59 Victoria-street, on Wednesday, May 31, when Mr. G. W. Hayler read a paper, "The Street of To-day and To-morrow," which we give elsewhere. Mr. Henry C. Adams, district chairman, occupied the chair, and among the members present were Messrs. T. Mundy (Woolwich), G. W. Hayler (London), J. R. Favers (Watford), C. T. Fulcher (Shoreditch), T. G. Menezes (London), A. T. Prideaux (East Ham), J. W. Brook (East Ham), W. H. Patler (Woolwich), and Fraard Partridge, the hon. district secretary. The next meeting of the district will be the annual one for the election of district chairman and hon. district secretary, and it will be held at the institution offices on Monday, July 3, at 7.30 o'clock. Mr. J. R. Favers will then read a paper, entitled "Building By-laws under the Public Health Acts."

THE SOCIETY OF ARCHITECTS. At the qualifying examination for membership, held in London, Manchester, Leeds, Oxford, and Cardiff on April 11, 12, and 13, the following candidates satisfied the examiners: E. Cavanagh, 2, Selwyn-road, Upton Manor, E.; T. H. Lightbody, 10, Risingholme-road, Wealdstone, N.W.; H. Pascoe, 67, Leicester-place, Leeds; S. G. Scales, 7, Bolton-road, Eastbourne; A. G. Smith, 13, Beecheroft-road, Oxford; B. W. Stuttle, 15, Latimer-road, Forest Gate; and J. C. Williams, 222, Park-road, Crouch End, N. The following students of the society obtained sectional certificates:—Section I.: Architecture (Planning and Design and Architectural History):—William George Davies, Birkenhead; Alan Buxton Durry, Westcliff-on-Sea; Wilfrid Edwin Kelly, London; Chas. Wright Marks, Swansea; Clement John Picton, Chard; Harold Pitwice, Seacombe; Leonard Arthur Reynolds, Hull; Harold Ascensus Wilkinson, London. Section II.: Building Construction and Materials:—Arthur Gidlow Baylis, Wath-upon-Dearne; Frank Richard Catling, London. Section III.: Practice (Contracts, Specifications, and Quantities):—James Ambrose Dartnall, London; William John Hadley Gwaunceagurwen. Section IV.: Sanitation, Ventilation, Drainage, etc.):—Arthur Gidlow Baylis, Wath-upon-Dearne; Frank Richard Catling, London; James Ambrose Dartnall, London; William George Davies, Birkenhead; Alan Buxton Durry, Westcliff-on-Sea; Leonard Arthur Reynolds, Hull.

ROAD SURVEYORS' ASSOCIATION OF SCOTLAND. The twenty-seventh annual meeting of this association was held in the Station Hotel, Perth, on Saturday. Mr. James Laing, Kilmarnock, the president, occupied the chair, and about forty members were present from all parts of Scotland. The secretary, Mr. Alan Stevenson, Ayr, reported as to the negotiations for affiliation with the Municipal and County Engineers' Association. The meeting strongly expressed opinion in favour of affiliation, as both societies were primarily concerned in road management. After full discussion, it was remitted to the committee, with full powers to settle details. The chairman, in his retiring address, dealt with recent road legislation. Unfortunately, he said, the road board, and several of the local authorities, more especially in Scotland and Ireland, were not seeing eye-to-eye in the matter. The local authorities held that their method was unfair, and that the grant should be given without any extra contribution from the local ratepayer. What they as road surveyors were more concerned about was to see that the money was spent in a proper manner. There was not the slightest doubt that the roads must be improved to meet the modern traffic. It was their duty as surveyors to do their part in that great work, and by strict attention to details, and by introducing the best and most up-to-date methods in the production and distribution of the materials for construction, demonstrate to their committees and the public generally that the large sums of money expending on our highways were being used to the very best advantage. In conclusion, Mr. Laing moved that the officers for 1911-12 be adopted as recommended by the committee as follows:—President, Mr. Donald Ross, Kirriemuir; vice-presidents, Mr. John Scott, Perth, and Mr. James Watson, Strathaven, along with a dozen members of committee. The meeting thereafter discussed the treatment of roads for dust prevention, tar spraying plant, and road grants and their application. A resolution was moved by Mr. A. Forbes, Linlithgow, to the effect that it be remitted to the chairman to approach the road board to discuss the question of remuneration to the county surveyors for work imposed upon local authorities by the road board grant, and this was unanimously adopted.

The Rural District Council of Feltwell, Norfolk, have raised the salary of the surveyor, Mr. H. Wade, from £90 to £110 per annum.

The summer meeting of the Royal Archæological Institute is to be held at Cardiff and Tenby from Tuesday, July 25, to Wednesday, August 2.

Mr. W. B. Smith, of Hampton, has been appointed assistant surveyor to the Wanstead Urban District Council at a salary of £100, rising by annual increments of £10 to a maximum of £150 per annum.

A reredos, in memory of the late Mr. Pearson, warden of Ermington, has been dedicated in that Devonshire church. It is of alabaster and oak, carved with scenes from the life of Christ and was designed by Mr. E. H. Sedding, the cost of execution being about £600.

Damage estimated at nearly £10,000 was caused by a disastrous fire which broke out just before midnight on Saturday in the cement works of Messrs. I. C. Johnson and Co. at Greenhithe. The cooperage and timber yard, covering an acre, were involved, but the main works were saved.

The Walton pumping station, the latest addition to the Metropolitan Water Board's works in the Thames Valley, will be opened to-morrow (Saturday) by Mr. John Burns. The contracts for the reservoirs and the intake and mains have been carried out by Messrs. John Aird and Sons, from plans by and under the direction of Mr. J. W. Restler (the Deputy Chief Engineer of the Board).

The city of Leeds, which already had twenty-eight parks and pleasure-grounds, has been presented by Lord Grimthorpe and the trustees of the Wade's Charities with a new park, forty-one acres in extent, on the Beckett's Park estate, Horsforth. The new park was thrown open to the public on Saturday. A training college and hostels are to be erected by the corporation on a site contiguous to the new park, the value of which has been estimated at £20,000.

Five interesting portraits—two miniatures, two medals, and an oil-painting—were on view at the National Portrait Gallery for the first time on Monday. They are Henrietta Duchess of Orleans, 1644-1670. Youngest daughter of Charles I. and Henrietta Maria. Enamel by J. Petitot, inset in an agate snuffbox. Edmund Burke (1729-1797). Orator, statesman, and man of letters. A wax medallion, modelled in 1791, by T. R. Poole. Henry Hallam (1777-1859). Historian. Bronze medal by L. C. Wyon. Edward Forbes, F.R.S. (1815-1854). Naturalist. Bronze medal by L. C. Wyon from a drawing by J. G. Lough. Sir Richard Grenville (1541?-1591). Naval commander, captain of the Revenge. Oil painting dated 1571, by an unknown artist, from the collection of the late Lord John Thynne.

COMPETITIONS.

BRADFORD.—A new infirmary, on a site in Duckworth-lane, Bradford, is about to be built, and forty-four sets of competition designs have been submitted. Mr. Keith D. Young, F.R.I.B.A., being the assessor appointed by the management of the Bradford Royal Infirmary to make the award, which has not yet been reported to the committee.

HARTLEY UNIVERSITY COLLEGE, SOUTHAMPTON.—We received the following communication, dated June 3, 1911, on Tuesday morning:—"DEAR SIR,—The above-mentioned designs will be on exhibition during the week commencing June 5, 1911, at 68, High-street, Southampton, from 10 a.m. to 5 p.m. daily.—Yours faithfully, D. KIDDLE, Registrar." The information is, of course, too late to be of any service to any reader, and too late now for us to go down. They do not hurry themselves at Southampton! We published the result of the competition on May 5, and we ought to have done so in our issue of April 28, but instead of favouring us with the information by wire on the Thursday afternoon, as we asked, the registrar telegraphed that he was writing us, and the letter arrived on Friday morning, just after publication!

HENLEY ROYAL GRAMMAR SCHOOL.—The award in the above limited competition is as follows:—(1) Henry T. Hare, F.R.I.B.A., (2) W. G. Wilson, F.R.I.B.A., (3) Wills and Anderson. The cost of the building is about £8,000. Mr. Edwin Cooper, F.R.I.B.A., of 12, Gray's Inn-square, was the assessor.

MINNEAPOLIS.—Efforts seem to have been made to secure a square competition in the selection of an architect for a museum building of the Mineapolis Society of Fine Arts, to cost about 500,000dol. The competition will be held strictly in harmony with the code of the American Institute of Architects, under the direction of Professor Warren P. Laird, of the University of Pennsylvania. Several architects will be especially invited and paid for entering the competition, and a limited number of others will be chosen from the open field, to the best of whom will be awarded an equal number of similar fees. The final award will be made by a jury of five composed of a member of the committee, a museum expert, the professional advisor, and two other architects. The two additional architects and the museum expert will be chosen by competitors from among nominees designated by the advisor.

An extension of the Oxford Union Society buildings was opened on Friday by Lord Curzon, Chancellor of the University of Oxford. The new buildings provide additional accommodation for the society's library, and also new reading-, writing-, and billiard-rooms.

The reconstruction of Coventry-road bridge, Birmingham, carrying the Great Western London to Birkenhead main line, a work which has just been completed in connection with the Bordesley and Birmingham widening, presents some features of interest. The girders of the old bridge were of the balloon-headed high-back kind, a type fast disappearing. The new steel girders are of the following lengths:—Centre girder, 76ft.; outside girders, 75ft. 8in. and 75ft. 4in. The clear span of the bridge between abutments is 67ft. The work was completed in four weeks from the time of commencement.

A further stage in the progress of the Roman Catholic mission at Pickering was marked on Thursday in last week, when the new parish hall and the tower of the church were formally opened. With the exception of the spire and a residence for the priest, the buildings of the new mission are now complete. The church, which has a seating capacity of 470 and cost £3,200, was opened in December last. The tower has been erected to half the proposed height, and the hall, which runs in a southerly direction from the church, is 49ft. long and 19ft. 6in. wide. It will be used for lectures and meetings and other social purposes. Above it is a large gymnasium. The roof is covered with French tiles, and the upper hall has four dormer windows. The building is of Pickering limestone, with Weldon stone dressing. The cost of the hall and tower has been £900. The architect of the group of buildings is Mr. Leonard Stokes, P.R.I.B.A.

Correspondence.

WANTED: AN ARCHITECTS' PROTECTION SOCIETY.

To the Editor of the BUILDING NEWS.

SIR,—Referring to the letter signed "Cinque Cento" in your last issue, there seem to me to be many practical points in his proposal. I venture to write you because of my long connection of over twenty-five years with your journal, so that, although only a lawyer, I have some experience of legal questions especially affecting architects, and may be able to assist towards the project. With regard to insurance, although companies nowadays take strange risks, I doubt whether they would be willing to cover that of the law's uncertainty, which could never be reduced to any actuarial table. From over thirty years' practice in the City, I have found that professional and business men will rarely take legal advice before they have got into a difficulty. Usually they wait until the fight has begun, and then it is often too late to stop the battle. We nowadays hear a great deal of preventive medicine, which is doing great things, and will do greater. In legal matters this prevention is assuredly more simple and certain in its application. Many lawsuits would never have been begun had a little legal advice been taken in time. The wastefulness of litigation, about which the parties afterwards complain, would be avoided generally if a legal opinion had been obtained before the quarrel began—often enough through a bona-fide, but mistaken, view of the law, as can be seen in several recent cases.

There should be no difficulty about the formation of a protection society which would be able to give its subscribers sound advice and warning as to the legal pitfalls that may lie across their path. The position of a modern architect is so many-sided. He is not only an artist and a draughtsman and a builder, but he becomes the agent of the land or building-owner, and generally the controlling force in the operations, even if he is not actually and legally the arbitrator between all parties, as may happen, and that unexpectedly. An architect's authority and liabilities, in fact, depend upon many questions of mixed law and fact, and troubles and loss often arise to him because the law that would be applicable is not clearly understood. The suggested society could also take up and fight out such test cases—and there are always some—that must be fought for the sake of the whole profession.—I am, etc.,

FRED WETHERFIELD.

Gresham Building, Guildhall, E.C.,
June 5.

SIR,—If this society is formed, I hope it will only be temporarily, and with the view to laying the foundation of experience which may be useful by-and-by in connection with the Royal Institute of British Architects, which I think ought to cover the field when it is what there are good hopes of making it, presently.

I know past experience may not at first sight have favoured this view. The Institute should have moved much more vigorously in this matter in several cases; but then so it should in other directions. Present indications point to better things.

You hinted last week, in your note on "Cinque Cento's" letter, that it is next to impossible to protect fools, and those who are so eager for business that they neglect the most ordinary precautions when taking a client's instructions. That is true enough. These are just the people who will never join any society, but who will expect its whole resources to be at their disposal when they want pulling out of the ditch.—I am, etc.,

SOMEWHAT SCEPTICAL.

SIR,—There is sound sense in "Cinque Cento's" letter if his suggestion takes form practically.

Much, perhaps, depends on the legal help secured. The main prop of any such society must be its lawyer, and an ordinary lawyer will be of little use. He is either always for fighting, or for the other thing. And he knows little of these and cases of building law. We want one who *does* know them.

Next we want a strong but not too large committee of really practical architects, who will help the lawyer with their experience.

Lastly, we want a fair number of members. If these requisites are forthcoming we shall succeed. If not, we had better not attempt anything because we shall fail.—I am, etc.,

F. R. I.

THE IDEAL HOME

SIR,—With reference to the article appearing in your issue of the 2nd inst., may I point out that the names of the committee who will judge the designs entered in the *Daily Mail* Competition were published in the *Daily Mail* some considerable time ago? They are as follows: Mr. E. B. Monsell, F.R.I.B.A., F.S.I., M.S.A.; Mr. Edwin G. Sadgrove, F.R.I.B.A., M.S.A.; Mrs. Geoffrey, Lobb; Mrs. F. Stoop, Mr. W. G. Tarrant.

It is not intended to suggest in the rules and regulations that Mr. Tarrant (who will subsequently build the house) will have the final decision as to the winning design. The committee, of which Mr. Tarrant is a member, will, of course, decide the award. It is proposed to build the house at Olympia by April 12, 1912.—I am, etc.,

F. E. P[illegible], Secretary.

At Llangollen the housing problem has reached a very acute stage, owing to the influx of a large number of workmen, following on the erection of new factories. The local society formulated a housing scheme, but on endeavouring to secure land they found the price so high that the scheme was abandoned.

Through a generous gift made by two friends of Manchester University, the council has been enabled to offer a travelling scholarship in architecture under which a student who has taken first-class honours in architecture may travel for a time to study the subject abroad. The first award will be made in 1912.

The Bishop of Norwich preached on Friday at the reopening of the Church of Walpole St. Peter, near Lynn, Norfolk, on the restoration of which nearly £1,800 has been spent. The Lady chapel has been restored, and one light of a window filled with stained glass, dated 1422, has been dug out of the floor of the church.

The tower of the new Roman Catholic church of the Holy Souls, from designs by Mr. Kirby, at Scunthorpe, North Lincolnshire, has at length reached completion. It is Decorated Gothic in style, and terracotta panels take the place of the usual louvre windows above which the buttresses taper inwards to balance the bold projecting parapet.

Tenders for work in connection with the extension of the Chambers Institution scheduled up to the present were opened by the Peebles Town Council in committee on Thursday evening, and estimates to the total amount of £3,195 18s. 2d. were accepted. The contractors are all local, with the exception of Messrs. P. Bell and Son, Edinburgh, who have the steelwork.

The contract has just been completed by the Corporation of Belfast for a reservoir of five million gallons capacity constructed in reinforced concrete, comprising fourteen combined sectional tanks, each 120ft. by 30ft. The work was carried out under the direction of Mr. Henry A. Cutler, M.Inst.C.E., city surveyor, the contractors being Messrs. J. and W. Stewart, Belfast, Dublin, and London.

The fourth congress of the International Musical Society, held at the University of London, terminated on Saturday. Sir Alexander C. Mackenzie presided. A recommendation was adopted recommending that certain rules be laid down for the use of architects planning church buildings, in order that the space required for the apparatus of church music might always be secured.

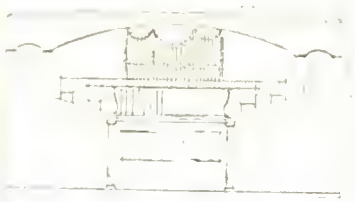
Mr. C. C. Schneider, of New York, a former president of the American Society of Civil Engineers, succeeds Mr. Charles Macdonald, of Gananoque, Ont., who has retired on the commission of three engineers for the Quebec bridge. Mr. Monsarrat will be chief engineer in charge of construction, devoting his whole time to the work, and Messrs. Modjeska and Schneider, consulting engineers. The contractors for the superstructure are the St. Lawrence Bridge Co., of Montreal.

Intercommunication.

GUINEAS FOR BEST REPLIES.

QUESTIONS.

REPLIES.



Hamlet writes for the organ to be put at the right side of the chapel, which is more or less impracticable in the shape of building. He refers to my sketch, he will see how I have utilised the loose area by building an annexe semicircular in plan, with the gallery returned at the end putting organ in centre and choir seats on a semicircular bench in front of the organ. These seats being raised towards the back, enable the singers to be in full view of the congregation, which I consider to be an advantage to singers. The old building and the new are connected by a low turned arch, with two inches of a curved character on either side. The appearance of the arch would be very effective as a model. Beneath the annex I have in my mind two vestries made by putting on partition across the centre. The pulpit retains its old position, and Hamlet will notice I have presumed that a ring to the chapel, which, if that is so, lends its harmonies to the different on the times suggested. I have shown no detail, but believe your question can gather my idea exactly from the rough sketches, but with Annex to be top-light. I should after allowing for the cut height for gallery at [illegible] Leonard F. Smith (c.o. A. W. Venner, M.S.A., Retford).

[1] HEATING CINEMATOGRAPH THEATRE. The most economical, as well as efficient, method of heating buildings of the description is by gas-steam radiator, which is now made by several reputable

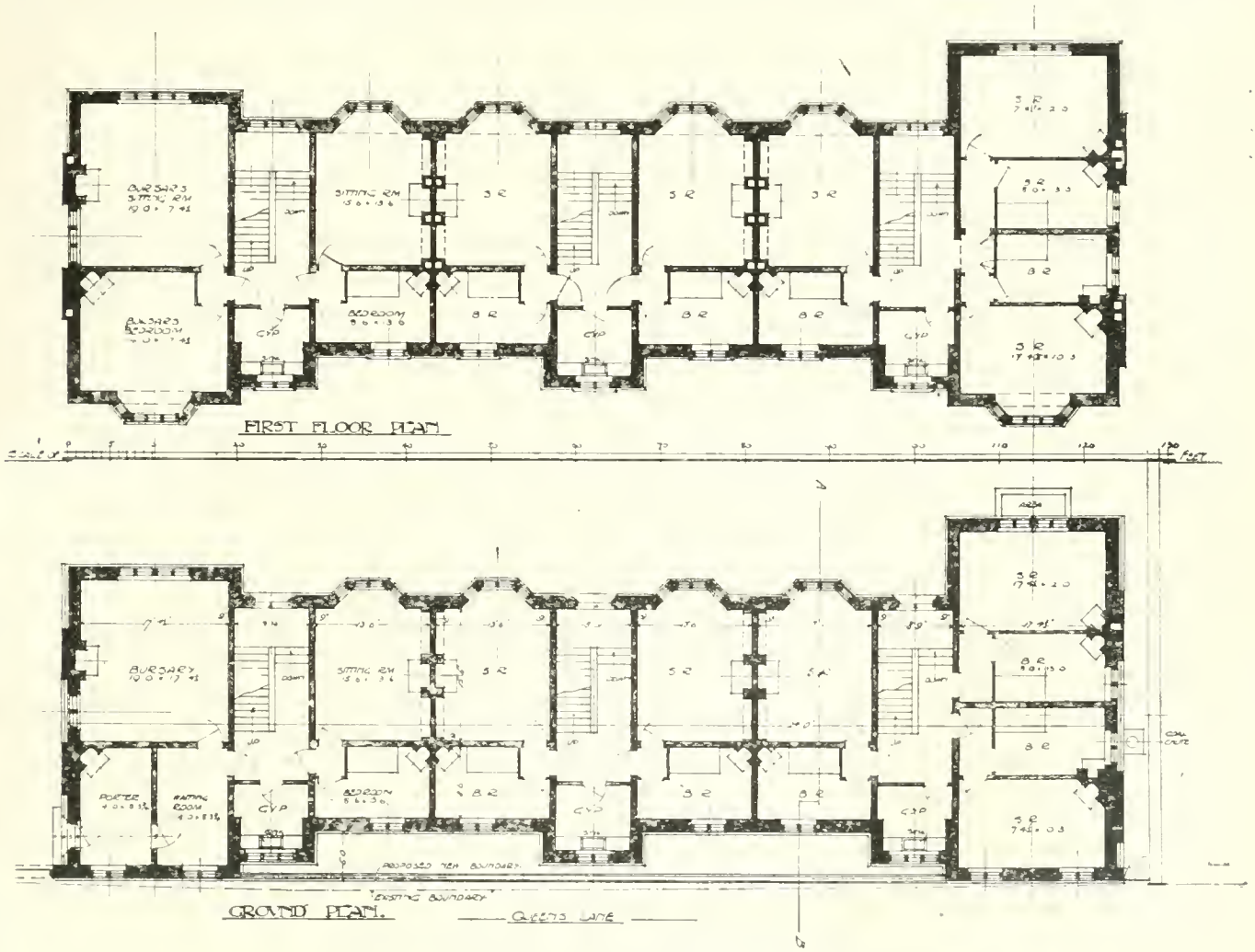
The main advantages over hot-water systems are the advantage of quick action and will heat the building much quicker. The radiator is made so that the gas is automatically lowered when they reach a certain temperature, and thus the building is kept evenly warm. No need to be attended until a short time before closing, as doors are frequently admitted, and consequently do not require opening more than once or twice for opening a few minutes with hot water and turning on heating [illegible]. It does not take the [illegible] But for a hall or theatre [illegible] I will be glad to [illegible] about [illegible] the [illegible] about this [illegible] the [illegible] radiator, [illegible] I would [illegible] with [illegible] the [illegible] to the last [illegible] The [illegible] installation here shown [illegible] but this does not allow [illegible] connections to the main or existing service. F. S. does not state whether it is a new building or one at present in use, consequently, I do not [illegible] what length of time piping would be necessary. Any [illegible] gutter could put in this installation [illegible] working instructions are supplied with the radiators, but should "F. S." require additional information I shall be pleased to give him same. H. Kendrick, Liverley Grenadal, Olton, Warwickshire.

STATUES, MEMORIALS, &c.

CREDITON. The Earl Fortescue, the Lord Lieutenant of Devon, unveiled, on Friday, a memorial to the late General Sir Redvers Buller in the Church of the Holy Cross, Crediton. The memorial occupies the vacant space over the lower arch which fills up the east end of the nave. It is executed in the same kind of local Pennant stone as that with which the church was originally built. The inscription panels on either side of the arch and panels above representing the vine and the corn are executed in mosaic work as well as the soffit of the arch, which was formerly in plaster. The central feature of the scheme is the Holy Cross symbolising the dedication of the church. This has the emblems of the four Evangelists at the arms and the sacred monogram in the centre and is flanked by four figures, St. Michael, Joshua, Godfrey de Bouillon, and St. George, typical warrior saints and angels. These stand under traceried canopies. The Holy Cross is surmounted by censing angels. The upper part of the scheme represents our Lord in majesty with a wreath of angels flanked by the Four Archangels. The upper angels bear the symbols of the Passion. On either side of the composition are the arms of the City Companies, the Skinners, Carpenters, and Goldsmiths, and the various towns of which Sir Redvers was a freeman, viz., Exeter, Plymouth, Penzance, Southampton, and Redruth. Associated with these arms are the banners of St. Michael and St. George. The Buller arms are above the crown of the arch, on one side the coat Sir Redvers, and on the other Sir Redvers' arms impaled with those of Lady Aubrey. The work has been executed by Messrs. Dart and Francis, Ltd., of Crediton, the figure sculpture by Mr. Nathaniel Hitch, of London, under the direction of the architect, Mr. W. D. Caroe, F.S.A. The cost has been about £1,200.

ROME. The huge and long-delayed equestrian monument to King Victor Emmanuel II., the Liberator of Italy, was unveiled by the King on Sunday. It has cost £1,500,000, and is situated at the south end of Piazza Venezia and north of the Capitol, being visible all down the Corso. A broad stairway flanked by statues, leads up to the so-called Altar of the Fatherland, to be adorned with bas-reliefs, which are, however, not yet in position, between two fountains with the statues of Thought, by Giulio Monteverde, and of Action, by Francesco Jerace, of the Mediterranean and the Adriatic and other groups. Above is the bronze statue of Victor Emmanuel, 59ft. in height, the work of Signor Chiaradia, on a base 34ft. high, designed and executed by another sculptor, Signor Eugenio Maccagnani, and beyond is the main platform, where the statues of the eight "Makers of Italy" will be hereafter placed; while at each end are two columns surmounted by winged Victories in gilt bronze. Finally, on the highest platform is a colonnaded portico, 115ft. high, with pronaos at each end, adorned with bas-reliefs representing Liberty and Unity, and surmounted by bronze quadrigæ. On the pediment of the portico are statues of the sixteen regions of Italy, and within the colonnade the walls are covered with mosaics and bas-reliefs. The length of the whole structure is 420ft., the width 436ft., and the height from the level of the Piazza Venezia to the top of the quadrigæ is 245ft. The interior will contain a museum and library. The scheme for a monument was adopted in 1878, and the design of the architect, Count Giuseppe Sacconi, was placed first in two successive competitions, the first stone being laid in March 1885. Further delays arose, and it was not till 1892 that the foundations were completed, while for want of funds the work was at a standstill from 1896 till 1900. After the death of Sacconi, in 1905 the work of completion was entrusted to a committee of three architects, Gaetano Koch, P. S. Piacentini, and Manfredo Manfredi, who have accurately brought to completion Sacconi's plans with little essential alteration from the original model.

The Selby Rural District Council received on Monday the sanction of the Local Government Board to the borrowing of money for the purpose of carrying the Selby urban water supply to the villages of Cawood, Thorpe, Willoughby, and Gateforth. The surveyor (Mr. Thos. Braithwaite) intimated that the specifications for the work were completed.



NEW BUILDINGS, QUEENS' COLLEGE, CAMBRIDGE.

Our Illustrations.

"THE WALLS OF NUREMBERG."

The subject of this drawing is part of the Nuremberg walls of the city from the inside. The details of the timber fighting gallery, which here and elsewhere is so characteristic a feature of German Mediæval fortifications, makes it probable that this portion of the walls is earlier than the towers designed by Albert Dürer on the south and south-west. On the outer side there is everywhere reinforcement by a deep moat crossed by bridges, and protected by gates and towers; but these moats are now dry, and planted with fruit trees and poplars. Until within a few years ago the walls of Nuremberg were in an almost perfect state of preservation, and large sums have been spent upon their restoration when needed. But, more recently, modern vandalism has destroyed them in several places upon one pretext or another, and they are now not nearly so complete as those of Rothenburg or Nordlingen and other Bavarian towns. But, still, the architect will find endless materials for sketches over their long length, and many fine suggestions of form and proportion amongst their noble towers and gateways.

A. WALLACE RIMINGTON.

NEW BUILDINGS, QUEENS' COLLEGE, CAMBRIDGE.

These new buildings are about to be erected on the site of some old almshouses, and will form the third side of an incomplete quadrangle, the chapel being to the north, and Fawcett's-buildings to the south. The east side of the new block abuts directly on to Queens-lane, and this elevation forms the subject of our illustration to-day. The buildings provide accommodation for twenty-six undergraduates, with rooms for the Bursar and occasional guests, and have been planned in the traditional manner. The materials proposed are red brick, with Ancaster stone dressings and red-tiled roof, in harmony with the existing buildings, and the buildings will have fireproof floors and staircases throughout. Bathrooms and lavatories have been arranged in the basement. The architect is Mr. Cecil G. Hare, whose late partner, Mr. G. F. Bodley, was responsible for the chapel, which the new buildings will adjoin. The drawing reproduced is now at the Exhibition of the Royal Academy.

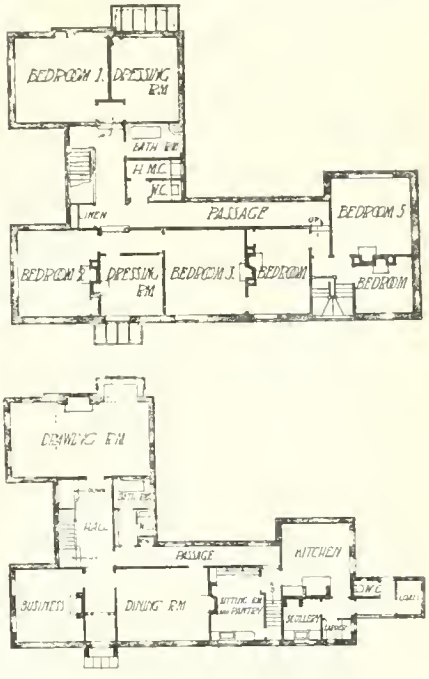
ST. TARCISIUS' CHURCH, CAMBERLEY.

This design is now on view at the Royal Academy Exhibition, illustrating a proposed new Roman Catholic church at Camberley. On the site there is a temporary iron church, which will be used as a church room, and a permanent house to be used as the presbytery. The façade of the existing premises to be faced with Bargate stone and Monks' Park dressings, two new bay-windows introduced, and the roof to be stripped and covered with tiles, to make it correspond with the new church. The church was intended to have walls of Bargate stone, with Monks' Park dressings and simple traceried windows. These dressings to show internally, and the rough wallings to be plastered. The roofs to be of tiles externally, and simple vaulting internally. The woodwork to be oak. Messrs. H. R. and B. A. Poulter are the architects.

The forty acres of land at Beckett's Park, Leeds, given to the town by the trustees of Wade's Charity, and comprising meadow land and trees, was opened to the public for the first time on Saturday last.

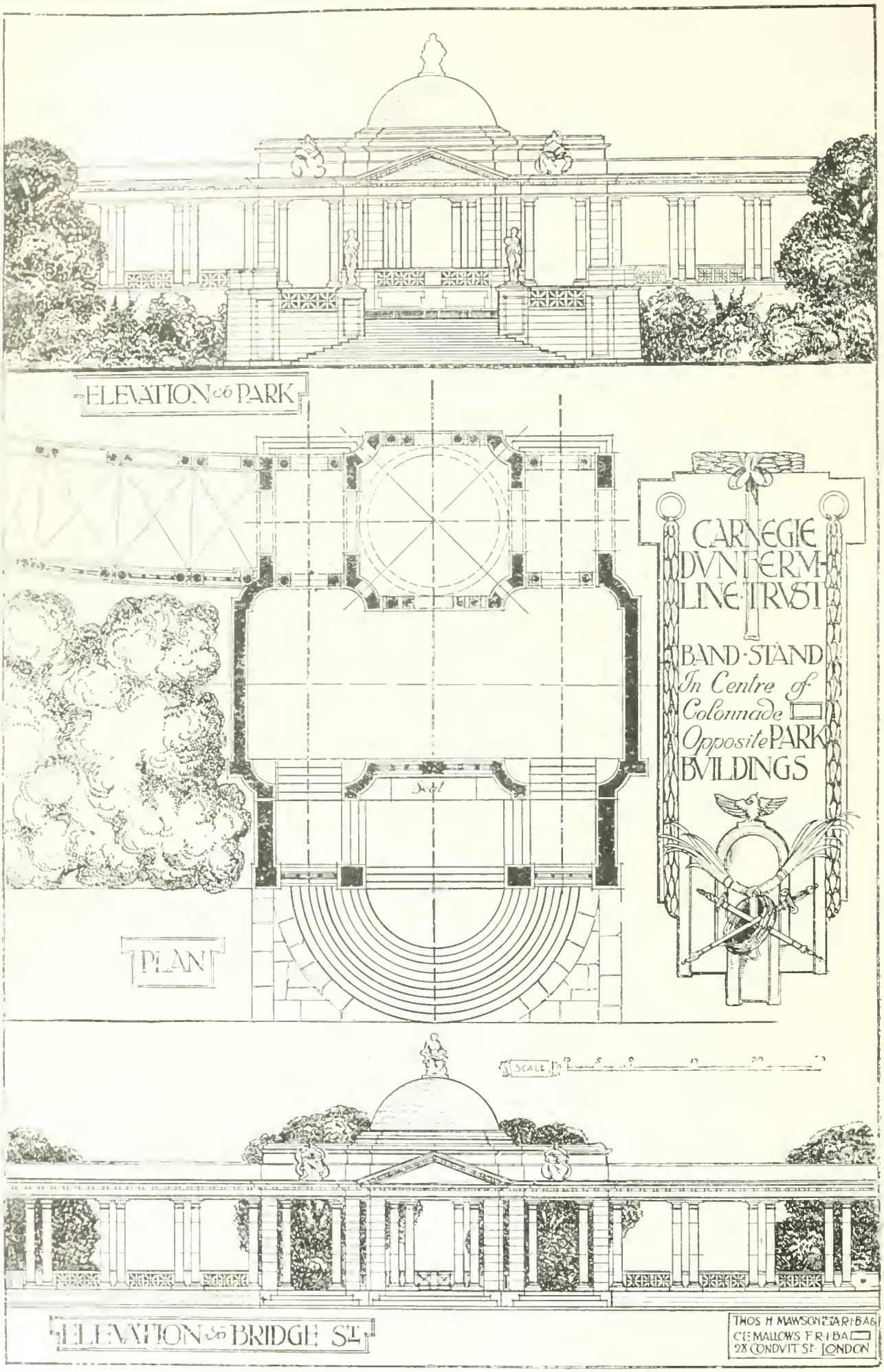
HOUSE AT HAREFIELD.

The drawing of this house, of which we give a view and plans, is exhibited at the Royal



Academy. The architect is Mr. Ernest Newton, A.R.A.

The new Baptist Chapel at Bishop Auckland, built at a cost of £3,700, was opened last week.



From "CIVIC ART," by Mr. T. H. Mawson, Hon. Associate R.I.B.A. (See page 794.)

House at Hurstfield.

Ernest Newton A.R.I.B.A. Architect

FRONT TO LONDON ROAD

SCHEME FOR SOUTH GABLE

H R & B A Poulter Architects

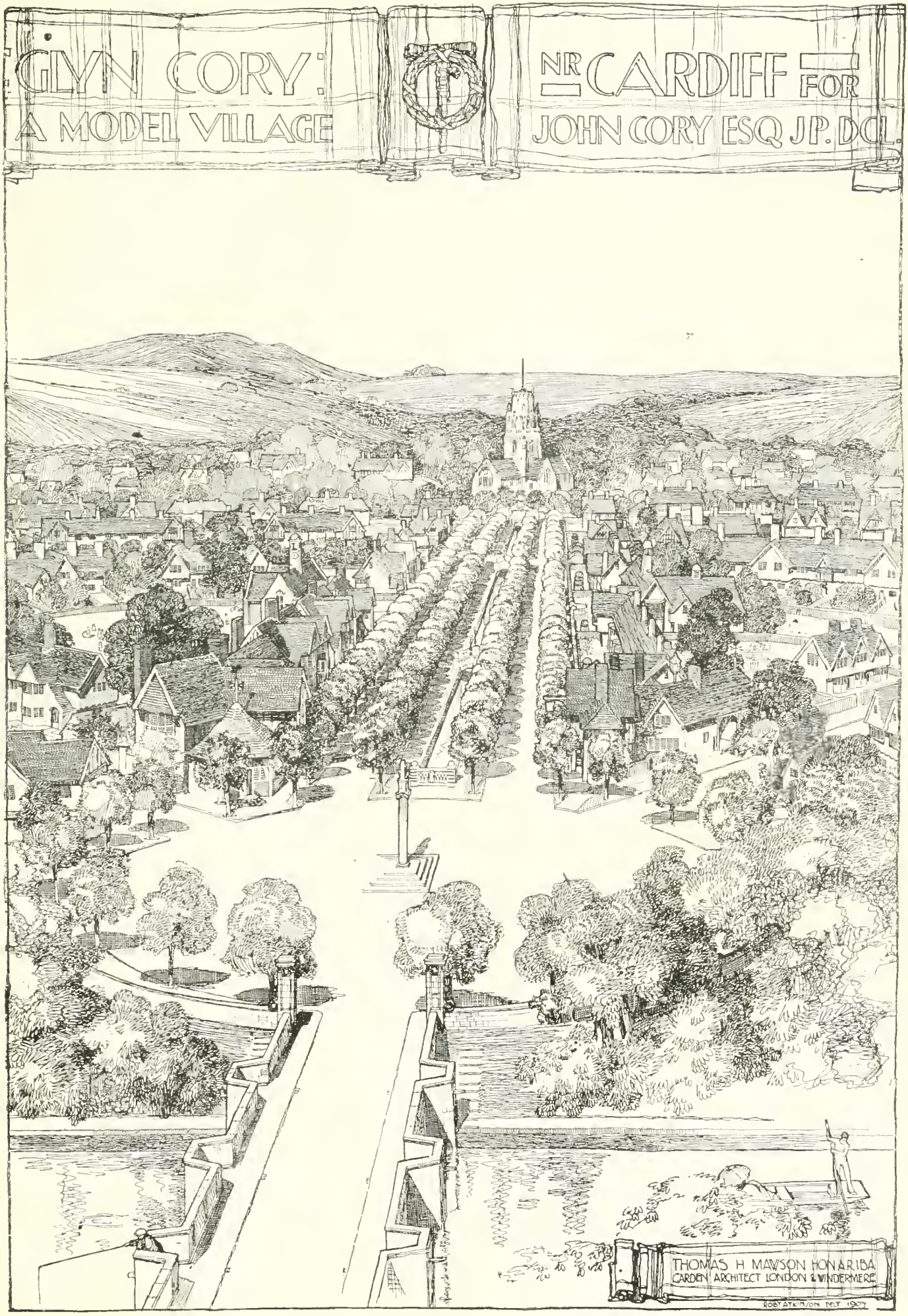
"Photo-Tint" Engraving Co. Akerman House, Queen Street, London

"PHOTO-TINT" [illegible] Queen Square [illegible]

NEW BUILDINGS. QUEENS COLLEGE. CAMBRIDGE. CECIL G. HARE ARCHT

THE WALLS OF NUREMBERG.

From a Watercolour Drawing by Professor A. WALLACE RIMINGTON, A.R.E.



From "CIVIC ART," by Mr. T. H. MAWSON, Hon. Associate R.I.B.A. (See page 794.)

LEGAL INTELLIGENCE.

ARBITRATIONS THAT ENDED IN LITIGATION. [illegible] was instructed by the Rock [illegible] work, before [illegible] Hall [illegible] the [illegible] Mr. [illegible] £35 [illegible] £27 [illegible] £10 [illegible] was appointed to [illegible] The [illegible] £20 10s. 10d. which included £9 9 [illegible] between the contractors [illegible] £19 0s. [illegible] No. 2 Dock Co. for [illegible] £5 for [illegible] exceed £17 [illegible] by [illegible] Mr. J. Hudson appointed to [illegible] and Mr. J. R. Gaffer Fleetwood [illegible] Mr. Hudson found [illegible] £21 3s. 7d. [illegible] and £21 3s. 7d. [illegible] by day work to be £25 9s. He [illegible] Messrs. England on the counter [illegible]

BURY CORPORATION SEWERS. The [illegible] sought by the Corporation of Bury [illegible] Messrs. A. C. Bedley and Sons, [illegible] contractors, Radcliffe, for an [illegible] restraining them from causing [illegible] nuisance by the waste heaps on their [illegible] premises into the lower intercepting [illegible] and altering the contract for the sewer [illegible] May 3 [illegible] before Vice-Chancellor Leigh Clare at the Lancaster [illegible] at Ardwick, and application [illegible] to Mr. Mabberley for the appointment [illegible] who were satisfied that the [illegible] the order provided [illegible] would be [illegible] to both parties, and he [illegible] the alterations proposed to be [illegible] the assurance [illegible] not they [illegible] to take it to the court. Mr. Younger, K.C., who appeared for the defendants, [illegible] The [illegible] settlement were not [illegible]

SUBMISSION OF TENDER BINDING ON BUILDER. BROWN v. PLATT. A case of considerable importance to builders and contractors has been heard by Judge Reginald Brown, K.C., at Nantwich County court. The plaintiff, William Brown, horsedealer, of Mushbridge, Nantwich, sought to recover £11 from Platt Brothers, builders and contractors, of Shavington, Crewe, as damages for breach of contract. Mr. J. P. Whittingham (Lichfield) was for the plaintiff, and Mr. Graham (Shrewsbury) for the defendants. Mr. Whittingham said Mr. Brown [illegible] some stables at his place in Mushbridge, and instructed an architect to prepare estimates and invite tenders. Accordingly [illegible] a tender offering to execute the work required to be done in the erection of the stables for £288. Plaintiff went through the tenders [illegible] that defendants' was the lowest, and Mr. R. Matthews (his architect) accepted it. This having been done, a contract was to be entered into with Platt Brothers, saying they could not accept the contract, owing to having found some mistake in their estimate, as they had omitted to carry one item to the necessary amounting to £50, which was too [illegible] a mistake. Nevertheless Mr. Matthews [illegible] Mr. Brown while saying he was sorry Platt Brothers had made an error, [illegible] took was a binding contract [illegible] and Mr. Brown, who insisted [illegible] carried out, he saw no [illegible] to the work at the [illegible] Platt Brothers wrote to Mr. [illegible] they were very much surprised [illegible] to take up, that he must [illegible] whatever kind [illegible] simply because they [illegible] to see that [illegible] a way towards [illegible] and they had made [illegible] that they would treat [illegible] observed and [illegible] His Honour quoted [illegible] Lee [illegible] which briefly [illegible] [illegible] He [illegible] be put into a [illegible] Mr. Wood [illegible] dated [illegible] [illegible] 1905 [illegible] gave evidence in corroboration. He instructed his solicitor to send a notice to the defendants, requesting them to proceed with the work, but they refused to do so. He then instructed Mr. Wood to carry out the work, and paid him £327 19s., and Mr. Matthews £1 1s. for extra work. He claimed £41, the difference between the amount tendered by the defendants and the sum paid to Mr. Wood. His Honour: I do not see how in any event you can have extras or additions. Mr. Whittingham: No, sir; we are not claiming these. Richard Matthews, architect, Nantwich, also gave evidence. He was instructed to accept defendants' tender, and wrote on April 20 to that effect. He received a letter on April 23 which he laid before Mr. Brown, and as he refused to accept the excuse, he wrote again to Platt Brothers, and the matter passed into other hands. In consequence of defendants not carrying out the work in accordance with notice served upon them by the solicitor, he instructed Mr. Thomas Wood to do the work. Cross-examined. He agreed that the bill of quantities was part of the contract which he alleged existed. It was stated in the bill of quantities that "The contract whose tender is provisionally accepted must be required to deposit with the architect a copy of the schedule of quantities before the contract is entered into." Mr. Graham: I put it to you that it is always open to the builder to amend his tender after he has the specifications and has time to go through them? Witness: It has never been done with me. Is it not the custom of the district? Not to my knowledge. His Honour (quoting): "Plans and specifications may be seen at this office at any time." Did he come to see the plans and specifications before he tendered? Witness: Yes; all builders do that. Counsel: Would you, or would you have allowed your employer to sign a contract before that schedule of prices was delivered? Witness: No. As a fact, no schedule of prices was delivered in this case? Not to me, no. His Honour: What does this mean—the contractor whose tender is provisionally accepted? Witness: It makes provision for provisional tender, or provisional acceptance. How do you accept a tender provisionally? You accept a tender subject to the building owner carrying out the work. Mr. Graham said he had a large mass of evidence of architects and builders who were accustomed to work in the district, and they would say that a contract with the word "provisional" meant that a builder had an opportunity of revising his tender after having had an opportunity of measuring up the specifications, and comparing it with the work. His Honour said he did not see how he could admit the evidence. How could there be a custom when each contract varied? They did not all have the same bills of quantities. George William Platt (partner in the defendant company) said when he sent in the tender for £288 he did not intend it to be a figure for making a contract to do the work for that amount. Counsel: What was your intention? Witness: It was simply a price sent in. What did you understand by the words "provisionally accepted" in the bills of quantities? We simply relied on trade custom for one thing, and on the architect's quantities as a guide; supposing we had made a mistake, or in the event of materials jumping up in the meantime between our estimate going in and the acceptance. You consider you had an opportunity of revising it? Oh certainly; we always have had before. Had you any opportunity of testing the measurements until you got plans and specifications? None whatever. Mr. Whittingham objected to evidence of architects and builders being given on the point of custom, on the ground that such evidence was not material to the issue, and holding as in a case cited, that if there was such custom it was contrary to law. He submitted in this case there was a contract in law. In ordinary business the true construction of the documents was, but there was a fast and binding contract. If these contracts were not binding it would open a very wide door, and a serious situation would be created, because one might conceive, without bringing into question the honesty of the builders, that two persons who had tendered for a job if they put their heads together could say, "I decline to go into the work until I have signed a formal contract." His Honour, giving judgment, said the case was an important and difficult one. But after listening carefully to the arguments and perusing the document he was unable to distinguish the case in substance from the case of Lewis and Bass (cited by Mr. Whittingham) which had been decided by the Court of Appeal after it had been before the Divisional Court, and of course he was bound by that decision. There were, he thought, differences between this case and the one mentioned, but to his mind, not material differences. But he was bound to say, although he cannot think that conclusion, he would be very much inclined if the case were carried further, and the decision of the Court of Appeal were obtained. In reviewing the facts, his Honour said that when at the commencement of the case he asked Mr. Graham how he was going to get over the correspondence which apparently pointed to the filling-up of the bill of quantities as a condition precedent to the binding contract between the parties, and to the signing of the contract agreement between the parties, he had not seen the bill of quantities—what was called the bill of quantities and headed "estimate," but what was really a document containing the quantities of the work to be done, and also all sorts of provisions which would form part of the contract between the parties. He was not aware that there was any document already passing between the parties when this tender was accepted which provided, among other things, for extras or additions, which provided for the time within which the works were to be done, and which provided, as this did in a dozen or so more clauses, for all those things which they knew had to be put into these contracts. It now appeared that at the time defendants sent in their tender, which was unconditionally accepted by the plaintiff, except for the expression about a contract to be entered into, there was in the hands of both parties this important document, and the specifications too, another important document containing all the necessary provisions for incorporation in such a contract which would be entered into here. So that he came to the conclusion that this reference in the acceptance of the tender to a contract to be entered into was only one of those cases where it was providing for a formal document to be made out incorporating the provisions which the parties had already agreed to, and which were already in their hands, and if the parties had already agreed to the material terms of the contract, and it only remained for them to put them into form in a contract, then they might well have a concluded bargain between the parties which the Court could enforce. Sitting there as a Judge, he must construe a contract between the parties, and he must find whether in law and in fact—he supposed partly law and partly fact—they intended to make a bargain by this tender and acceptance: he must find that they did, both as a matter of law and as a matter of fact: if it was fact, the tender was absolute in form. For the reasons mentioned he found, therefore, as a matter of fact, so far as it was fact, that they did intend to enter into a contract—a binding contract—by this offer and this acceptance, and he also found as a matter of law that it was a binding contract, and it followed that he decided in favour of the plaintiff for the amount claimed, and he hoped the case would be carried elsewhere.—Mr. Whittingham asked for costs on scale "C," owing to the nature of the case.—Mr. Graham did not see there was anything out of the ordinary in the case.—His Honour agreed, remarking that he did not say it was a novel or difficult point of law.—Mr. Graham said he hardly knew whether the case could be taken further. That was a matter for subsequent consideration. He would like the interpretation of the contract decided, but so far as the fact was concerned, he was afraid he could not expect to upset his Honour.

Mr. H. D. Strange has resigned his position as surveyor to the Redruth Urban District Council upon his appointment as borough engineer and surveyor to the Dorchester Town Council.

The Hexham Abbey grounds, which have been acquired by purchase from Lord Allendale by the Hexham Urban District Council, were opened to the public on Saturday, there being a new gateway into them from the town's old pleasure park—the Seal, which has, through the munificence of Lord Allendale, also become the property of the town.

The Home Secretary, after consideration of objections made to him, has decided to make certain amendments in the regulations proposed to be made under Section 79 of the Factory and Workshop Act, 1901, for the smelting of materials containing lead, the manufacture of red or orange-lead, and the manufacture of flaked litharge. He is glad to find that these amendments can be made without materially affecting the usefulness of the regulations, and that, with the alterations, the regulations are likely now to be accepted without further objection.

Arrangements have been made for members and students of the Society of Architects and their friends to visit Amersham to-morrow (Saturday). The party will travel from the Great Central Railway, Marylebone Station, by excursion train leaving at 1.39 p.m. Fare, 1s. 9d. return. Amersham contains a number of buildings of architectural interest, including the church, which is mainly in the Perpendicular style, and contains some fine old brasses, the Market House (1652), the almshouses (1617), and a fine 16th-century manor house.

WATER SUPPLY AND SANITARY MATTERS.

MANCHESTER WATER SUPPLY.—The engineers' report to the Manchester Corporation Waterworks Committee as to the progress made in the laying of a third line of pipes and aqueduct between Thirlmere and Manchester shows that Messrs. Morrison and Mason, contractors for the northern section between Ambleside and Carnforth, have completed 9¼ miles out of 14 miles. In the second section, from Carnforth to the vicinity of Little Hulton, near Bolton, the contractor, Mr. John Moffatt, has laid 13¾ miles out of 18 miles, and good progress is being made by Messrs. E. Nuttall and Co. with the work between Little Hulton and Denton. The work of constructing a new reservoir at Heaton Park is proceeding rapidly, 330 men being engaged there.

CHIPS.

A receiving order has been made in the case of George Evans, Glencoe Mansions, Chapel-street, Brixton, builder.

The contract for a new paper-mill, which is to be built for Messrs. J. R. Crompton Brothers at Stubbins, Ramsbottom, has been secured by Messrs. John Inman, of Bury, Lancs.

The Duke of Devonshire, Provincial Grand Master, laid with full Masonic ceremonial on Wednesday the foundation-stone of a cottage hospital for Buxton. The site of the hospital, on the London road, was given by the Duke. The institution will contain ten beds, and will cost £2,600.

At Friday's meeting of the Tyne Port Sanitary Authority, Mr. Rusden, engineer to the authority, wrote resigning his position. In his letter he said that, owing to the remarks of the chairman at the last meeting, and the report of the sub-committee, he regretted that he could no longer hold the position of consulting engineer, a position he had occupied, he believed to the authority's satisfaction, for thirteen years.

The Harlaw sub-committee of the Aberdeen Town Council have unanimously approved of a model for a hexagonal tower to be erected at Inveramsay, about twenty miles from Aberdeen, on the site of the battle of Harlaw, the quincentenary of which is to be celebrated next month. The design is by Mr. William Kelly, A.R.S.A., and on the hexagonal sides the arms of the principal families who took part in the fight against Donald, Lord of the Isles, will be placed.

The administration of the Belgian State railways are about to reconstruct the Luxemburg Bridge over the Meuse at Namur. The bridge was erected in 1887, and consists of two independent single-track structures with three fixed spans each 138ft. 2in. long, resting on two piers and two abutments. The contract for the works has been awarded to the Ateliers Métallurgiques of Brussels for the sum of £13,040, and they are to be completed by November.

Mr. Gervase Beckett had a consultation on Saturday with the local authorities at Whitby and Mr. John Tweed, the sculptor, with reference to the statue of Captain Cook. Mr. Beckett had promised to provide the town with a replica of the statue erected in London to the memory of Cook, but he had now determined that the Whitby statue shall be of an original design. Mr. John Tweed, who is preparing the Clive memorial for India, has been appointed to execute the work, which will not be completed for nearly eighteen months.

The Local Government Board have approved of a scheme of main outfall sewerage for Norton, Stockton-on-Tees, prepared by Messrs. D Balfour and Son, civil engineers, of Newcastle-on-Tyne. The work consists in the laying of a 24in. cast-iron sewer from the River Tees to near the south end of Norton, where the existing Lustrum Beck sewer is to be connected. A sewer will then be laid along Portrack-lane up to Norton Green. For a portion of the district adjacent to Billingham Beck, the sewage will gravitate to a storage tank, and be pumped up into the high-level sewer by gas-engines driving centrifugal pumps.

A White Paper just issued contains appendices to the final report of the Royal Commission on the Canals and Inland Navigations in the United Kingdom, in which the inland waterways of Ireland were dealt with. In an appendix, giving comparisons between English and Irish railways, it is stated that, while Ireland has a little more than half the area of England and Wales, it has only about one-fifth of the mileage of railway, and that while the mileage in Ireland is .10 miles of railway per square mile, in England it is .27 miles per square mile. On the other hand, Ireland has .75 miles of railway per 1,000 inhabitants, while England has only .49 miles per 1,000 inhabitants.

Our Office Table.

A fresh site for the King Edward Memorial, which has the merit of being absolutely central, has been suggested by Mr. Basil Holmes, secretary of the Metropolitan Public Gardens Association, who points out the advantages of placing it on the paved space, built out as required, in front of the National Gallery. A platform could be made providing a space ample in area for the reception of the pedestal of any likely memorial. In such a position the Memorial would be seen from a long way down Whitehall, as the road is not at right angles with the square. The Memorial would always be seen in comfort by any number of people on all sides and at varying levels. Much desirable architectural treatment could, if necessary, be introduced, and might do away with the necessity of the existing corner staircases. With "Sea Power" in front and Art behind, the Memorial would be in the midst of dignified surroundings, and Mr. Holmes thinks that no site yet suggested presents so many advantages as regards visibility and accessibility to the largest number of people who would be brought into daily contact therewith. If Gordon's statue were found to be too near, it could be removed to a more suitable position on one side of the square. We note that among the latest contributors to the Mansion House Fund, which now amounts to £60,500, are Sir Edward Poynter, P.R.A., Mr. William Woodward, F.R.I.B.A. (Mayor of Hampstead), and Mr. Rowland Plumbe, F.R.I.B.A., who have given five guineas each.

The Archbishop of York was the principal speaker at a Mansion House meeting held on Friday at York, for the purpose of promoting the restoration of St. Cuthbert's Church, one of the oldest parish churches in the city. In moving a resolution commending the object to the public support, his Grace said he knew that the word "restoration" was a word of deservedly evil omen. He thought it might be said of the great majority of the restorations effected during the sixty years of the great church revival, that those "restorations" were "deformations." The only kind of restoration which was really tolerable was the restoration which meant preservation. "Upon that point," Dr. Lang proceeded, "let me say, some of our antiquarian friends are apt to talk a good deal of cant. Very often the only way in which to preserve old buildings and characteristic features is to restore them, and when we are satisfied that restoration means preserving what is worth preserving, rescuing, and recovering, and representing the hidden beauties of a church, then I say, under these circumstances, restoration becomes positively worth doing." The motion was agreed to, and an executive committee was appointed to carry on the work. The estimated cost is £1,890, and about £460 has already been given or promised.

The report of the Inspector of Ancient Monuments, Mr. C. R. Peers, F.S.A., referred to on page 800 *ante*, refers in detail to the steps now being taken for the maintenance of the Tower of London. Mr. Peers observes that surface decay is, and will doubtless long continue to be, a serious problem at the Tower, for as yet none of the many preservatives which have been used on decayed stonework have been able to resist the London atmosphere. Structurally, however, the buildings afford little or no cause for anxiety. The archways of the Middle and Byward Towers having been damaged by the hoods of waggons, the passage through them of all wheeled traffic is now forbidden by order of the Deputy-Governor of the Tower. Arrangements are now being made, Mr. Peers says, for the systematic photographing and more effective preservation of the long and interesting series of prisoners' inscriptions which occur throughout the ancient buildings. The work of removing from the ancient walls the casing of small flints in cement, which is both disfiguring and dangerous, is proceeding, and the old surfaces are being carefully pointed. The monuments in St. Peter's Chapel have been cleaned and securely fixed, and others of considerable artistic merit which had been removed to the crypt are being brought back into the chapel. The three wells in the chapel have been cleared out and examined, and prove to be of much interest, that in the White Tower being lined with 12th-century masonry, with the original wood templates still in position at the bottom.

A pastoral staff was presented to the Bishop of Gloucester at the Palace on Saturday on behalf of the clergy and laity of the diocese. Lord St. Aldwyn, who made the presentation, explained that the staff has been carved on the main lines of the old Wykham staff, and the design submitted by Mr. Bainbridge Reynolds was selected. The lower part of the capital is adorned by the arms of several dioceses (Canterbury, Lichfield, and Worcester), of Osric, Edward the Confessor—each having associations with the diocese—Henry VIII., who founded the present See of Gloucester, and of the present Bishop of Gloucester. Above these are figures of the four Evangelists, and, supported by four angels, four scenes illustrating the Virgin and Child, the Crucifixion, the Pastoral Commission, "Feed My sheep," and the risen and glorified Lord blessing the Church. Above these scenes in the centre of the crook is an Agnus Dei figure. The crook is of silver gilt, and the whole is adorned with precious stones.

At the Royal Institution, on Tuesday, Mr. W. W. Watts, Professor of Geology, Imperial College of Science, gave a lecture on "Charnwood Forest and its Fossil Landscape." The lecturer said that the old landscape beneath the red marl of the forest had been redeveloped by the slow sweeping away of the marl, a process which had caused the rocks singularly little damage. Some of the rocks in the forest were of such strength as to be harder than steel. That fact was proved as the result of a complaint made by some workmen that their tools were of no use against the rock. The foreman of the gang did not at first believe them, but, on making an examination, discovered that the men's statement was true. Desert seas in Central Asia and Arizona were depicted on the screen to show what England must have been in the opinion of Mr. Watts many centuries ago.

Since the purchase of the Lymm Estate from the executors of the late Mr. Littleton Dewhurst by Mr. W. H. Lever, several developments have taken place. Lymm Waterworks, together with the dam from which the turbines are worked, have been offered to the Lymm Urban District Council, together with some land for road-making, for £26,000, conditional to Lymm Council bearing half the cost of making the road. This road would develop building land around Lymm dam, and would pass between the two dams. The farmers do not like the idea of having their farms cut up into building plots, especially where they have personal interest in the land, and the offer at £50 per acre they consider too high to enable them to earn a living. It is understood in Lymm that if these offers are refused, the greater part of the estate will be sold publicly. A few years ago Lymm Urban District Council were negotiating for the waterworks, and £14,000 was mentioned as the possible purchase price.

In a Parliamentary White Paper issued on Saturday the Under-Secretary of State for India shows the financial position in respect of Indian railways in course of construction, and likely to be undertaken during 1911-12. The total length of the railways is given as 3,047 miles, of which 585 miles are new lines and 2,462 miles lines in progress. Of the new lines, 279 miles are in the hands of the State, and 306 miles in the hands of companies, while of the lines in progress, 591 miles are in the hands of the State and 1,871 miles under the control of companies. The estimated total cost is 27,30,55,000 rupees, the proposed expenditure in 1911-12 6,12,15,000 rupees, and the estimated liability on March 31, 1912, 11,75,06,000 rupees. The Paper also deals with productive irriga-

MEETINGS FOR THE ENSUING WEEK

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claims upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, Effingham House, 1, Arundel-street, Strand, W.C., and not to the members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED, and crossed London County and Westminster Bank.

Telegraphic Address.—"Timeserver, London."
Telephone, Gerrard 1291.

THE CORONATION HOLIDAYS.

On account of the interruption of business caused by the Coronation Holidays, we must publish the "BUILDING NEWS" of the Coronation week on WEDNESDAY, June 21, instead of at the usual time.

This will necessitate our going to press on the previous TUESDAY at 4 p.m., instead of on THURSDAY at the usual hour. We ask readers to pardon any omission of news that may otherwise reasonably expect.

We beg all our correspondents to let us have all communications as early in Coronation week as possible, and by first post on the TUESDAY morning. Advertisements must reach us by 3 p.m. on Tuesday, June 20.

Readers should be warned to obtain that week's issue as early as on WEDNESDAY before the holidays, and should remind their newsagents of this fact that they may do so.

TERMS OF SUBSCRIPTION.

One Pound per annum (post free) to any part of the United Kingdom; for the United States, £1 6s. 0d. (or 6dols. 30c. gold). To France or Belgium, £1 6s. 0d. (or 25fr. 30c.) To India, £1 6s. 0d. To any of the Australian Colonies or New Zealand, to the Cape, the West Indies, or Natal, £1 6s. 0d.

*** The special rate to Canada is £1 1s. 8d. = 5dols. 27c. for 12 months, and 10s. 10d. = 2dols. 64c. for six months.

NOTICE.

Bound copies of Vol. XCIX. are now ready, and should be ordered early (price 12s. each, by post 12s. 9d.), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XLI., XLVI., XLIX., LII., LXI., LXII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXIX., LXXX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., LXXXVI., LXXXVII., LXXXVIII., LXXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., XCVII., and XCVIII. may still be obtained at the same price all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

Handsome Cloth Cases for binding the BUILDING NEWS, price 2s., post free 2s. 4d., can be obtained from any Newsagent, or from the Publisher, Effingham House, 1, Arundel-street, Strand, W.C.

ADVERTISEMENT CHARGES.

The charge for **Competition** and **Contract** Advertisements, **Public Companies**, and all official advertisements is 1s. per line of Eight Words, the first line counting as two, the minimum charge being 5s. for four lines.

The charge for **Auctions, Land Sales,** and **Miscellaneous** and **Trade** Advertisements (except Situation Advertisements) is 6d. per line of Eight Words (the first line counting as two) the minimum charge being 4s. 6d. for 40 words. Special terms for series of more than six insertions can be ascertained on application to the Publisher.

Situations and Partnerships.

The charge for advertisements for **Situations Vacant**" or "**Situations Wanted** and "**Partnerships**," is ONE SHILLING FOR TWENTY-FOUR WORDS, and SIXPENCE for every eight words after. *All Situation Advertisements must be prepaid.*

*** Replies to advertisements can be received at the Office, Effingham House, 1, Arundel-street, Strand, W.C., *free of charge*. If to be forwarded under cover of advertiser an extra charge of Sixpence is made. (See Notice at head of "Situations.")

Rates for **Trade** Advertisements on front page, and special and other positions, can be obtained on application to the Publisher.

Advertisements for the current week must reach the office not later than 4 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

RECEIVED.—E. E. C. M. Co. and Co.—J. W. and Co.—C. and Co.—B. M. S. S.—W. J. and Co.—P. D. Co.—F. S. Co.—E. B. D. and Son.—R. F. W. and Son.—R. and J. B.—B. F. Co.—N. and Co.—T. L. and Son.—P. and Co.—B. B. Co.—J. T.—T. B. B. and Co.—C. and G. B.—A. Ltd.—T. E. C.—D. B. Co.—J. B. Ltd.—O. E. Co.—S. and Co.—C.—W. C. H.—B. F.

M. J. V.—Yes.

CURSUS.—Thanks, please send.

P. S.—We are afraid not.

SCEPTIC.—Our own feeling is that editors of newspapers are not suitable judges in competitions, and we have always declined on that ground; but we have no room for a discussion of the case you refer to.

P. D.—An architect named Potts invented a ventilating cornice on much the same principle in the late sixties, and we described it at the time. It had a considerable vogue for some time, and was regularly advertised in these pages.

FRAIL.—You and some of our other friends must bear in mind that "Intercommunication" cannot include mere general queries; but must, as far as possible, be limited to genuine matters of interest to architects and builders. A similar column in our other paper, the *English Mechanic*, covers far wider ground, and we have transferred your query there.

"BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Margis," "Bournemouth Queen," "Showman," "Chocolate Soldier," "Liver," "Harvey," "Oxonian," "Burghwallis," "Sirrah," "Arte et Labore."

The salary of the surveyor to the Saltburn Urban District Council has been increased by £15 per annum.

The Coventry Corporation have increased the salary of Mr. G. Tough, electrical engineer and manager, from £450 to £550.

An inquiry will be held on Friday in next week at Old Trafford on behalf of the Local Government Board into an application of the Urban District Council of Stretford for permission to borrow £16,000 for the purchase of the Longford Hall Estate for public walks and pleasure grounds.

The Duke of Buccleuch presided at a representative meeting, held at Dumfries on Wednesday, at which it was decided to support as a county memorial to King Edward the scheme for the enlargement and improvement of Dumfries and Galloway Royal Infirmary, at a cost of about £12,000.

Extensive alterations have recently been carried out at 71, High-street, Maidenhead, for Messrs. Neve Brothers, outfitters, etc. The contractor for the general building work was Mr. W. Creed, of Boyne Works, Maidenhead. The architect was Mr. H. Stanton Webber, F.S.I., 23 Queen-street, Maidenhead.

The drawings submitted in competition for the A.A. Travelling Studentship Silver Medal, Banister Fletcher Bursary, etc., will be on exhibition at the Royal Architectural Museum 18, Tufton-street, Westminster, from Monday next until Saturday, the 24th inst. inclusive, between the hours of 10 a.m. to 7 p.m., Saturdays 4 p.m.

The Accrington Corporation, having electrified their tramways, had the assessment raised from £800 to £1,650 by the Haslingden Union Assessment Committee. The corporation protested and finally agreed mutually to refer the rating to arbitration. Mr. Thomas Wainwright, Liverpool, was selected as arbitrator, and his award has been given for £2,544, nearly £1,000 more than the assessment committee fixed.

A Local Government Board inquiry has been held at Nelson, Lancs, into applications of the town council for permission to borrow £14,525 for street improvement works, £3,500 for the provision of bowling and tennis grounds in Thomas-street, and a bowling green, bandstand, etc., at Victoria Park, and £1,500 for the purchase of land adjoining Victoria Park for public walks and pleasure grounds.

Mr. Charles J. Brown, engineer to the North British Railway Company in Edinburgh, has been appointed chief engineer to the Great Northern Railway Company in London. The appointment will take effect on October 1, when Mr. Ross, the present chief engineer, retires. Mr. Brown has been twenty-two years in the service of the North British Railway and succeeded Mr. James Bell as chief engineer in October, 1909.

Tenders are invited for the construction of the Brackenhill Light Railway, about three miles in length, commencing by a junction with the North-Eastern and Midland Railway Companies' Swinton and Knottingley Railway near Ackworth Station, and terminating near Hemsworth Colliery. The works comprise a single-line railway, with goods station, sidings, earthworks of about 270,000 cubic yards, and bridges. The engineer is Mr. C. F. Bengough, of York.

Mr. W. L. Courtney, who gave the first of two lectures on types of Greek women at the Royal Institution on Saturday, pointed out that the fresco paintings in the Cretan palaces of the period about 2,000 years B.C. showed that the women were tight-laced and pinched in their waists, that they had flounced accordion-pleated skirts, an elaborate coiffure, wore dainty shoes with high heels, hats which might have come from a Parisian hat shop, and one lady might even be described as wearing a "jupe culotte."

LATEST PRICES.

IRON.

Steel Joists, Belgian and German (ex steamer, London)	Per ton	£5	12	6	to	£5	17 6
Steel Joists, English		6	10	0	,,	6	15 0
Wrought-Iron Girder Plates		7	0	0	,,	7	5 0
Steel Girder Plates		7	2	6	,,	8	2 6
Bar Iron, good Staffs		6	5	0	,,	6	10 0
Do., Lowmoor, Flat, Round, or Square		20	0	0	,,	20	0 0
Do., Welsh		5	15	0	,,	5	17 0
Boiler Plates, Iron—							
South Staffs		8	0	0	,,	8	15 0
Best Snedshill		9	0	0	,,	9	10 0

Angles 10s., Tees 20s. per ton extra.

Builders' Hoop Iron, for bonding, &c., £8 15s. to £9.

Builders' Hoop Iron, galvanised, £14 to £15 10s. per ton

Galvanised Corrugated Sheet Iron—

	No. 16 to 20.	No. 22 to 24.
6ft. to 6ft. long, inclusive gauge	Per ton. £13 0 0	Per ton. £13 10 0
Best ditto	13 0 0	14 0 0

Wire Nails (Points de Paris)—

3 to 7	8	9	10	11	12	13	14	15	B.W.G.
8 3	8 9	9 3	9 9	10 3	11 -	11 9	12 6	13 6	per cwt.

	Per ton.				Per ton.	
Cast-Iron Columns	£6	10	0	to	£8	10 0
Cast-Iron Stanchions	6	10	0	,,	8	10 0
Rolled-Iron Fencing Wire	6	5	0	,,	8	10 0
Rolled-Steel Fencing Wire	6	5	0	,,	8	10 0
,, ,, ,, Galvanised	7	15	0	,,	8	5 0
Cast-Iron Sash Weights	5	0	0	,,	5	5 0
Cut Floor Brads	9	15	0	,,	—	
Corrugated Iron, 24 gauge	16	0	0	,,	—	
Galvanised Wire Strand, 7 ply, 14 B.W.G.	14	5	0	,,	—	

B.B. Drawn Telegraph Wire, Galvanised—

0 to 6	9	10	11	12	B.W.G.
£10 5 0	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.

Cast-Iron Socket Pipes—

	Per ton.					
3in. diameter	£6	2	6	to	£6	7 0
4in. to 6in.	6	0	0	,,	6	5 0
7in. to 24in. (all sizes)	5	7	6	,,	6	0 0

[Coated with composition, 5s. 0d. per ton extra; turned and bored joints, 5s. 0d. per ton extra.]

Pig Iron—	Per ton.		
Cold Blast, Lilleshall	110s. 0d.	to	117s. 6d.
Hot Blast, ditto	70s. 0d.	,,	75s. 0d.

Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.):—

Gas-Tubes	75	p.c.
Water-Tubes	72½	,,
Steam-Tubes	67½	,,
Galvanised Gas-Tubes	65	,,
Galvanised Water-Tubes	62½	,,
Galvanised Steam-Tubes	57½	,,

OTHER METALS.

Spelter, Silesian	Per ton	£24	7	6	to	£24	10 0
Lead Water Pipe, Town		17	0	0	,,	—	
,, ,, ,, Country		17	15	0	,,	—	
Lead Barrel Pipe, Town		18	0	0	,,	—	
,, ,, ,, Country		18	15	0	,,	—	
Lead Pipe, Tinned inside, Town		19	0	0	,,	—	
,, ,, ,, ,, Country		19	15	0	,,	—	
Lead Pipe, Tinned inside and outside ..... Town		21	10	0	,,	—	
,, ,, ,, ,, Country		22	5	0	,,	—	
Composition Gas-Pipe, Town		20	0	0	,,	—	
,, ,, Country.		20	15	0	,,	—	
Lead Soil-pipe (up to 4½in.) Town		20	0	0	,,	—	
,, ,, ,, Country		20	15	0	,,	—	
[Over 4½in. £1 per ton extra.]							
Lead Shot, in 28lb. bags		24	15	0	,,	—	
Copper Sheets, sheathing & rods		79	0	0	,,	79	10 0
Copper, British Cake and Ingot		58	15	0	,,	59	5 0
Tin, Straits		215	0	0	,,	216	0 0
Do., English Ingots		209	0	0	,,	209	10 0
Do., Australian		212	10	0	,,	213	0 0
Do., Bars		201	0	0	,,	201	10 0
Pig Lead, in 1cwt. pigs		14	7	6	,,	—	
Sheet Lead, Town		16	10	0	,,	—	
,, ,, Country		17	5	0	,,	—	
Genuine White Lead		21	0	0	,,	—	
Refined Red Lead		19	0	0	,,	—	
Sheet Zinc		32	5	0	,,	—	
Old Lead, against account		12	3	9	,,	—	
Tin	per cwt.	11	19	0	,,	—	
Cut Nails (per cwt. basis, ordinary brand)		0	10	6	,,	—	

TIMBER.

CONSTRUCTIONAL.

Per St. Petersburg Standard (100—12ft. by 11in. by 11in.)							
Yellow Pine Deals, Quebec,	1st quality	£34	0	0	to	£42	0 0
,, ,, ,,	2nd ,,	24	0	0	,,	26	0 0
,, ,, ,,	3rd ,,	15	10	0	,,	18	0 0
Spruce Deals: St. Johns		8	0	0	,,	11	0 0
,, ,,	Miramichi	7	5	0	,,	8	10 0
,, Boards: Swag		7	0	0	,,	8	0 0
Red Deals: Archangel 1st quality		20	10	0	,,	21	10 0
,, ,, ,,	2nd ,,	15	0	0	,,	17	0 0
,, ,, ,,	3rd ,,	11	0	0	,,	12	0 0
,, ,, St. Petersburg—							
,,	1st quality	16	0	0	,,	17	0 0
,,	2nd ,,	13	0	0	,,	14	10 0
,, ,, Wyburg & Uleaborg		10	0	0	,,	12	0 0
,, ,, Gefle, Gothenburg, and Stockholm		10	0	0	,,	17	0 0
White Deals: Crown		10	0	0	,,	12	0 0
,, ,,	Seconds	9	10	0	,,	10	0 0
Flooring: White and Planed—							
1st and 2nd quality mixed		9	0	0	,,	9	5 0
1st, 2nd, and 3rd quality mixed		8	5	0	,,	8	10 0
Red Planed, 1st quality		11	5	0	,,	11	10 0
Pitch Pine: Prime Deals and Boards		17	0	0	,,	20	0 0
Lignum Vitæ		5	10	0	,,	12	0 0
	Per foot super, as 1in.						
Yellow Pine Logs (waney board)		0	2	9	,,	0	4 3
Pitch Pine Logs		0	1	6	,,	0	1 10
Birch: Quebec Logs		0	2	0	,,	0	2 6
Oak: Austrian Wainscot		0	7	0	,,	0	8 0
Mahogan Gaboon		0	6	1½	,,	0	6 2¼

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (50c.ft.)	£20	0	0	to	£21	10	0
,, Java ,, ,,	15	0	0	,,	18	0	0
	Per cubic foot.						
Oak Planks: U.S.A., imported	0	1	9	to	0	2	6
,, Boards ,, ,, Prm.	0	2	4	,,	0	2	9
,, ,, ,, ,, Mdm.	0	1	10	,,	0	2	2
Sequoia (Californian Redwood)	0	3	0	,,	0	3	6
Birch: Quebec logs	0	1	8	,,	0	2	2
,, ,, sawn planks	0	1	0	,,	0	1	2
Oak: Austrian Wainscot	0	7	0	,,	0	8	0
Walnut: Prime boards & planks	0	5	0	,,	0	6	0
,, Mdm. ,, ,,	0	3	4	,,	0	3	6
Greenheart: Hewn logs	0	3	6	,,	0	4	6
Cedar: Cigar box	0	3	6	,,	0	4	6
Satin Walnut: Imp. sawn boards, prime	0	2	3	,,	0	2	6
Orham: Imp. sawn boards, prime	0	1	10	,,	0	2	2
Mahogany: St. Domingo, Cuba, and Honduras	Per foot of 1in. 0	0	5½	to	0	0	6
,, African, Assince, &c.	0	0	4½	,,	0	0	9
,, Lagos and Benin	0	0	3½	,,	0	0	4½
,, Sekondi and Cape Lopez	0	0	2½	,,	0	0	3½
,, Gaboon	0	0	1½	,,	0	0	0
Satinwood: West Indian	0	0	10	,,	0	2	2
Rosewood ..... Per ton	7	0	0	,,	12	0	0
Lignum Vitæ ,,	4	0	0	,,	11	10	6

STONE.*

Red Mansfield, in blocks	per foot cube	£0	2	4	
Darley Dale, ditto	,, ...	0	2	3	
Red Corsehill, ditto	,, ...	0	2	2	
Closeburn Red Freestone, ditto	,, ...	0	2	0	
Ancaster, ditto	,, ...	0	1	10	
Greenshill, ditto	,, ...	0	1	10	
Chilmark, ditto (in truck at Nine Elms)	,, ...	0	1	9	
Beer, ditto	,, ...	0	1	6	
Hard York, ditto	,, ...	0	2	10	
Ditto ditto 6in. sawn both sides, laudings, random sizes	per foot sup.	0	2	8	
Ditto ditto 3in. slab sawn two sides, random sizes	,, ...	0	1	3	

* All F.O.R. London.

Bath Stone, delivered on rail at quarry stations	per foot cube	0	1	0	
Delivered on road waggons, Paddington Depot	,, ...	0	1	6½	
Ditto ditto, Nine Elms Depot	,, ...	0	1	6¼	
Beer Stone, delivered on rail at Seaton Station	,, ...	0	1	0	
Ditto, delivered at Nine Elms Station	,, ...	0	1	6	

Portland Stone, in random blocks of 20ft. average:—

	Brown Whit Bed.				White Base Bed.		
Delivered to railway depot at the quarry ..... per foot cube	£0	1	5¾	...	£0	1	7½
Delivered on road waggons at Paddington Depot ...	,, ...	0	2	1	...	0	2 2½
Ditto, Nine Elms Depot ...							
Ditto, Pimlico Wharf							

SLATES.

	In.	In.	£	s.	d.	
Blue Portmadoc	20 × 10	...12	12	6	per 1000 of 1200 at r.stn.	
,, ,,	... 16 × 8	.. 6	12	6	,, ,,	,,
Blue Bangor	20 × 10	.13	2	6	,, ,,	,,
,, ,,	... 20 × 12	..13	17	6	,, ,,	,,
First quality	20 × 10	...13	0	0	,, ,,	,,
,, ,,	... 20 × 12	.13	15	0	,, ,,	,,
,, ,,	... 16 × 6	... 7	5	0	,, ,,	,,
Eureka unfading green	20 × 10	...15	17	6	,, ,,	
,, ,,	... 20 × 12	.16	7	6	,, ,,	,,
,, ,,	... 18 × 10	..13	5	0	,, ,,	,,
,, ,,	... 16 × 8	...10	5	0	,, ,,	,,
Permanent green	20 × 10	...11	12	6	,, ,,	,,
,, ,,	... 18 × 10	.. 9	12	6	,, ,,	,,
,, ,,	... 16 × 8	... 6	12	6	,, ,,	,,

BRICKS.

(All prices net.)

Hard Stocks	£1	6	6	per 1,000 alongside, in river	
Rough Stocks and Grizzles	1	6	0	,, ,,	,,
Picked Stocks for Facings	2	10	0	,, delivered at railway station.	
Flettons	1	6	0	,, ,,	,,
Pressed Wire Cuts	1	18	0	,, ,,	,,
Red Wire Cuts	1	14	0	,, ,,	,,
Best Fareham Red	3	12	0	,, ,,	,,
Best Red Pressed Ruabon Facing	5	0	0	,, ,,	,,
Best Blue Pressed Staffordshire	3	15	0	,, ,,	,,
Ditto Bullnose	4	0	0	,, ,,	,,
Best Stourbridge Fire Bricks	3	14	0	,, ,,	,,
2¾" Best Red Accrington Plastic Facing Bricks	4	10	6	,, Net, delivered in full truck loads in London.	

	Per 1,000
3½" Accrington Best Red Plastic Facing Bricks	£2 10 0
3⅛" Ditto Second Best Plastic ditto	2 2 6
Ditto Ordinary Second Bricks	1 11 3
Ditto Plastic Engineering Bricks	1 17 6
Sewer Arch Brick, not more than 3½" at thickest part	2 0 0
3½" Chimney Bricks fit for outside work	2 6 0
3⅛" Ditto Ditto through and through	2 0 0
3½" Beaded, Ovolo and Bevel Jambs; Octagons; 2¼" and ½" radius Bullnoses; Stock patterns	3 7 6
Accrington Air Bricks, 9" × 2 course deep, each	0 0 6
Ditto Ditto 9" × 1 course, each	0 0 3

Accrington Camber Arches:—

3 course deep, 4½" soffit, per foot opening						0	1 3
4	ditto	4½"	ditto	ditto	ditto	0	1 8
5	ditto	4½"	ditto	ditto	ditto	0	2 1
6	ditto	4½"	ditto	ditto	ditto	0	2 6
3	ditto	9"	ditto	ditto	ditto	0	2 1
4	ditto	9"	ditto	ditto	ditto	0	2 11
5	ditto	9"	ditto	ditto	ditto	0	3 9
6	ditto	9"	ditto	ditto	ditto	0	4 6

Net, free on rail or free on boat at works.

GLAZED BRICKS.*

HARD GLAZED. (PER 1,000.)

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

LIST OF COMPETITIONS OPEN.

Aspatria—Sewerage Scheme		F. Richardson, Clerk, Aspatria, Cumberland	June 10
Port Talbot, Glamorgan—Designs for Rebuilding Cymmer Co-operative Society, Ltd., Business Premises	£15, £5	The Secretary, Co-operative Society, Cymmer, Port Talbot	,, 16
Swansea—Chapel and Schoolroom at St. Alban's road		D. Walters, Secretary, 19, Brooklands-terrace, Swansea	July 1
Athens—Court of Justice (cost £160,000)	£800, £320	Comm. Intel. Branch, Board of Trade, 73, Basinghall-street, E.C.	Aug. 8
Glasgow—Alexander Thomson Travelling Studentship	£60, £20	C. J. Maclean, Secretary, 115, St. Vincent-street, Glasgow	Dec. 29
Yeovil—Laying-out site of 10 Acres of Land for Houses for the Working Class	£20, £10	The Town Clerk, Yeovil	No date

LIST OF TENDERS OPEN.

BUILDINGS.

Corbally, Downpatrick—Residence and Dispensary	Guardians	E. P. Nolan, C.E., Boardroom Workhouse, Downpatrick	June 9
South Elmsall—School	West Riding Education Committee	The Education Architect, County Hall, Wakefield	,, 9
Cwmporthman—Farm House		W. H. Harries, Cwmporthman	,, 9
Sheffield—Refreshment Pavilion at Norfolk Park	City Council	The City Architect, Town Hall, Sheffield	,, 9
Leominster—Secondary School	County Education Committee	The County Surveyor, Shirehall, Hereford	,, 9
Kimberworth, Rotherham—School	Rotherham Education Committee	Spurley Hey, Director of Education, Imperial Bldgs., Rotherham	,, 9
Rochdale—Additions to St. Peter's School		Sykes and Evans, Architects, 7, Chapel-walks, Manchester	,, 10
Launceston—School	Cornwall Education Committee	B. C. Andrew, Architect, Biddick's-court, St. Austell	,, 10
Rosa—Church Tower Restoration		Nicholson and Hartree, Architects, Offa-street, Hereford	,, 10
Pembroke—Alterations to Town Hall	Corporation	H. R. Crabb, A.R.I.B.A., Bush-street, Pembroke Dock	,, 10
Drumburgh—Additions to School	Cumberland Education Committee	J. Forster, M.S.A., 13, Earl-street, Carlisle	,, 10
Callington—School	Cornwall Education Committee	B. C. Andrew, Architect, Biddick's-court, St. Austell	,, 10
Talgarth—Vestry and Offices at Bethania Chapel		D. Jones, Brynhyfryd, Talgarth	,, 10
Blaenavon—Repairs to Broad-street Baptist Chapel		H. M. Davies, Chemist, Blaenavon	,, 10
Rothley—Additions to Workhouse	Barrow-on-Soar Guardians	T. Forward, Clerk, Mountsorrel, Loughborough	,, 10
Probus—Farmhouse at Nansmerrow		G. Gow, Tregothnan Office, Truro	,, 10
Macclesfield—Alterations to Broken Cross School		The Rev. H. A. Portbury, Henbury Vicarage, Macclesfield	,, 10
Govan—Alterations at Old Crookston Farm	District Lunacy Board	J. Mitchell, Clerk, 7-8, Carlton-place, Glasgow	,, 10
Worsbrough—House, Mount Vernon-road	J. Cooke, Southport	A. Whitaker, Archt., Kingwell Close, Worsbrough Dale, Barnsley	,, 10
Stokeclimsland—Cloakrooms and Offices at School	Cornwall Education Committee	B. C. Andrew, Architect, Biddick's-court, St. Austell	,, 10
Chelmsford—Showrooms and Offices, Duke-street	Gas Co.	Frank Whitmore, Architect, 73, Duke-street, Chelmsford	,, 10
Fforestfach—Police Station	Glamorgan County Council	Hartland, Isaac, Watkins, & Lewis, Solicitors, Swansea	,, 10
Cornworthy—Bullock's House and Stable at Coomery Farm		W. F. Tollit, Architect, Totnes	,, 10
Burnley—Converting Property into Shops, Garden-st.		G. H. Pickles, M.I.C.E., Borough Engineer, Burnley	,, 10
Tremadoc—Alterations to Peniel M.C. Chapel		The Rev. J. B. Williams, B.A., Preswylfa, Tremadoc	,, 10
Newcastle-on-Tyne—Single Storey Shed (320ft. by 66ft.)	Trade and Commerce Committee	The City Engineer, Town Hall, Newcastle-on-Tyne	,, 12
Mataro—City Slaughterhouse	Municipal Authorities	Senor Alcade, Alcadia Constitucional, Mataro	,, 12
Newcastle-on-Tyne—Alterations at Royal Jubilee School's	Education Committee	The Secretary, Education Offices, Newcastle-on-Tyne	,, 12
Edinburgh—Boroughmuir (New) School	School Board	J. A. Carfrae, Architect, 3, Queen-street, Edinburgh	,, 12
Basingstoke—Girls' Secondary School (160 places)	Hants County Council	W. J. Taylor, County Surveyor, The Castle, Winchester	,, 12
Ferryside—New C.M. Chapel		D. Lewis, Bristol House, Ferryside	,, 12
Cardiff—Renovating Premises, Newport-road	Glamorgan Terr. Force Assoc.	J. W. Rodger, Architect, 14, High-street, Cardiff	,, 12
Waltham, near Grimsby—Organ Chamber at Church		H. C. Scaping, Architect, Court Chambers, Grimsby	,, 12
Risca, Mon.—Shops	Blaina Ind. and Prov. Soc., Ltd.	S. H. Hutchins, Architect, Risca	,, 12
Newtownards—Two Semi-detached Villas		T. Houston, Architect, King's-court, Wellington-place, Belfast	,, 12
Minster-in-Sheppey—Reconstructing Offices at School	Kent Education Committee	W. H. Robinson, Caxton House, Westminster	,, 12
Grimsby—Bathrooms, Oxford-street	Corporation	H. G. Whyatt, A.M.I.C.E., Boro' Eng., 170, Victoria-st., Grimsby	,, 12
Farningham—Repairs at School	Kent Education Committee	W. H. Robinson, Architect, Caxton House, Westminster	,, 12
Maghera—Machine Embroidery School	Glendinning, M'Leish, and Co.	J. St. John Phillips, A.R.I.B.A., 16, Donegal-square S., Belfast	,, 12
Ilfracombe—Residence, Tors Park	C. E. Dew	S. J. Wilde and Son, Architects, Weston-super-Mare	,, 12
Salisbury—Bathroom	Town Council	W. J. Goodwin, A.M.I.C.E., City Eng., Municipal Offices, Salisbury	,, 12
Rotherham—Workshops and Warehouse	W. N. Baines and Co., Ltd.	J. Platts, Architect, High-street, Rotherham	,, 12
Coventry—Repairs at Provident Dispensary		I. Farren, Coventry	,, 13
Tibshelf—Alterations to Colliery Schools	Derbyshire Education Committee	G. H. Widdows, A.R.I.B.A., St. Mary's Gate, Derby	,, 13
Trowbridge—Additions to Bromham School	Wilts County Council	J. G. Powell, County Surveyor, Trowbridge	,, 13
Wood Green—Repairs at Schools	Education Committee	W. P. Harding, Clerk, Town Hall, Wood Green	,, 13
Tylorstown—Rebuilding Conservative Club, East road	Trustees and Committee	W. M. Lewis, L.R.I.B.A., Market-street, Pontypridd	,, 13
King's Heath—Superintendent's Lodge in Park	Urban District Council	A. W. Cross, Surveyor, 24, Valentine-road, King's Heath	,, 14
Macclesfield—School in Athey-street	Local Education Authority	Whittaker and Bradburn, Architects, Macclesfield	,, 14
Rotherham—Small-pox Hospital at Kimberworth	Hospital Committee	E. B. Martin, A.M.I.C.E., Boro' Eng., Town Hall, Rotherham	,, 14
Meols Cop, Southport—Carriage Shop	Lancashire & Yorkshire Railway Co.	The Engineer's Office, Hunt's Bank, Manchester	,, 14
Grimsby—Alterations to Municipal College	Education Authority	D. Chandler, Clerk, Education Offices, Grimsby	,, 14
Churwell—Warehouse and Rolling Rooms	W. L. Ingle, Ltd.	T. A. Buttery, L.R.I.B.A., Queen-street, Morley	,, 14
Bridgend—Alterations to Laleston House		Cook and Edwards, M.M.S.A., Masonic-buildings, Bridgend	,, 14
Mansfield—Workhouse Children's Quarters and Offices	Guardians	Vallance and Westwick, Architects, Mansfield	,, 14
Leeds—Alteration of Shops, Kirkgate and Briggate	M. Robinson and Sons	T. Winn and Sons, Architects, 84, Albion-street, Leeds	,, 14
Bury, Lancs—Repairs to Houses, Stanley-and Barlow-streets	Corporation	The Borough Engineer, Bury, Lancs	,, 15
St. John's Hill, S.W.—Additions to Engineer's Shop	Wandsworth Union Guardians	W. Piper, Clerk, St. John's Hill, Wandsworth, S.W.	,, 15
Cheltenham—Manual Instruction Block, Naunton-rd. Schools	Education Committee	Chatters and Smithson, Architects, Cheltenham	,, 15
Wapping, E.—Electricity Sub-station at High-street	Stepney Borough Council	W. M. Jameson, A.M.I.C.E., Eng., 15, Gt. Alie-st., Whitechapel	,, 15
Glasgow—Excavating Head P.O. Extension	H.M. Works Commissioners	R. Scott and Sons, 115, Wellington-street, Glasgow	,, 15
Cockermouth—Barn and Repairs to Ullock Mains Farm		W. Jackson, Cockermouth Castle	,, 15
Aiskew, near Bedale—Cottage		T. Linscott, Wycarr, Redale	,, 16
Ferndale—Enlarging Dyffryn School	Rhondda Urban District Council	J. Rees, Architect, Hillside Cottage, Pentre	,, 16
Salisbury—Wesleyan Assembly Room and Classrooms	Trustees	F. Bath, F.R.I.B.A., Crown Chambers, Salisbury	,, 16
Pyle—Pisgah Baptist Chapel		Evans and Jones, Architects, High-street, Port Talbot	,, 16
Rathmines—Out-Offices and Stables	Urban District Council	F. P. Fawcett, Clerk, Town Hall, Rathmines, Co. Dublin	,, 17
Ffosyrhdygaled—Rebuilding House	M. Davies	G. T. Bassett, A.R.I.B.A., Aberystwith	,, 17
Rathmines—Galvanised Iron Hay and Cart Shed	Urban District Council	The Engineer's Office, Town Hall, Rathmines, Co. Dublin	,, 17
Rochdale—Nurses' Home at Workhouse	Guardians	H. H. Clough, Architect, Butt's-avenue, Rochdale	,, 19
Guildford—Additions to Elementary Schools	Town Council	C. G. Mason, A.M.I.C.E., Surveyor, Tuns Gate, Guildford	,, 19
Chester—Additions to St. Thomas's Schools, Walpole-street		Rev. H. E. Burder, St. Oswald's Vicarage, Chester	,, 19
Hornsey—Electric Lighting Buildings, Tottenham-lane	Town Council	E. J. Lovegrove, Boro' Eng., Municipal Offices, Highgate, N.	,, 19
Abertridwr—Three Shops	Senghenydd Co-operative Society	Griffith D. Griffiths, Secretary, Abertridwr	,, 19
Sleaford—Additions to Police Station	Standing Joint Committee	J. Clare, County Architect, Sleaford	,, 19
Nuneaton—Children's Home	Guardians	E. E. Shepherd, M.S.A., Architect, Nuneaton	,, 20
Bradford—Additions to Medical Officer's Residence	Guardians	Fred Holland, Architect, 22, Manor-row, Bradford	,, 20
Guisborough—Science Laboratory and Gymnasium	Grammar School Governors	J. R. Batterbee, Clerk, Guisborough, Yorks.	,, 20
New Kyo—Miners' Hall	South Moor Colliery Miners	J. Reece, 1, Field House, Annfield Plain	,, 20
Fort Burgoyne, Dover—No. 6 Barrack Blocks	Secretary of State for War	The Director of Army Contracts, War Office, Whitehall, S.W.	,, 21
Llanafanfawr—Church-room and Cottage		The Rev. J. C. Owen, Llanafan Vicarage, Garth, S.O.	,, 21
Hammersmith, W.—Subway and Underground Conveniences	Borough Council	H. Mair, Borough Surveyor, Town Hall, Hammersmith, W.	,, 21
Thornton-le-Fen—Alterations to School	Lindsey Education Committee	S. M. Grant, Secretary, 286, High-street, Lincoln	,, 22
Bingley—Additions to Mornington-road School	West Riding Education Committee	The Education Architect, County Hall, Wakefield	,, 22
Gosport—Enlarging Petty Sessional Court	Hants County Council	W. J. Taylor, Surveyor, The Castle, Winchester	,, 22
Stockport—Dialstone-lane Hospital Extension	Corporation	J. Jepson, 35, Great Underbank, Stockport	,, 24
Exmouth—Police Station	Standing Joint Committee	E. H. Harbottle, County Architect, Queen-street, Exeter	,, 24
Skidby—Houses and Farm Buildings	East Riding County Council	H. T. Tate, Land Agent, County Hall, Beverley	,, 24
Hemsworth—Works at Kinsley School	West Riding Education Committee	The Education Architect, County Hall, Wakefield	,, 24
Denholme—Alterations to Denholme School	West Riding Education Committee	The Education Architect, County Hall, Wakefield	,, 24
Glasgow—Granary at Meadowside	Clyde Navigation Trustees	T. R. Mackenzie, Secretary, 16, Robertson-street, Glasgow	,, 26
Southall—Covered-way to Public Offices	Urban District Council	R. Brown, A.M.I.C.E., Public Offices, Southall	,, 27
Waterloo-road, S.E.—Reinforced Concrete, Stationery Office	H.M. Works Commissioners	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	,, 27
Sennen Cove, Land's End, Cornwall—Coastguard Buildings		The Director of Works Department, Admiralty, London, S.W.	,, 30

BUILDINGS—*continued.*

	Pembrokeshire County Council	Gotch and Saunders, Architects, Kettering	July 3
	Education Committee	W. R. Locke, Town Hall, Hemel Hempstead	,, 4
	Kent Education Committee	W. H. Robinson, Architect, Caxton House, Westminster, S.W.	,, 8
	Urban District Council	C. W. Cockersoll, C.E., Surveyor, Normanby-road, South Bank	,, 10
	Education Committee	H. P. Burke-Downing, F.R.I.B.A., 12, Little College-street, S.W.	,, 10
	ing Committee	G. T. Hine and H. Carter Pegg, Archts., 35, Parliament-st., S.W.	,, 17
		L. F. Eagleton, Architect, King-street, King's Lynn	No date
		Thomas, Meager, and Jones, Archts., 15, Windsor-st., Swansea	do.
		Davies and Son, Architects, Cowell House, Llanelly	do.
	H. Page	J. W. Start, F.S.I., Architect, Colchester	do.
	Trustees	J. E. Douglas, L.R.I.B.A., Brunswick Lodge, Douglas	do.
		Belfrage and Saville, Architects, 27, Chancery-lane, W.C.	do.
		J. Garry, F.R.I.B.A., 17, Church-street, West Hartlepool	do.
	Rev. T. Williams	M. H. Hunter, Architect, The Square, Neath	do.
		G. E. Tonge, L.R.I.B.A., 371, Lord-street, Southport	do.
	T. Morris	Morgan and Efford, Architects, 1, Jeffrey-street, Mountain Ash	do.
	Mineral Water Co., Ltd.	Moore and Flanigan, Architects, 35, Royal-avenue, Belfast	do.
	Muir and Ewan	Sutherland and George, Architects, Aberdeen	do.
	A. Altham, Ltd.	F. Mason, Architect, 20, Park-row, Leeds	do.
		G. D. W. Douglas, Archts., Halifax Com. Bank Chmbrs., Bradford	do.
		Medcalf and Medcalf, Architects, Railway-road, Ormskirk	do.
		J. Morris Williams, Architect, Blackmill	do.
		J. C. Rees, M.S.A., Parade Chambers, Neath	do.
		A. Swash & Sons, Midland Bank Chambers, Newport, Mon.	do.
		C. F. Mallinson and Son, Surveyors, Market-place, Huddersfield	do.
		Empsall and Clarkson, Architects, 7, Exchange, Bradford	do.
	Education Committee	A. P. Harrison, M.S.A., 135, Highfield-lane, Keighley	do.
	Crosswells' Cardiff Brewery, Ltd.	J. T. Jenkins, M.S.A., Porth, Glam.	do.
		T. E. Davidson and Son, Architects, Newcastle-on-Tyne	do.
		A. E. Midward, Manchester-road, Accrington	do.
		J. Hartley, Architect, Sapton	do.
		J. W. Start, F.S.I., Architect, Colchester	do.
		W. H. Wagstaff, Architect, 4, Priory-place, Doncaster	do.
	W. Foster	J. Elliott, Heatherlea, New Greencroft, Annfield Plain	do.
		J. B. Hingley, Architect, Bank Chambers, Nuneaton	do.
		The Hon. Secretary, Newton-road, Billinge, near Wigan	do.
		Empsall and Clarkson, Architects, The Exchange, Bradford	do.
		E. Hammond, Kingsley Holt, near Cheadle	do.
	Parish Council	W. Easter, Surveyor, St. Germans, Norfolk	do.
	United Gas Light Co.	T. Monkman & Son, Archts., St. Martin's House, Micklegate, York	do.
	Guardians	A. Hopkinson, Architect, 15, Angar-street, Bury, Lancs.	do.
	F. J. Hopkins	R. A. Churchward, Architect, 353, Strand, W.C.	do.
		A. Eaton, Architect, Prince's Dock Side, Hull	do.
	Rural District Council	The Surveyor's Office, West-street, Bourne	do.
	Westwell, Mark, and Co., Ltd.	J. Hutton, Architect, Kendal	do.
		Bryden and Walton, Architects, 3, George-street, Buxton	do.
	Corporation	The General Manager, 32, Blackfriars-street, Salford	do.
	Edward's Brewery, Ltd.	B. J. Francis, Architect, Abergavenny	do.
		Lacey and Hopper, Architects, 6, Upper King-street, Norwich	do.
		C. B. Longe, Tatton Park Estate Office, near Knutsford	do.
		C. W. Alan Hodgson, The Courts, Carlisle	do.

ELECTRICAL PLANT.

	Urban District Council	W. Hattersley, Clerk, Mexborough	June 12
	Borough Council	The Town Clerk, St. Hill-street, Wanganui	,, 12
	Urban District Council	J. E. Topper, Resident Engineer, Church Fieldside, Bircenshaw	,, 12
	Corporation	C. A. L. Pensnett, Electricity Department, Swansea	,, 13
		John A. Rudd, Secretary, Coventry	,, 14
	Public Works Ministry	The Controller-General, Main Drainage Department, Cairo	,, 15

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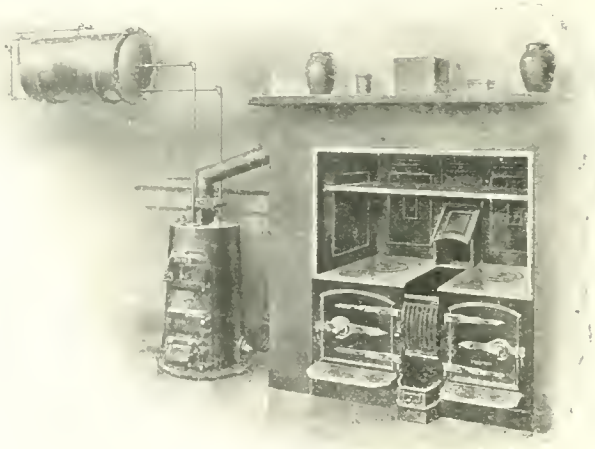

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June 16, 1911. Volume C.—No. 2845.

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House, Strand, W.C.

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Decoration Panel at the Royal Exchange. "Henry VI. and the Duke of York marching with the London Trainbands to the Battle of Barnet (1471)." Painted by Mr. J. H. Amschewitz.
Branch Bank of Liverpool. Mr. J. Francis Doyle, Architect.
Chapel of All Souls', St. Michael's Church, Bedford Park, W. Mr. Maurice B. Adams, F.R.I.B.A., Architect.
Hovenden House, Fleet, Lincolnshire. Mr. J. E. Dixon-Spain, A.R.I.B.A., Architect.
Cottage at Pooteland. Mr. R. Manchlon, Architect.
"English House Design": "The Orchards" (Two Views), Godalming. Mr. E. L. Lutyens, F.R.I.B.A., Architect.—Interior Caldy Manor, Cheshire. Mr. E. Guy Dawber, F.R.I.B.A., Architect.
Models and their Value in Architectural Practice.
The Studio: its Construction and Decoration.

HOW TO VULGARISE A VILLAGE.

When that well-known representative of literalness, the late Mr. Dick, was enumerating the good points of a cottage which he was desirous of taking, he was met by the objection that "the place is not big enough to swing a cat round." "But I don't want to swing a cat round it, and it is not likely that I ever shall," replied the gentleman, who, as his wont was, took the phrase simply and solely "at the foot of the letter." So somebody, perhaps, will the heading of these notes, and think, like Mr. Dick, that unless he meets somebody who avowedly and with malice aforethought wants to vulgarise a village, he may take it for granted that such a thing would never enter into the head or the heart of any created being. Villages do, however, get vulgarised, and towns also. Witness, for instance, Newquay in the one class, and Stratford-on-Avon in the other. Some people—only a few—work at the transformation *con amore*. They enjoy it for its own sake, and, if they are inhabitants, feel more and more at home the deeper the place sinks in the unsounded depths of vulgarity. "You said there was a hard bottom to this bog," the horseman complained to a boy who had encouraged him to venture through it. "So there is," replied the boy; "but you're not half-way down to it yet!" We hope Stratford and Newquay are both more than half-way down to it; for both, of late years, have done more than in previous centuries to destroy the attraction, whether natural or historical, which has supplied them with a constant stream of visitors, or of geese, if you like to put it so, who enriched the town and the village by the golden eggs they plentifully produced. Stratford-on-Avon, within the memory of many people, was a dull, prim, rather old-maidish place, with nothing very notable about it except the church, the grammar-school, the low avenue of lime-trees in the churchyard, and the walk across the meadows to Shottery, while Newquay was one of the smallest of villages, where as the sun went down the village maidens used to meet and gossip at the well, like the German girls in "Faust." Stratford now is a sort of miniature Birmingham, with shops and factories, motor-cars, and smoke: perhaps no longer peopled with Puritans too puritanical to let their children open Shakespeare's works, though not too pietistic to flaunt them (unopened and unread) in the face of the world that "lieth in wickedness." There is little danger of their being read by the elders of the family: they would not understand them; and the juniors, probably, would be more interested in the latest importation from France or America.

But many villages are being vulgarised, and many towns, too, though few of them in the precise ways which have robbed of half their interest Newquay and Stratford-on-Avon. Curses, not loud but deep, used to be vented on the man who had cut down Shakespeare's mulberry-tree, and on the more destructive man who had whitened Shakespeare's effigy in Stratford Church: though the latter, at least, in the time of that destructive fashion—"a Classic revival"—seems to have done an incurable injury in the belief that he was doing the State some service. But if Newquay is on its way to become a Cornish Southend, and if what used to be a pleasant little place has been robbed of most of the beauties of Nature and invaded by many of the drawbacks of a town, this must be partly by intention and partly by bad taste. To make the old headland of Towan Blistra the site of an hotel was to rob Newquay of one of the things her visitors came to see. Perhaps the vandals that did it, if they are dead to the harm of the deed they did, may feel it in their pockets, for feeling lingers there, it is said, long after it has deserted nobler spots.

Prosperity and vulgarity generally increase together. When a community makes more money than it needs, it begins to expend its superfluity on all things it has set its heart on: and very poor things they often turn out to be. Even when poverty prevailed, it was no secret that Mrs. Jones was always trying to outdo Mrs. Smith in the glory of her bonnets; and that the Misses Smith, being not endowed with extreme beauty by Nature, were trying hard to acquire more with the help of the dressmaker. Unhappily, a girl's dress is the last thing a man looks at when he is looking out for a wife: or, if he does look at it, he looks at it rather as a guide to what it will cost to keep her, or to the amount of her dowry, by which she may ultimately help to keep him. So the village, with all its mothers and daughters, ultimately decides that finery in dress is rarely a paying investment. So if "things are looking up," it tries finery in building as one alternative: and here the vulgarity of a village takes forms which tempt the notice of the architectural writer. Perhaps the first sign of its advance may be the regravelling with bright, orange-coloured gravel of the paths in gardens, where they can be seen from the street. In the village which means to vulgarise itself, the garden walks often show the first symptoms of the coming epidemic. Felix Holt thought a brass knocker and a high doorstep to be fatal warnings of its approach; but he might have found an earlier symptom of the complaint in garden walks "That far outredden, All voluptuous garden roses." About this time the flower-beds themselves will have to be renewed and beautified. The spring flowers—primroses and polyanthuses, mezereons and yellow ribes-bushes (so disgracefully aged that they might remember the accession of Queen Victoria), the great roots of red hepaticas and blue hepaticas, the early crocuses and the late crocuses, the lilies of the valley and the double white narcissus, the fritillaries, the Solomon's seals, the bright yellow crown imperials and the dull red ones, the scarce scarlet turk's-caps, and the yellow martagon lilies, the brownish American ones and the too highly-scented Japanese ones—must all go because, forsooth, this is the Coronation year. The old things are to be cast away, and all things are to be made new. Farewell, then, to these loves of a lifetime, and welcome, if we can, to whatever in the way of fast-growing (not to say fast-fading) novelties the jobbing gardener can bring in wholesale to cover for a season the vacant places. Farewell from henceforth (if it is not already destroyed) to the great white magnolia which used to cover the houses at the entrance of the low avenue of lime-trees in the churchyard of Stratford-on-Avon. We will not say farewell to the limes nor to the hive-bees which used to sing among the blossoms: for whatever our country is robbed of, it can hardly be of lime-trees, while they produce winged seeds and there is soil for them to germinate in. The smell of lime-tree flowers is a sweet smell, and yet a smell which seems to carry with it a memory of London. Perhaps the fashion of filling the streets with them came in with George IV. or William IV., so that until the Victorian era they were hardly old enough to flower. In one memory, at least, they bring, as July comes round, a still recurring vision, first of Stratford Church, of the Avon and the wooden bridge to which hangs, or used to hang, indissolubly the name of "Lucy's Mill"; and, again, of North London, which in a blazing July, now "departed never to return," seemed to a country boy an extremely good place to run away from, were it even by the light of its own burning.

But the vulgarisation of the village, for the moment, is at a standstill, for Messrs. Compo and Shuffs have not yet appeared

Wellington Wells as a "sleeping partner might be worthy of all acceptation, even by as busy a firm as Messrs. Compo and Shuffs. So "There is a seed of goodness in things evil, Would men observantly pursue it out." Even vulgarising may have its advantages, and even the jerry-builder need not exist in vain.

MODELS AND THEIR VALUE IN ARCHITECTURAL PRACTICE.

By Berthold Audsley.

While models of very important buildings, and of monuments or memorials in which figure-sculpture is largely introduced, have been, and still are, occasionally prepared, to enable the persons interested in their erection to properly judge of their appearance when executed, the every day value of models, either of a temporary or a permanent nature, is not generally realised. This want [illegible] be regretted, [illegible] frequently resorted [illegible] there would be fewer mistakes made in the proportions and grouping of parts, and in the character and association of details. Perspective drawings may be more or less truthful, but as a rule are misleading, especially so when artistically coloured and enhanced in attractiveness by the addition of effective surroundings, which exist in the artist's brain and never can exist in the locality of the building when erected. Further, well-dressed ladies and gentlemen, dashing equipages, prancing horses, and other artistic "properties" are introduced with lavish brush by the well paid artist, who is instructed to produce a "taking picture." Such a picture is depended upon by the architect to secure the approval of his design by the client, who is, generally speaking, little versed in matters architectural; and who is, accordingly, unable to divest his eye of the glamour of the artist's cunning, and come down to severe criticism of the architect's design, even should the architect have been careful to show sufficient detail to enable anyone to form a correct idea of what the work will look like in hard stone or brick. Again, be it said a perspective shows a building from only one, and usually the most favourable, point of view, and under such a condition displays two of its sides only. It is, accordingly, an insufficient exponent, even if it is a fairly truthful one, of the architect's conception.

A model on the other hand, if properly made to scale and carefully detailed, in strict accord with the architect's design, is an honest statement of facts which cannot mislead anyone, even though he may be quite unskilled in architectural composition and treatment. From it the client can form an accurate conception of the structure the architect proposes to erect for him, and approve or disapprove with assurance, to the avoidance of any ultimate disappointment. What is of equal importance, perhaps, such a model will effectively show the architect before it is too late to remedy it, where any weakness obtains in his design, either in comparative proportions or in the grouping of parts when viewed from different points—such points as the building, when erected, would be invariably seen from. Should everything go right, both the client and the architect will be satisfied that the building will be a successful work so far as its external treatment is concerned. Such an assurance can never be positively arrived at from the inspection of an ordinary perspective or from geometrical drawings.

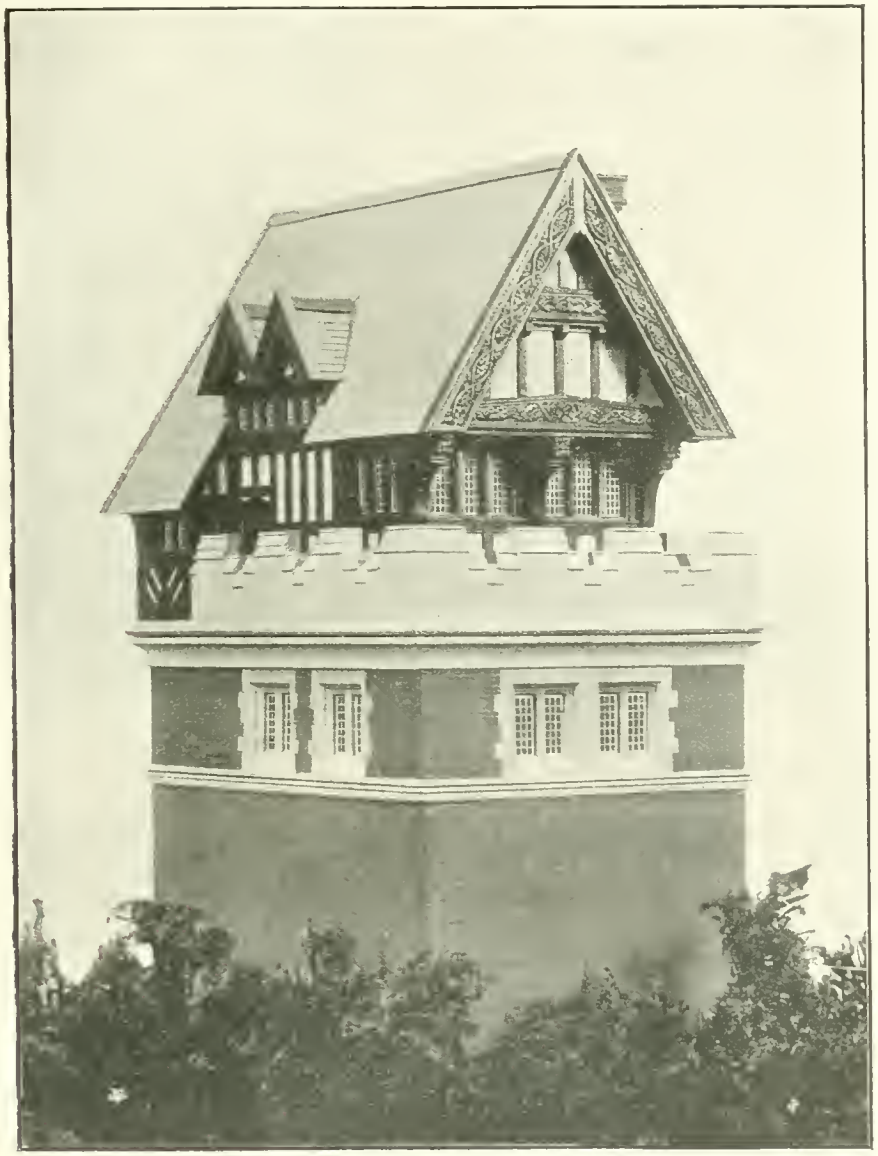
There are different classes or grades of architectural models, which are made to

meet certain requirements, and which vary considerably in the labour necessary for their fabrication, and also, to some extent, in the materials called for in their construction. The more distinct and important of the classes alluded to may, with advantage, be briefly described in the present article.

The first and simplest class of architectural models embraces those which may be properly designated *block models*, for that term conveys a correct idea of their simple form or treatment, which merely shows the several main portions of a building in correct proportion and position with respect to each other, but which dispenses with all subordinate features and ornamental details that exercise no influence on the massing or grouping of the main portions. A model constructed on such lines, bald and uninteresting though it may seem, is extremely valuable in enabling the architect to judge correctly how the several leading elements of his design will accord with each other; and to learn with certainty in what manner they will group, artistically or otherwise, when viewed from the chief and inevitable points of sight. Every experienced architect knows how very different such a feature as a tower, constructed with stages of varied forms, appears when seen from different points of view, and it can be safely surmised that numerous towers and spires that have been erected in modern times would have assumed more artistic and pleasing proportions and treatments had they been tested by correctly-made models prior to construction.

Block models are valuable as object-lessons in other directions, and notably for developing and critically examining complex and unusual roofing problems. Models for this purpose, being of a temporary character, can be easily and quickly made, and they so clearly solve all difficulties in formation, and show where any weakness or awkwardness obtains, that the architect can quickly reach a satisfactory decision in all questions at issue. The best and, indeed, the only—material necessary for the construction of models of this first class is stout cardboard, such as is used for mounting drawings or photographs. The several pieces required have to be accurately drawn and cut, and put together with a thick solution of gum-arabic. The models can be left in the white cardboard or painted in any desirable manner.

It is very desirable, we venture to think, that the students in the architectural schools should be taught architectural modelling in its elementary stage at least, leaving them, should further tuition be impossible, to carry on the study and practice of modelling into its more advanced forms as a fascinating and profitable hobby. It would be impossible for the young architect to have a more instructive or more useful hobby, or one that would be better calculated to foster his interest in his professional duties. We speak from an experience of fifteen years in this direction.



MODEL OF A PROSPECT-TOWER.

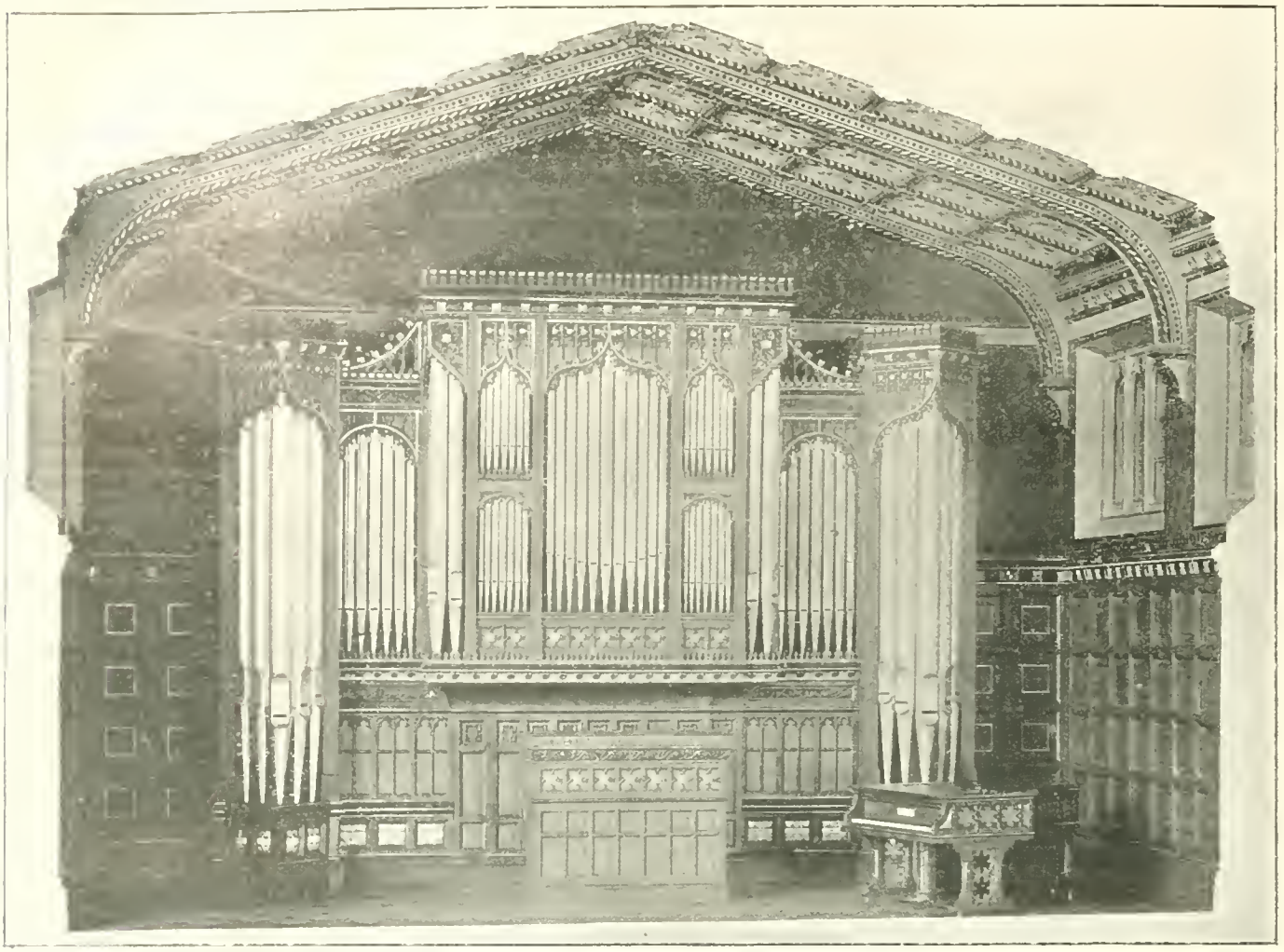
At this point we may properly enlarge somewhat on the great advantage of employing cardboard as the chief material in the construction of architectural models. It is superior to every other material when correctly handled. It is more durable and trustworthy than either wood or plaster; for, in the first place, when properly put together and protected by shellac varnish and oil-paint, it defies the action of both hot dry and moist air*—a thing no wood can do for any length of time. On the other hand, it can be more accurately and sharply shaped in all the usual architectural details, including the most complex mouldings and pierced and tracery work, than is practicable in either wood or plaster. Its use involves no objectionable mess, and this certainly cannot be said of wood or plaster work. It requires no complicated tools or moulds; for, beyond the usual drawing instruments, a knife, a few punches, a steel straight-edge, and a simple circular cutter, no other tools are necessary: for simple models, and for the chief work in all models, however large and elaborate, the knife and straight-edge are alone called into play. The cardboard is best cut upon a piece of glass; and all large flat pieces, when gummed together, are most effectively pressed between pieces of thick plate-glass, while the smaller details are conveniently pressed under flat marble or lead weights.

In very many cases no other material than cardboard is called for in all the structural work. For instance, the model of the prospect-tower, illustrated in the present article, is executed throughout of cardboard, with the single exception of the glazing of the windows, which is of transparent celluloid. This small work clearly demonstrates the possibilities of this humble material when skilfully and artistically handled, even the ornamental work in the barge-boards being carved in thick cardboard.

The second class of architectural models include all those that are made on purely suggestive lines, and are only sufficiently detailed and otherwise treated to convey a general idea of the dimensions and architecture of the buildings represented. Models of this class are useful for the purpose of showing, in an effective manner, arrangements of buildings and other features in town-planning schemes and local improvements, and for conveying correct ideas of the grouping of detached buildings, such as are common in large industrial institutions, hospitals, colleges, and suchlike.

Models for the purposes just named can, as a general rule, be made almost entirely, if not entirely, of cardboard; wood, for instance, being used for columns, vases, and any other details which can be easily formed in the turning-lathe. Great elaboration in any direction will be unnecessary; and ornamental or carved features need only be represented in a very simple and sketchy manner, involving little labour in their execution. It is a very common thing to see in models, now frequently made by hands understood to be skilled, the greater part of the architecture merely drawn or painted on perfectly flat surfaces. But there is no necessity for this make-believe method to

* We have in our possession a large model which has withstood the extremely variable and trying climate of New York for twelve years, and is now as perfect as it was on the day of its completion.



MODEL OF A MUSIC-ROOM AND CHAMBER ORGAN.

be [illegible] endowed with [illegible] who, instead of drawing or painting [illegible] windows and their [illegible] and other details, will render all important architectural features with their [illegible] projections by the aid of his knife and other simple tools. A model so made is a very different thing from that which is practically a block model, presenting flat surfaces treated to imitate sunk and raised work. It is as easy for the skilful modeller to cut out a [illegible] window opening, and otherwise [illegible] as sufficiently expressive manner, as carefully draw and colour it on a flat surface so as to convey the idea of depth and projection.

Models of the second class, as above [illegible] sufficiently expressive for [illegible] purposes, while they are not necessarily expensive. There is little [illegible] relations have lately in [illegible] with the more frequent use of [illegible] architectural profession. [illegible] facility which has commonly [illegible] representing them of a satisfactory [illegible] and then cost when they [illegible] any way approaching a [illegible] manner. The latter [illegible] always be reckoned with [illegible] poorly made will [illegible] time in their [illegible] considerable model [illegible] expended on [illegible] [illegible] of the [illegible] being [illegible] [illegible] much [illegible] museum or exhibition purposes. Such models demand the greatest care and attention to detail throughout their formation, and the proper use of numerous materials, which are not only beyond the power of cardboard and paint to successfully imitate, however cunningly manipulated, but are eminently desirable in themselves. The materials alluded to include polished marbles and granites, certain forms of metalwork, stained glass, mosaic, choice woods ornamentally worked or turned, or inlaid to represent parquetry (to proper scale), and electric lamps (of proper size, and chiefly for interior models). Notwithstanding the introduction of these adjuncts, cardboard must remain the dominant material if the model is to be lasting and in every way satisfactory in its character. We have already spoken of the disadvantages and the limitations attending the use of wood and plaster in model construction, and need not enlarge upon them here. It is enough to add that neither of the models illustrated in this article could be made of wood or plaster in any way approaching their accuracy and delicacy even if the important element of durability be left out of consideration.

An example of the class of modelling now under consideration is furnished by the model of portion of a music-room in a Gothic style shown in the accompanying illustration. Every portion of the work is executed in cardboard, with the exception of the floor, which is of satinwood, inlaid, stained, and ornamented to represent parquetry; the pipes of the organ, which are real organ pipes of burnished tin; the glazing of the windows, which is of lined and stained [illegible] the rope moulding in the principals of the ceiling, which is of silk cord gilded; and the real electric lamps in the centres of the forty panels of the ceiling. The piano shown is entirely of cardboard, and its substantial character can be realised from the fact that, although it is modelled to only 1in. to the foot, it weighs about 11lb. From this statement, some idea can be formed of the solid and substantial nature of the highest class of cardboard modelling. In the formation of mouldings, either Classic or Gothic, from twenty to thirty layers of cardboard would commonly be required, varying in thickness according to contours of the same. In the production of models of this class, the greatest skill and care have to be expended on the imitative and decorative painting, and oil-paint must alone be used. This painting is an art in itself, and unless it is absolutely perfect in colour and execution, the model will be worthless as a truthful essay, on the one hand, or a work of art, on the other. In the model of the music-room, all the woodwork of the organ-case and console and the wall panelling is painted and grained to represent oak, relieved by colours and gold in the tracery and carvings; the walls are coloured and decorated; the cornice, principals, and ribs of the ceiling are richly coloured and gilded, and its panels are covered with painted decoration, surrounding the small electric lamps. In the model of the prospect-tower the same care and accuracy are observed in the rendering of the several materials—brick, stone, wood, cement, and slate. Scale is accurately observed throughout, even to the coursing of the brickwork, and nothing is left to the imagination. In con-

clusion, we earnestly commend the study and practice of the beautiful art of modelling, as above outlined, to the attention of the architectural student.

STUDENTS' WORK AT THE ARCHITECTURAL ASSOCIATION.

This annual exhibition of prize drawings has been on view this week, and will close on Monday, 26th, at the Royal Architectural Museum, Westminster. The work displays a sustained endeavour on the part of the students; but it can scarcely be said that the degree of merit achieved marks any advance, or that any contributor is inspired by freshness or originality. Such individuality, perhaps, is not to be expected on every occasion, and we may well be content that the students year by year keep up the reputation of the school for thoroughness and workmanlike productions which, at any rate, obtains in the competition for the Architectural Association Silver Medal, well won by Mr. G. W. Home, of West Kensington, the subject being a Concert Hall for a County Town. The auditorium is nicely arranged and well proportioned for musical performances, being square on plan, and having a segmental orchestra, thoughtfully arranged, with ante-stage-rooms and stair approaches behind the proscenium. To the rear is placed the practice-room and green-room *en suite*. A smoking-room to the right, and foyer to the left, flank the assembly-hall, which is reached from the front through a cross-promenade, next which is the crush-hall, opening into the arched vestibule, with its external colonnade. The cloakrooms are placed on either hand, and the gallery is located above the promenade, the auditorium accommodating 513 persons on the ground floor area. Separate entrances are provided to the gallery from the façade, but treated, as they should be, in a secondary manner. The architectural treatment is severe, in a Classical manner, completed in a massive and reserved way, devoid of exuberance of the Rococo extravagance lately so much in vogue. The Hall rises in the midst, with a hipped roof, behind a parapeted attic, broadly detailed, and the ceiling within lighted with arched big semi-circular lunettes, fitted with iron framings for glazing in the clerestory. Bold arches spring from piers at the sides, dividing the wall-space into bays, in which over-massive swags serve as mural decoration, done in a Brobdingnagian fashion, somewhat too coarse for praise; while extended tubular strings of ribboned foliations are suspended like big beads to the arrises of the piers, and stopping short of the plinth, and these piers have blockings relieved by panels in lieu of capitals, and from these electric lanterns hang, presumably on brackets, though this is not quite clearly set out, no detailed section being given crossways through the hall in this pencil large-scale sheet. The scheme has good emergency exits, and wins the prize conclusively.

Mr. H. A. Ross of Shepherd's Bush, is awarded the Hon. Mention for a Concert Hall of more usual shape, measuring 76ft. 6in. long by 54ft. wide, and having external corridors 5ft. wide, connected with recurring emergency exits for clearing the auditorium; and in this way the crush-hall, always a dangerous provision, is rendered unnecessary, though the author provides a large one transversely to the assembly-hall. Two square vestibules are contrived flanking the central entrance, which is devoted to the gallery approach, thus unduly asserting that which ought to be treated of secondary consequence, as in the first design. The orchestra is surmounted by an elaborate organ-case, and behind occur the practice-room and artists' apartments. Externally, the pedimented ends of the great hall rise above the subsidiary buildings, the pavilion in front having a boldly-colonnaded screen sort of treatment, very creditable, but clearly second in merit, while the plan is not so satisfactory as the prize proposal provides.

"Hopper" is the motto of a circular scheme surrounded by a very wide foyer corridor, partly utilised by retiring-rooms. The auditorium is cruciform in shape, owing to projecting lobbies obtruding into the central arena and forming quasi-transepts for galleries. Lounges occur right and left above the wing premises devoted to cloakrooms. The domical roof principals, so to speak, spring off the columned projections previously particularised as enclosing the galleries, and this contrivance is not specially well managed. A tiled conical roof masks the exterior of the dome, and above a solid sort of cupola or lantern crowns the composition, which is not imitative, at any rate, though but a partial success. "Allegro" sends a picturesque and attractive Hall intended for concerts in a Garden Suburb. The design is treated externally with hipped roofs, and in a fashionably quaint way; but inside a resemblance to a more monumental mode is to be noted, with a becoming sense of appropriateness. The plan is somewhat overdone for the limitations imposed by the location of the building. The box-office cuts very awkwardly into the ladies' cloakroom. The flatly-coiled hall has very deep coves, and no provision seems to be given for ventilation. The scheme is original and capable. "Nemo" has a domed design over an octagonal hall; but the entrance part is wasteful and poorly managed. The other designs include schemes by "Amphion," "Just in Time," "Never again," and "Fatama."

The Architectural Union Prize and £20 are taken by Mr. C. F. Butt, of Paddington, for a set of excellent measured studies of the Entrance Vestibule to Somerset House, drawn in a workmanlike way, with small-scale elevations of the two fronts of Chambers's masterpiece. A capable perspective of the colonnaded vestibule is included. This subject is hampered by previous prize-winners having published such good representations of the work represented. Mr. T. F. H. White, of Regent's Park, obtains the Banister Fletcher Bursary and 25 guineas for a working drawing of Nos. 13 and 14, Cavendish-square, marked by the motto "Di Chi?" and finished in pencil. The effect of this careful elevation is marred to some degree by the spotty tinting of the glass panes, which give a restlessness at variance with the dignity of the actual building. Mr. White sends a coloured study of the Loggia to the Cloister of San Vitale, Ravenna, done in a feeling way and a practical fashion, with large details of mouldings, all on the one sheet. "Roma" sends a set of drawings of the Wellington Monument; and a very fine series of drawings of St. Lawrence Jewry, Gresham-street, of exceptional merit, occurs from the hand of Mr. F. Dowdeswell; we hope to illustrate this set very shortly.

THE LIVERPOOL-STREET EXTENSION OF THE CENTRAL LONDON RAILWAY.

The second vacation visit of the present session of the Society of Engineers (Incorporated) took place on Thursday, the 8th inst., when, by the courtesy of the engineers, a party of members of the society and their friends were privileged to inspect the works in progress in connection with the extension of the Central London Railway from the Bank Station to Liverpool-street. The work of driving the tunnels is being carried out from a shaft in Bishopsgate, near Acorn-street, and will be continued up to the junction with the company's existing sidings at the Bank.

The small running tunnels are 12ft. 5in. internal diameter, each ring being 20in. wide with 4in. flanges, and are made up of four radial-jointed cast-iron segments, two top segments and a key, whose sides taper slightly in the reverse direction to the keystone of an arch; this admits of ease in erection. The joints between the flanges of adjacent rings and segments are formed of creosoted wood packings, and are bolted together in such a way that the horizontal joints of one ring break joint with its neighbours. The weight of each ring is 33.4cwt. Under ordinary conditions nine rings, or five lineal yards of tunnel, are built every twenty-four hours. The shield by which these tunnels are driven consists of a cast-iron or steel cutting edge, followed by a skin of ¾in. steel plates, butt-jointed, which are kept to the cylindrical form by means of suitable strengthened segments and girders, well bolted and riveted together. Forward movement is obtained by means of 7in. diameter hydraulic rams, eight in number, disposed round the inside of the skin, and arranged so that the tongues press against the iron lining already built. These rams are controlled individually or collectively by a set of valves, so that by a suitable combination the direction of the shield may be guided. The maximum pressure available is 2,000lb. per square inch, which gives a total maximum push of 275 tons.

In the case of the 21ft. 2½in. internal diameter station tunnel, the shield is on the same principle as that just described, and the method of procedure in construction being the same. There are twenty-two rams of 7½in. diameter, each capable of exerting a total force of forty tons as a maximum, and in place of hand-erection of the cast-iron segments hydraulic erectors are used. The rings of this tunnel are 18in. wide, with 6¾in. flanges, and consist of ten radial segments, two top segments, and a key. The horizontal joints are machined true to radius, but the vertical joints are made with creosoted wood packings. The weight of each ring is 4⅛ tons, and the anticipated progress is about five rings, or 2½ lineal yards per day of twenty-four hours.

The plant at the site of the working shaft consists of two 3-ton cranes for dealing with materials to and from the tunnels, and the following compressors for supplying compressed air to the tunnels and for operating the pneumatic-hydraulic pumps and grouting pans:—One vertical compressor, with one cylinder 19in. diameter, 8in. stroke, and three Reavell's compressors, each having eight cylinders, 12in. diameter and 6in. stroke. One of these latter works against a pressure of 15lb. per square inch, the other two are two-stage machines, and work against a pressure of 60lb. per square inch. There is also a compressor by Ingersoll, measuring 18in. by 18½in., and a hydraulic intensifier.

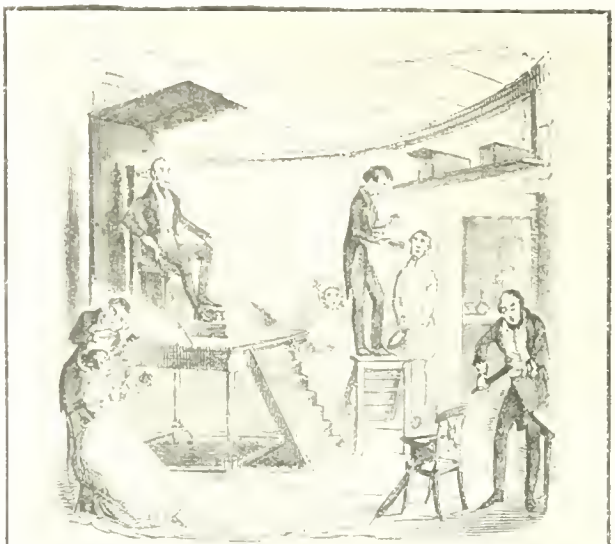
The contractors for the work are Messrs. John Mowlem and Co., and the engineers to the Central London Railway Co. are Messrs. Mott and Hay, of Westminster, for whom Mr. H. J. Deane acts as resident engineer.

THE STUDIO: ITS CONSTRUCTION AND DECORATION.*

By DRINKWATER BUTT, F.R.P.S., Architect.

From the earliest days of photography, when, by the way, it was usually called the "glass house," the studio proper has been a matter of the greatest concern with those who have

* A paper read at the Recent Congress of the Professional Photographers' Association. For all the illustrations but one, we are indebted, with the Author's consent, to our contemporary, the *British Journal of Photography*. Mr. Drinkwater Butt, who is well known both as architect and photographer, is a specialist in the construction of both photographic and artistic studios.



PHOTOGRAPHIC PHENOMENA, OR THE NEW SCHOOL OF PORTRAIT-PAINTING.

A Photographic Studio. By George Cruikshank.

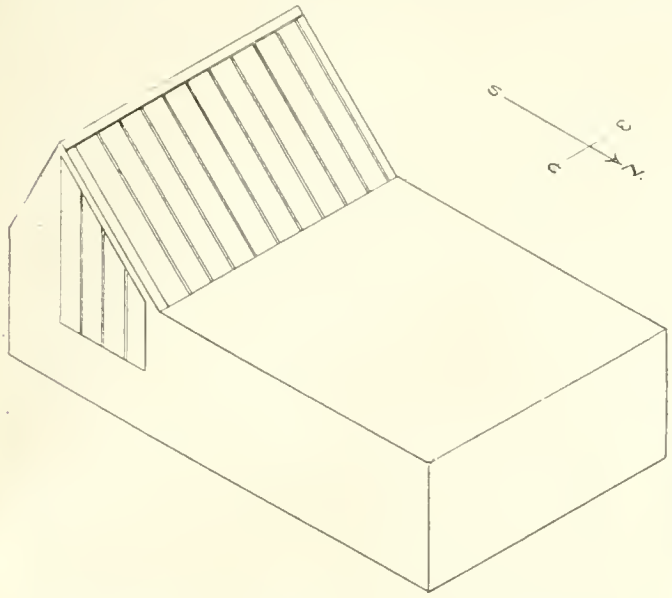


Fig. 1.—Monkhoven's Original Tunnel Studio. (Isometric Projection.)

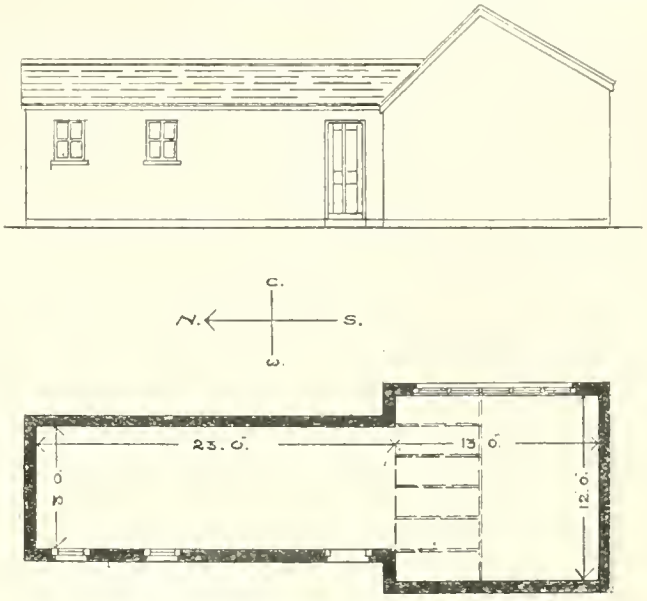


Fig. 2.—Col. Stuart Wortley's Studio.

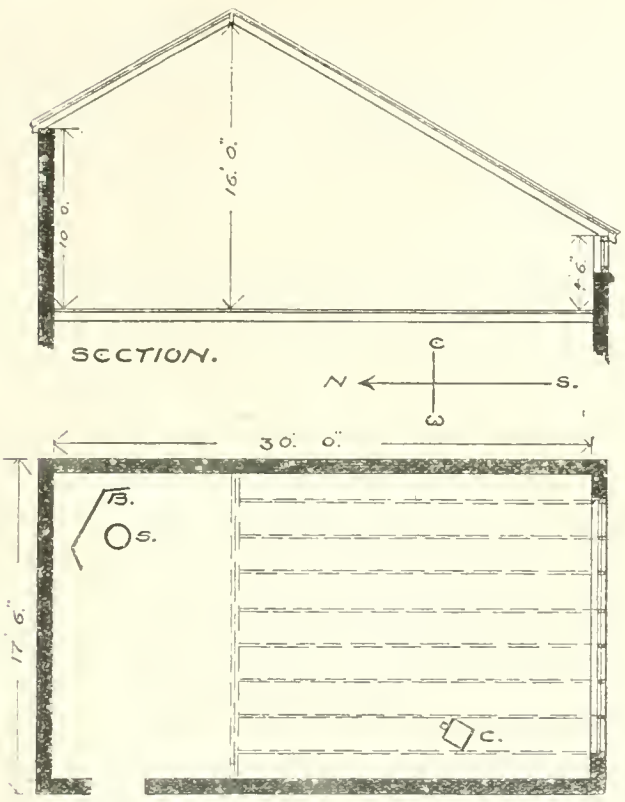


Fig. 3.—Studio of T. R. Williams, Regent-street.

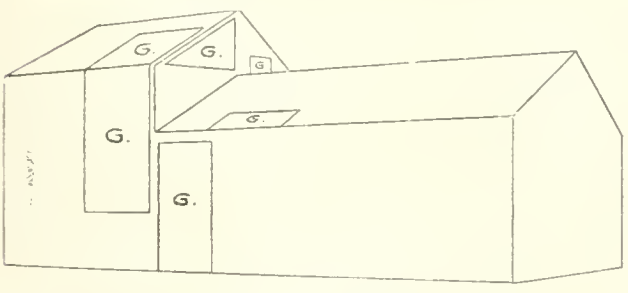


Fig. 4.—Rejlander's Studio. (Perspective Diagram.)

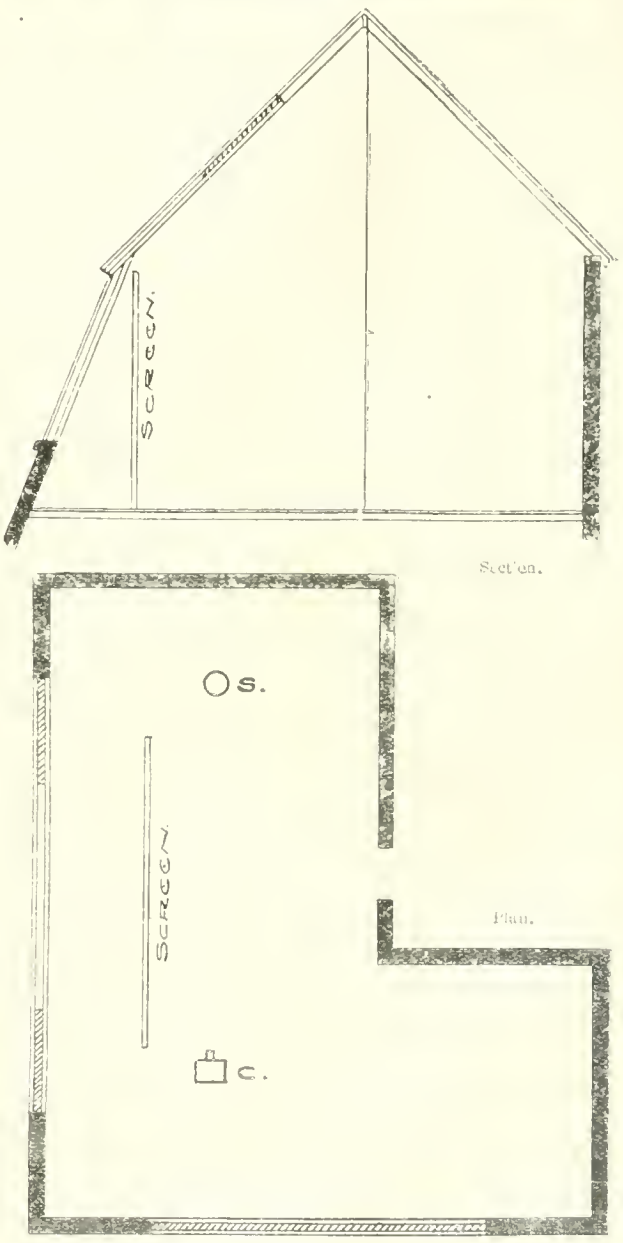


Fig. 5.—Valentine Blanchard's South-light Studio.

blinds, their object being not to get direct but diffused light to soften the shadows. The sitter was, therefore, mainly lighted from the top and side top, front and direct vertical light being avoided. This studio must have been a good deal easier to work in than some of its predecessors, but, again, owed much of its success to the skill of its user, as was shown by the fact of imitators trying to use similar places, but getting far inferior results.

To come next down to more modern times I will close what we may call the historical part of the subject by showing you a sketch of another studio (Fig. 5) used by an eminent photographer, the late Valentine Blanchard.

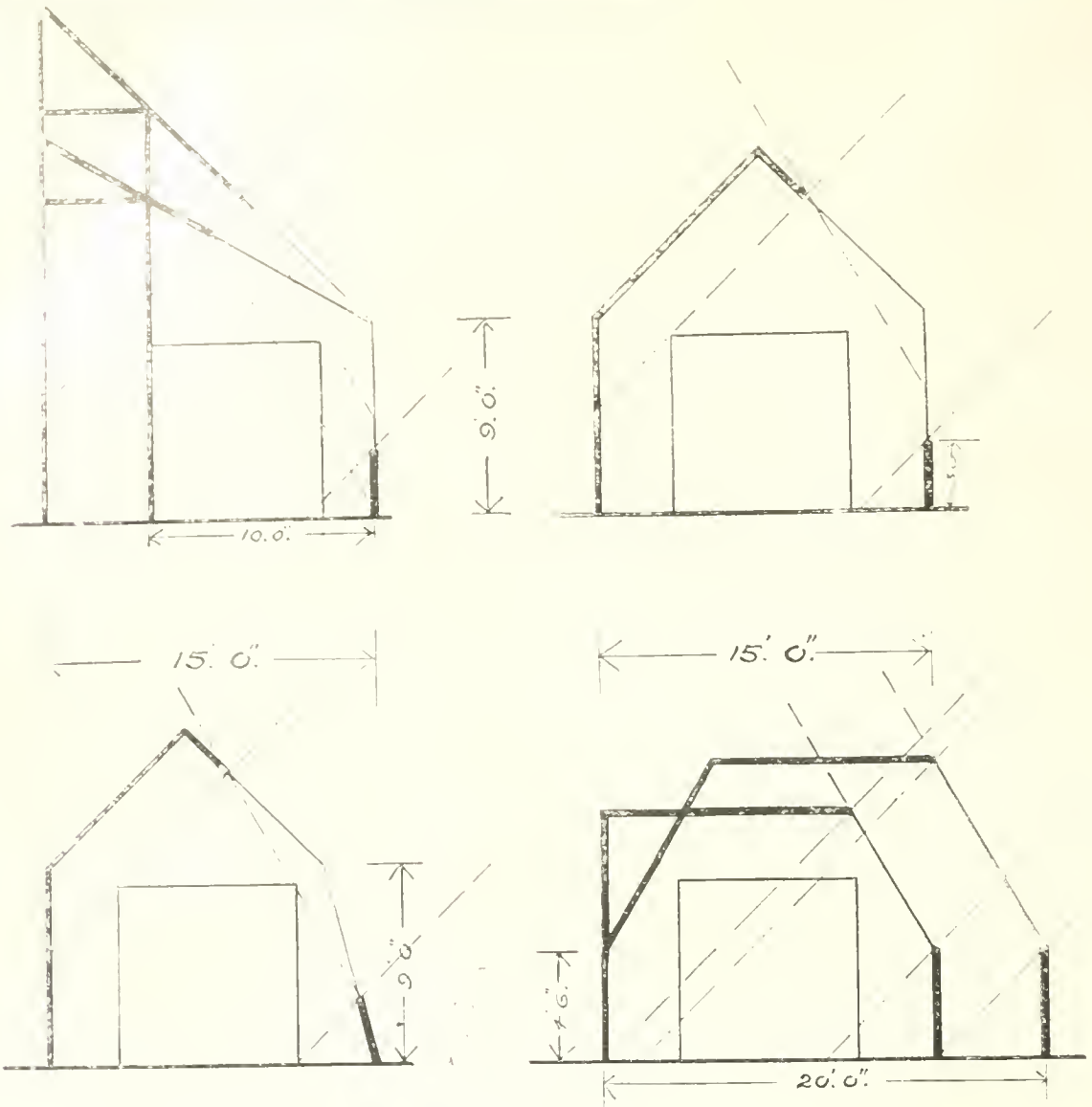


Fig. 6.—Studio Sections.

[illegible] chosen for illustration, because it affords another instance of how genius not only overcomes difficulties, but often turns them into positive advantages. Having, for reasons of position, etc., chosen premises in which the only available light for the studio must come from the south and east, Mr. Blanchard put up a studio for working mainly by the south light and his plan, as shown on the screen, may be of interest to photographers faced with a similar predicament. The solid black in the diagram shows the opaque portion of walls and roof, the shaded parts indicate where the glass was covered with paper or tinted. In front of the clear portion of the window Mr. Blanchard placed, as will be seen, a screen to intercept the direct rays of the sun. The ordinary positions of sitter and camera are shown on the plan, but could, of course, be reversed to the opposite ends of the studios in order to light the other side of the face when required. The east window was generally kept curtained, and had little or nothing to do with the ordinary lighting of the sitter. In Mr. Blanchard's own description of the place he said, "The sitter cannot see the side of the screen upon which the sun's rays fall, so there is no side light to dazzle the eyes, and for ordinary purposes one screen is sufficient. As the sun travels westward the screen can be drawn to the east to admit more light if necessary. In fact, whether working with the [illegible] at the east or west, the screens can be moved about readily according to the time of day, and yet give the sitter all the shade required." Writing again in the year 1877-78 Mr. Blanchard further [illegible] A year's experience, embracing as it does all the variations between the oblique light of winter and the almost vertical light of midsummer, only confirms the high opinion then expressed. The gain in rapidity of the south over the north is at once apparent to anyone who has the means of trying both. During the past gloomy months I have made pictures that would have been absolutely impossible with a north light. I find, now that I have it well under control, that those beautiful, luminous, yet delicate effects frequently seen in photographs from Italy and America, and due to the penetrating power of pure, intense light, are readily obtained with this illumination." Here, again, we have, as I have said, genius turning difficulties into opportunities, and the example here shown may perhaps not only encourage some light starved London photographer, but also offer food for thought when similar difficulties arise. Having thus glanced at some of the studios of the past, we will now proceed to consider the studio of the present, which generally takes one of the four forms shown in Fig. 6. It will be noted that for the sake of more easy comparison I have drawn all the four sections in the first place of the same width, adding only in the first and fourth cases outlines of less and greater width respectively. The first is, as you see, of the ordinary lean to construction, the thick lines showing the opaque walls and roof, and the thin ones the glazed portions of the same. With a width of 15ft. and a pitch of 45° to the roof, it will be seen that the latter becomes somewhat long, and consequently costly, a defect which may be slightly reduced both in that case and in the one in which the studio is shown 10ft. wide only, by making the upper portion a flat, which, in positions in which it was accessible, might occasionally be useful for printing or other similar purposes. The cost and size of the roof may also be reduced by making the pitch only 30°, but that, again, has its disadvantages, inasmuch as snow would lie upon it much more easily than on one of steeper pitch, and the light be made slightly more vertical in its incidence upon the sitter than in the former case. This question of pitch also depends largely on the position of the studio and its surroundings, and in these diagrams I have assumed, for purposes of comparison, that the glazed sides are facing north. Theoretically, this is, of course, the ideal position (though we have already seen how widely it can be departed from), but practically it is best to make a studio, if possible, face a little to the east of north, in order that the sun may be off it earlier in the afternoon, which is the time of day during which one gets most sitters in good class businesses. The question of pitch is also governed by the fact that the maximum altitude of the sun in summer is a little over 60° above the horizon, and that, therefore, unless the roof of the studio approaches that angle in steepness, or is protected in some other way, the sun will shine over the ridge into the studio at mid-day, in midsummer at least. On these diagrams I have endeavoured to make this clear by the dotted lines to the left, which show the meridian altitude of the midsummer sun, and how it would shine into each form of studio depicted. In the case of the lean-to, however, we may fairly assume that this section would not be chosen unless there was already some build-

ing in existence for it to be built against, and that, therefore, it would be probably protected from the south, in which case we could afford to have our roof flatter in pitch. From the foregoing facts, then, we may conclude that the lean-to form of studio is best adapted for buildings of somewhat narrow width, certainly not over 12ft. or 14ft., and which are protected from the sun by others on the south side, while a suitable pitch for the roof is about an angle of 45°. Next we come to the ridge form, in which, as you will presently see by the photographs of existing studios, by far the largest number of present-day ones are built. Its advantages are that its familiar form makes it easy of construction by the ordinary builder; almost any width can be covered by it; it gives plenty of head room for the moving of backgrounds, etc., inside (apropos of which I may say that the square shown in each diagram represents an 8ft. background), and its roof may be almost of any pitch desired. That in the diagram is shown at an angle of 45°, in which case, however, unless erected in a sheltered position, it would require a vertical sun-screen for a while in the middle of the summer to shut out the direct rays of the sun, which would, as shown, then shine into it. By making the slope of the roof 60°, and placing a flat on the top, as in the fourth diagram, this could be avoided; but, in that case, I think the single slant form shown in the latter would be preferable. One of the defects in the ridge roof form of construction, and which it shares with the lean-to, and the ridge and slant, is that, as ordinarily constructed, there is generally a necessity to make the wall plate at the eaves of such dimensions that it becomes an absolute obstruction to the light, and thus very often produces a double high light in the eye of the sitter, which must either be taken out by the use of the knife on the negative, or that of the brush upon the print. This has sometimes been avoided by the use of curved iron sash-bars, as in the case of a certain American studio; but, in any case, in either the lean-to, the ridge form, or the ridge and slant form, as shown in the third diagram, there is the necessity for two complete sets of blinds, which, when both light and dark ones are used, as is now almost universally the case, produces a great complication of wires, cords, pulleys, etc., which distract the attention of the operator from what should be his principal work in the posing of and obtaining a good expression in the sitter. Taking all these points into consideration, my own preference, both as an operator in and designer of studios, runs very largely in favour of the single slant form, as shown in the fourth diagram now on the screen, and in some other designs and pictures you will see later on. Here, in the first place, by the pitch of 60°, we are freed from the undesired attentions of our best friend and enemy, the sun. There is no trouble with snow, nor in a properly constructed roof with rain either; the glass easily is cleaned inside and out, and with opaque blinds pulling down from the top and up from the bottom, and a series of transparent ones running on wires within, we have every possible control of the lighting, and the reasonably intelligent operator can obtain every variety of it he will ordinarily require. Had I thought of it in time I would have prepared some slides showing portrait work done in single slant studios, in the same way that Mr. Gill has done in a slide which reproduces on a larger scale the head of the figure shown as a sitter in the view of his studio, which we shall shortly have the pleasure of showing you. Of course, like all other subsolar things, the single slant studio is not absolutely perfect. Sometimes it is not easy to obtain quite all the top light one requires, and unless it is wide enough for one to work across it, it is not altogether a good studio for copying. It is, also, more suitable for fairly wide studios than for very narrow ones, on account of the extra head room (as shown by the diagram) obtainable in the former; but the absence of a wall-plate, and the easy working of its blinds, render it a capital studio for average portraiture, and those I have designed in this form have, I believe, given every satisfaction to their owners. Before passing from this series of diagrams, I may call your attention to the diagonal dotted lines at the right, at an angle of 45°, the lower of which incloses between itself and the base line the space within which adjacent buildings on the north side will but little or not at all obstruct the lighting of the studio. The upper ones show how the upper portions of the backgrounds, when in the positions shown, might be slightly in shadow. It must not, however, be inferred from this that all light enters a studio at an angle of 45°, or that it does so, as many photographers often appear to suppose, at right angles to the surface of the glazing. The existence of this latter fallacy in many minds is all the more incomprehensible when the very persons who entertain it in theory daily disregard it in practice; and, as nearly everyone knows, the actual light which illuminates the sitter is that which reaches him in straight lines from the whole of the illuminating surface, or open glass area, which he is able to see from his position in the studio.

(To be continued.)

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The fifteenth meeting of the present session of the Royal Institute of British Architects was held on Monday evening at 7, Conduit-street, W. The chair was occupied by Mr. E. Guy Dawber, Vice-President. The following new members were elected: As Fellows—Hastwell Grayson, Pacific-buildings, Liverpool; James Lochhead, Brandon Chambers, Hamilton, N.B.; William Ralph Low, Basinghall-street, E.C.; Henry Alfred Neubronner, Penang, Straits Settlements; Francis John Potter, Bloomsbury-square; and George Lister Sutcliffe, Bloomsbury-square. As Associates—James Albert Aird, Fairmount-avenue, Montreal, Quebec; Charles Dudley Arnott, Imperial Maritime Customs, Shanghai, China; David Wickham Ayres, Gray's Inn-square; Alfred Francis Collins, H.M. Office of Works, Windsor Castle; David Colville, Granville-street, Vancouver, B.C.; Arthur Redfern Cornwell, Auckland-road, Norwood; Alan Gordon Monsbourgh, Taner's Buildings, Johannesburg; William Mortimer Paton, H.M. Office of Works, Dublin; and Arthur Floyd Trebilco, Public Works Department, Melbourne, Australia. A list of 397 applicants for Licentiateship, to be considered by the Council on the 26th inst., was taken as read.

THE ELECTIONS FOR COUNCIL.

The chairman announced that the scrutineers reported that the following members had been duly elected as Officers, Council, and Standing Committees for the ensuing session:—

THE COUNCIL.

President.—Leonard Stokes.

Past-Presidents.—Thomas Edward Collcutt, Ernest George, A.R.A.

Vice-Presidents.—Reginald Blomfield, A.R.A., Edward Guy Dawber, Ernest Newton, A.R.A., John W. Simpson.

Hon. Secretary.—Henry Thomas Hare.

Members of Council.—Walter Henry Brierley, Walter Cave, Max Clarke, William Flockhart, James Sivewright Gibson, John Alfred Gotch, William Curtis Green, Edwin Thomas Hall, George Hubbard, Arthur Keen, Henry Vaughan Lanchester, Edwin Landseer Lutyens, George Halford Fellowes Prynne, Halsey Ralph Ricardo, Sir Alfred Brumwell Thomas, Edmund Walter Wimperis, William Woodward, Percy Scott Worthington.

Associate Members of Council.—Sidney Kyffin Greenslade, Walter John Tapper, Harry Inigo Triggs, Herbert Winkler Wills, Arthur Needham Wilson, Septimus Warwick.

Representatives of Allied Societies.—Henry Clement Charlewood (Northern Architectural Association), Sydney Decimus Kitson (Leeds and Yorks Architectural Society), Edgar Wood (Manchester Society of Architects), James Jerman (Devon and Exeter Architectural Society), John Brightmore Mitchell-Withers (Sheffield Society of Architects and Surveyors), Albert Edward Murray (Royal Institute of the Architects of Ireland), William Fleming Wilkie (Dundee Institute of Architecture), Cecil Locke Wilson (Cardiff, South Wales, and Monmouthshire Architects' Society), Joseph Foster Wood (Bristol Society of Architects).

Representative of the Architectural Association, Gerald Callcott Horsley.

Auditors.—John Hudson, William Henry Bart.

THE STANDING COMMITTEES.

Art.—Fellows: Cecil Claude Brewer, Walter Henry Brierley, Walter Cave, William Flockhart, William Adam Forsyth, Gerald Callcott Horsley, Thomas Geoffry Lucas, Edwin Landseer Lutyens, Ernest Newton, Edwin Alfred Rickards. Associates: Sidney Kyffin Greenslade; John James Joass, Walter John Tapper, Harry Inigo Triggs, Septimus Warwick, Arthur Needham Wilson.

Literature.—Fellows: Frank Thomas Baggallay, John Alfred Gotch, William Curtis Green, David Barclay Niven, George Halford Fellowes Prynne, Halsey Ralph Ricardo, Charles Sydney Spooner, Sir Alfred Brumwell Thomas, Edward Prioleau Warren, Percy Leslie Waterhouse. Associates: Walter Millard, Herbert Passmore, Charles Edward Saver, Cyril Wontner Smith, Arthur James Stratton, Herbert Winkler Wills.

Practice.—Fellows: Robert Stephen Ayling, Howard Chatfeild Clarke, Alfred William Stephens Cross, Matt. Garbutt, Albert Walter Moore, Charles Stanley Peach, Sydney Perks, Herbert Duncan Searles-Wood, Henry Tanner, jun., William Woodward. Associates: Kensington Gammell, John Nixon Horsfield, Charles Edward Hutchinson, Herbert Hardwicke Langston, Herbert Shepherd, Harold Arthur Woodington.

Science.—Fellows: Harry Percy Adams, Max Clarke, Frederic Richard Farrow, Ernest Flint, Horace Gilbert, George Hornblower, George Hubbard, John Murray, Ravenscroft Elsey Smith, William Henry White. Associates, George Leonard Elkington, Charles John Marshall, Alan Edward Munby, Digby Lewis Solomon, Ernest William Malpas Wonnacott, Ernest Alexander Young.

BUILDING IN EGYPT.

A paper on this subject, illustrated by lantern-slides, was read by Mr. Ernest Richmond, Licentiate. He observed that the solidity and finish which we regard as so essential to comfort and a sense of security are both absent in an Egyptian house; and, in consequence, an Egyptian town is apt to present an unpleasant appearance of squalor and decay. Disorder and neglect seem, at first sight, to be the prevailing, and, indeed, almost the sole characteristics, at least of the Lower Egyptian towns. The buildings look as if they were never repaired, and many of them as if any attempt at repair, short of complete reconstruction, would be out of the question. The dilapidated appearance of an Egyptian house is to be attributed, to a large extent, to the condition of the surface rendering of the walls. The surface rendering is an important feature in Egyptian building; but in order to understand its use, it is necessary to gain a clear appreciation of the nature of an Egyptian wall and of the methods and materials used in the construction of the latter, and, further, the prevailing physical conditions of the country. These conditions arise, on the one hand, from the Nile flood; and, on the other, from the Egyptian sun. Buildings in Egypt stand in conditions with which it would probably be difficult to find a parallel elsewhere. During the flood season their foundations are in water or in mud, and, after the Nile has fallen, on hard baked clay. The ground forming the bed upon which foundations rest changes, then, materially in character twice every year. There is, further, an extensive range of temperature, not only between winter and summer, but between day and night, and the atmosphere of Egypt is remarkable for its dryness. Under certain circumstances the changes of temperature may be such as to result in stresses greater than a wall can resist. Buildings in Egypt, then, are almost daily subjected to forces above and below ground which tend to bring about movements. Below ground the water level is continually changing, and above ground alterations in the temperature, even more frequent, are setting up stresses which are difficult to calculate. There is, however, another aspect of the case which must be touched upon in order to complete a general summary of local physical conditions. Though the alluvium deposited by the Nile occupies by far the greatest area of the country, yet buildings are comparatively seldom constructed upon it. Building activity is, for the most part, con-

constructed independently, and the space in between is filled with smaller stones and large masses of mortar. The mortar, if it is of mud, kosremil, and fat lime, and if it keeps fairly damp, hardens rather than sets. On the hardening of the mortar, more especially on the outside of the joints, does the stability of the wall depend; and, in order to fortify the outer joints it is a common custom to bed, in the surface joints, small pieces of stone. When fat lime and sand mortar are used, the same practice is often followed. If the wall is constructed of brick, hardly any more attention is paid to bond than in the case of a rubble stone wall. Native built brick walls, like those of rubble, are rarely, if ever, less than half a metre in thickness. The bond necessary for giving some degree of stability is provided by means of horizontal pieces of timber placed over and under all openings and forming lintels and sills. The amount of timber judged necessary depends on the nature of the land built upon, more being used in buildings upon "made" soil or in soil with an admixture of sand, than in those constructed on the black alluvium. The surface of the wall is, when finished, provided with a rendering composed of fat lime and sand, so as to protect the outer joints of the masonry from the destructive influence of the sun and wind. The main characteristics of a wall such as that described, appear to be elasticity and the capacity it possesses to adapt itself, in a certain measure, to movements, both those in the foundation bed caused by the rise and fall of the subsoil water, and those in the superstructure itself, caused by stresses set up by changes of temperature. In the best examples sufficient success is obtained to preclude any danger of sudden collapse. But the success does not extend to producing a building, which will not, firstly, soon after completion, begin to show signs of dilapidation, more especially in the case of houses in Lower Egypt. Such methods of construction give, it is clear, results unsuited to modern European requirements. To maintain the building in a state of repair considered essential by Europeans or those influenced by European ideas, is impossible; dust and dirt from falling plaster and from the continual entry of workmen, either to replace it, or to open jammed doors or windows, make the building uncomfortable, and the damp of the ground floor makes the lower rooms unhealthy. Further, the building is highly inflammable, and, in consequence, not fit to house important documents or to accommodate those who carry on business after nightfall by artificial light. It is not, then, to be wondered at that the changed conditions introduced by an increased influx of foreigners have brought about some modifications to native Egyptian structural methods. A more stable wall is needed; both and imported hydraulic lime are, therefore, indicated. A drier wall could be insured by the use of a damp-proof course of imported asphalt or bituminous sheeting. The foundation bed can be consolidated by various methods, so as to reduce to a minimum the effects of the subsoil water level changes; or the foundations can be made of a rigid character, capable of resisting the effects of movements. Imported steel joists can be used to replace wooden lintels over openings and wooden floors and roofs. Wooden beams built into the walls for bonding purposes can be omitted. Such changes as these indicate the general effect of European influence on building in Egypt. Up till a few years ago, it was a common practice to excavate the whole of the area to be covered by a building, and to lay down a thick raft of concrete. This method has been, on the whole, satisfactory. Broad spreading foundations of reinforced concrete have also given good results. Steel frame buildings are even beginning to make their appearance in Egypt; though it is too early to say with what effect. The introduction of new methods is by no means an easy task, nor is the result invariably successful. New methods bring with them the necessity for teaching a people of strongly conservative tendencies the meaning of things completely strange to them, and, occasionally, in direct opposition to their own traditions and practice. For this the foreign architect or builder must not only

be equipped with a high degree of patience, but he must also be prepared to learn a good deal himself. In Egypt there is, as yet, no established tradition capable of providing a suitable and complete guide when building for the fulfilment of modern needs. To make a satisfactory harmony between local conditions and requirements of foreign origin must be an object of the architect as well as of other workers in Egypt. Something may be learnt from a study of native practice; but, owing to the great differences in the manner of life followed by the inhabitants of houses built in accordance with that practice and that followed by most Europeans, such a study will not take us very far.

Mr. R. Weir Schultz, in proposing a vote of thanks to the lecturer, remarked that he had followed his career with great interest since he went to Egypt with Mr. Somers Clarke to report upon the Coptic monuments, and had observed him successively in the Departments of Public Works, culminating in his present highly responsible appointment as Director of Public Buildings for Egypt. He had seen Mr. Richmond's work on the spot, and found it direct, straightforward, and careful, local conditions being observed, but with no attempt to imitate old methods or patterns. One of the great difficulties in superintending the putting up of buildings for Europeans was that the native worker did not understand the conditions under which the English lived. He wished that Mr. Richmond had told them more of the details of craftsmanship in woodwork and plastering still being executed by the natives. There was a movement for providing technical education, and a proposal to send out a director from England, but he trusted that native traditions would not be ignored.

Professor W. M. Flinders Petrie, seconding the motion, observed that the lecturer had described, in a vivid and interesting manner, the incessant conflict in Egypt between Eastern and Western methods. These thick mud walls, which looked so feeble in construction to us, would stand violent rains and fierce sun alternating with chilly nights; thrusts were resisted by the use of high-pitched arches of timber or masonry. The use of timbering promiscuously introduced into the walling for the sake of bond was a very ancient expedient. Two great difficulties existing in Egypt were the ravages of that terrible pest the white ant, and the salt with which the soil above the level to which the Nile rose was impregnated.

Mr. Somers Clarke supported the vote of thanks, saying he was glad Mr. Richmond did not disregard the native traditions in building construction, nor did he contemn the workmen as ignorant because their methods differed from those to which we were accustomed in England. It was customary in Egypt to allow two years for the mud walls to dry, and they not only contracted during all that period, but continued to shrink and develop cracks long afterwards. In some modern buildings that he had examined there was more stone in the foundations than was visible in the construction above ground.

Mr. R. Phené Spiers and the chairman also supported the vote of thanks, which was carried by acclamation, and was briefly acknowledged by the lecturer.

THE FORTHCOMING ARCHITECTS' CONGRESS IN ROME.

At the request of the chairman, Signor Mariano Eduardo Cannizzaro, the secretary of the forthcoming International Congress of Architects, to be held this autumn in Rome, gave (in English) an earnest and cordial invitation to English architects to attend the meetings which would commemorate, he reminded them, the Jubilee of the Unification of Italy. The Congress would be held from October 3 to 10, and would be under the direct patronage of the King of Italy. At its close it was proposed to adjourn to Venice, where the reconstructed Campanile of St. Mark's would be inaugurated, with public ceremony.

The corporation of Leicester has approved plans by Mr. E. G. Mawbey, M.I.C.E., the borough engineer, for alterations and additions to the borough asylum, estimated to cost £3,000.

RECOMMITTAL OF THE ST. PAUL'S BRIDGE SCHEME.

The protests of architects and others against the route adopted by the engineer to the City Corporation for the projected St. Paul's Bridge, shutting out, as it did, the view of the Cathedral, were unexpectedly successful on Wednesday evening, when, after an animated debate, the House of Commons decided, by 156 to 99 votes, to send back the Bill for reconsideration. The debate was opened, in a temperate speech, by Mr. Philip Morrell, who moved that the measure be recommitted, and that the Committee be instructed not to agree to any scheme for the construction of the proposed bridge until they were satisfied that the plans had been prepared under the advice and supervision of leading architects, and that the scheme, both in respect of architectural design and convenience of traffic, was the one best adapted to the public needs and to the character of the site. Mr. Morrell complained that in designing the bridge, which was to cost £2,250,000, sufficient regard had not been paid to the public interest in this matter. He admitted that the alternative scheme, providing for a fine vista of St. Paul's, would add from 10 to 20 per cent. to the outlay. The Bridge House Estates Committee had an income of £152,000 per annum, of which £90,000 a year was now available for the purposes of the charge to be created by the Bill.

Lord H. Cavendish Bentinck, seconding the motion, maintained that the House, which had recently passed the Town Planning Bill, would be stultifying itself were it to agree to the Corporation scheme, which he described, amid laughter, as one that was inspired by the engineer, the surveyor, and the policeman. He quoted an observation of Gladstone's, made in regard to the building of the Foreign Office and the Houses of Parliament, to the effect that a Renaissance architect had been employed for the Gothic building and a Gothic architect for the Renaissance building. The City Corporation, said Lord Henry, had improved on this bad example by employing no architect at all.

Mr. Mooney, the chairman of the Committee that had considered the Bill, took the view that there was no sufficient ground for recommittal, and he laid great stress on the abstention of the Royal Institute of British Architects from the Committee, although he had invited its members, who had petitioned against the Bill, to appear and explain their views. But they could still be heard in the House of Lords. He contended, moreover, that the suggestions of the architects would be far more detrimental and dangerous to St. Paul's than the scheme of the Bill.

Sir F. Banbury, who also opposed the motion, told the House that the Corporation of London had now undertaken to submit the plan of the new bridge to competent architects. The alternative scheme for a street with a dead-end opposite St. Paul's would cause serious blocks in the traffic, and would entail an expenditure far exceeding that contemplated by the Corporation. There was a plan of Wren's approximating closely to that which the Committee had approved.

Sir William Alfred Gelder, F.R.I.B.A., was convinced that if this scheme was allowed to pass this House it would be one of the most fatal blunders ever perpetrated in London architecture. It would be worse than a blunder; it would be a historic crime and cruelty to posterity. We had a cathedral in St. Paul's which was one of the monuments of the world. One blunder had been made in allowing the railway bridge to go across Ludgate Hill, and thus take away the view of St. Paul's from Fleet-street. They did not want to repeat a blunder of that kind, but rather to open out St. Paul's, so that its beauties might be better understood. The Press was practically unanimous in its opposition to the present scheme. They had been asked why the architects had not opposed the Bill. They did petition against it, but went no further, and it was not to be expected that they should, without being properly retained. In his opinion the Corporation had wedded themselves to a scheme without considering any others which might have been more advantageous to the public. They had given four or five reasons why their scheme was the only practical one, but he thought the real ground was the greater expense that would be involved in compensation were the route and northern termination changed.

Mr. E. Lamb opposed the motion for the recommittal of the Bill, and gave an undertaking on behalf of the City Corporation that if the motion were withdrawn no objection would be raised to the appearance of the Royal Institute of British Architects before the Committee of the House of Lords. The adoption of the proposed alternative scheme would mean the abandonment of the proposed tramway across the bridge.

Lord Balcarres supported the amendment, and contended that to pass the Bill in its present form would be to render the Town-Planning Act, passed with such a flourish of trumpets, a dead letter.

Mr. Emmott (Chairman of Committees) doubted whether the vista of the alternative scheme would be so wonderful as the opponents of the measure made out. As far as engineering difficulties, traffic difficulties, and cost were concerned, the Corporation scheme was preferable to the alternative scheme. He urged the House to read the Bill a third time.

Mr. Lyttelton held that public interest should not be allowed to suffer because the architects had failed to appear before the Committee.

The motion for recommittal was carried by 156 to 99 amidst loud cheers.

Mr. Morrell proposed an instruction to the Committee not to agree to any scheme for the construction of the proposed new bridge until they were satisfied that the scheme had been prepared under the advice and supervision of a competent architect or architects chosen from among the leading architects of the day, and that the scheme, both in respect of architectural design and convenience of traffic, was the one best adapted to the public needs and to the character of the site.

Objection being raised to further proceeding, the debate on the instruction was adjourned.

SWANSEA IMPROVEMENT SCHEME.

The Swansea Town Council recently decided—in view of the intention to re-erect the eastern side of Castle-street, now about to be widened into a 60ft. thoroughfare—to invite competitive designs for the elevation of the whole of the side of the street. The President of the Institute of British Architects was asked to make the nomination, and he selected Mr. Reay, F.I.B.A., of Bath, whose award we published in our issue of May 19. Mr. Reay stated that the average high quality of the designs submitted fully justified the steps taken by the council in promoting the competition. Several of the designs attained a very high standard, and he was satisfied that, however many designs had been submitted, it would have been hardly possible to obtain a more pleasing and suitable design than the one which he recommended. He unhesitatingly recommended the committee to appoint the author of the design marked No. 3 as architect to prepare the necessary working drawings in accordance with the particulars of the competition. The selected design was in every way much the best submitted (proceeded the report), and fulfilled in a remarkable manner the purposes for which the competition was instituted. The author had paid great attention not only to artistic considerations, but to the practical requirements of the council, with the result that he had produced a design of marked architectural character, and at the same time had so arranged the plan and general treatment as to be likely to fully meet the business requirements of the lessees. The design was simple and well proportioned, with a well-balanced disposition of windows and piers, the long elevation to Castle-street being divided into five bays, four of them being of equal length and having three groups of windows, the centre bay being narrower, with two groups of windows only. The design complied with all the requirements, and was free from elaboration and costly features. It would, when completed, constitute a really

generally and has often heard adverse comment on very meritorious materials because some builder or mechanic happened to have trouble in their use. And thus the sale of a good product is sometimes temporarily injured in a market when the fault is not with the product, but entirely due to wrong application or misunderstanding as to the proper use of the material.

Plaster board is not a substitute for both lath and plaster, as sometimes misunderstood, but is a lathing material only, and should be covered with a good coat of gypsum plaster, not less than ½in. over the face of the board. Improper application of the board or the attempt to get a good job by using a thin coat of plaster, often results in dissatisfaction. The proper method of applying plaster board is to break joints every other board horizontally on the walls, which is easily done by starting every other tier with a half board. Joints should be broken on ceilings every other board at right angles with furring or joists.

It is important that the boards be spaced not less than ⅛in. to ¼in. apart on all sides, and these spaces, or joints, should be well filled with gypsum mortar, forming a good key, and allowed to set before the base coat is applied. By filling in the joints in this manner the boards are all joined together into a homogeneous mass, forming a solid plastering surface, and also preventing any cracking at the joints. The plaster coat is applied to the dry board, and the two materials bond together perfectly. The excessive amount of water required in plastering on wood lath has always been one of the serious objections to that material, as this moisture not only warps and buckles the wood lath, but also frequently warps the trim and frame work, and is often responsible for many of the cracks and other defects in walls and ceilings.

Plaster board absorbs the small amount of excess moisture in the base and finish coats of plaster, keeping the water away from the framework, and on account of the absence of the wood lath the use of plaster board removes the very element that is largely responsible for plaster cracks, as gypsum either in the board or plaster coat does not contract or expand, and is stamproof. Considering all the good features of gypsum products from a fire retardant standpoint, its low cost, and the extent to which the material is found, it is evident that gypsum will play an enormous part in the building construction of the country. *Contract Record*

A new organ was dedicated on Tuesday night in All Souls' Parish Church, Heywood, Lancs. The instrument is a three-manual one and has cost about £600.

The new sanitary building of St. Mark's College, Kingsroad, Chelsea, comprising cloakrooms, a gymnasium, and student's quarters, provided at a cost of more than £25,000, was opened on Wednesday by the Archbishop of Canterbury.

The formal opening of Norwood Park, 53½ acres in extent, acquired from the Ecclesiastical Commissioners at a cost of £15,000, took place on Wednesday. The site is on the extreme boundary of the Metropolis, and was part of the great Northwood Estate. Later it became known as Norwood Common, and was famous for its open air Sunday meetings. Sir Ernest and Lady Tritton have presented the park with a drinking fountain.

Mr. Alfred Lyttelton, K.C., M.P., president of the Hampstead Garden Suburb Trust, Ltd., took the chair at the annual meeting of the shareholders held on Wednesday at the Holborn Restaurant, and said that the ground rents already created were sufficient to cover all the interest charges on the whole of the shares and debenture stock which would ultimately be issued, and in a few years there would be a surplus of £5,000 a year for adding to the amenities of the estate.

A memorial tablet which has been placed on the timbered cottage at Chalk, in which Charles Dickens is said to have spent his honeymoon, was unveiled by the Mayor of Gravesend (Alderman H. E. Davison) on Wednesday. The memorial is a bronze medallion, consisting of a three-quarter face portrait of Dickens, enclosed in an oak frame and bearing the inscription: "Charles Dickens, born 1812, died 1870, spent his honeymoon in this house (1836). Here also were written some early chapters of 'Pickwick.'" It is the work and gift of Mr. Percy Fitzgerald.

CURRENTE CALAMO.

We are very glad that Mr. Philip Morrell's amendment, sending back the St. Paul's Bridge Bill for reconsideration to the Committee was carried on Wednesday. The Committee is rather a poor one—it consists of an Irish Nationalist and three Midland Members, none of whom know much about the needs of London, and we trust it will now try to understand the considerations which have prompted the opposition of all who do. No one denies the necessity for the new bridge. The City ought to have made it long ago. Equally, it must not be allowed to blunder once again, as it did when it built the Tower Bridge, and permanently limited the usefulness of that equally badly-wanted communication; or when it insisted on blocking the Strand with the Griffin, which, for a few days, is mercifully hidden from the gaze of its scorners.

Municipalities in this country have usually a fine healthy aversion to considerations of beauty. Just as the old Metropolitan Board of Works planned the end of Northumberland-avenue so that the Nelson Column should not be seen, and made Shaftesbury-avenue about the width of a second-rate street, so the City authorities want to force on London a plan which sacrifices an opportunity never possible again, which every man of taste desires to see utilised. At any rate, now we shall have the chance of proving to Parliament and the nation that the Corporation's scheme is practically and artistically a bad one, and that, at nothing like the extra cost asserted, the needs of traffic, and the chance of obtaining a fitting approach to, and view of, St. Paul's may be secured. The City authorities are not to be past-master monopolists of the closure, as they fancied themselves.

The vigilance of objectors, however, must not be slackened in the least. They are very subtle people in the City! It is quite likely some architect may now be associated with the scheme of an accommodating turn of mind, and a "modification" of the plans prepared, which, it will be protested, meets all possible objections, but really does nothing of the sort. Then a sufficient number of Members of Parliament and others whom we have managed to wake up to the stupidity of the proposals defeated on Wednesday will think all is as it should be, and the City will slip its Bill through and set us at defiance.

We wonder, amid such disagreeables as the embarrassment of the Birkbeck, and a possible "run" on the Post Office Savings Bank by scared holders of the sort Mr. Thos. Gibson Bowles postulates this week in the daily papers, whether investors, on the security of land and houses, particularly in and about London and the large towns, will ever wake up to the necessity of looking from time to time to their mortgages, and having them readjusted on a proper basis? There is really no better investment than a mortgage on a sound property. The interest is good, the property cannot run away, or be dissipated, or stolen, the investor is not put to a penny of expense, and yet, owing to the ever-changing character of residential localities and trade centres, the value of real property fluctuates not unfrequently as violently as that of rubber shares, and always more or less continuously. It is most desirable nowadays that trustees and mortgagees should make a point of having all such investments independently valued once in every five years, and, if necessary, insisting on the readjustment of the mortgages on which money has been advanced. Solicitors and surveyors who do not impress this on their clients are certainly, to the extent of their neglect, morally responsible when loss results.

"A Solicitor," writing to the *Times*, asserts that the erection by the authorities of stands in the public streets to view the Coronation and subsequent Procession is illegal. He cites, in support of his contention, the case of "Campbell v. Mayor," etc., of Paddington, L.R. 1911, Vol. I., K.B., p. 859, as in point. A flagrant case is the erection of stands on the eastern side of the new Admiralty Arch. As he remarks, it is a pity some local householder did not apply for an injunction. On a former occasion, he reminds us, the City of Westminster proposed to build a stand in Waterloo-place right up to Pall-mall, but set it back on the representation of the adjoining clubs. We hope this is so, and that householders on the routes will remember it.

Lord Rosebery has discovered that an Englishman's house is no longer his castle, because valuers are empowered by the Finance Act of last year to inspect it at their will for the purposes of land valuation. Lord Rosebery will not find that shot hit many marks. Most occupiers are tenants, and the valuer will not hurt them any more than the fireman, whose peremptory but highly necessary forcible entrance during a conflagration next door is equally an invasion of the Briton's boasted domestic privileges. The sternest and most unbending Tory has little more fellow-feeling for the ground landlord in these days than the reddest Radical. Has Lord Rosebery forgotten what Ruskin said long ago in his prescient plea for valuation? "Our marsupials must have glass pockets"! Moreover, as Sir Harry Poland has reminded the *Times*, there is nothing new in principle in this enactment, the same power having been given by the Parochial Assessment Act of 1836 and the County Rate Act of 1852! Possibly somebody then spouted the same fustian about "Chatham's famous outburst," etc.

A correspondent reminds us that we might have added a good many more instances to our list last week of the blunders of cemetery masons and monument makers. On the breastplate of King Edward's own coffin he was said to have "departed this life in the ninth year of his reign," instead of the tenth year. An equestrian statue erected at Exeter to the memory of the late Sir Redvers Buller bore an inscription in which "Salamanca," "Toulouse," and "Vimiera" were respectively spelt "Salamanca," "Toulouise," and "Vimieta." On Mrs. Browning's tombstone the year of her birth is given as 1809, but there was no slip made there. Mrs. Browning, who was born in 1806, was some half-dozen years the senior of her husband. She was extremely sensitive on the point, and it was out of regard for that sensitiveness that Browning caused the falsification to be made.

A (presumably) young correspondent wants us to allow him to initiate a discussion advocating the adoption of "a distinguishing garb for architects in daily life." He says: "I am not pleading for anything out of the way, or even a dress reform on the rational lines advocated by Mr. Gotch and others; but would it not be an advantage if an architect were known by his apparel, just as a clergyman is?" We do not exactly see why, unless our correspondent thinks eager clients waiting about in the streets might the more readily spot their men. We suppose the cut would vary according to the proclivities of the architect? Dean Pigou, we think, has told us that it was a fad of Soapy Sam of Oxford that all his candidates for ordination should come up in clerical attire—a needless expense if the man failed to pass. In those days, more than half a century ago, the clerical coat reached down to the ankles. A candidate, none other than the future Dean, asked the tailor to cut it short. "Impossible, sir," said the tailor, "we always cut a gentleman's coat according to his religious persuasions." "Very well," was the reply, "my religious persuasions, as a moderate Churchman, are about two inches below the knee."

The numerous accidents during the past few weeks, and especially the last, to motor-'buses are eliciting angry wonder when the police authorities are going to enforce additional restrictions. The most recent accidents seem to have been due to erratic behaviour of the mechanism controlling the direction of the 'bus, which has swerved, and dashed upon the pavement, endangering the life and limbs of the pedestrians. It really seems as if the machinery of many of the motor-'buses is worn out, so little control over it have the drivers. Is it not time that periodic tests for fitness of travel were insisted on?

Mr. J. H. Abbott, resident engineer at the sewage works, Chiswick, and Mr. James Craig, manager of the sewage works, Wanstead, have been elected chairman and secretary respectively by the Metropolitan District Committee of the Association of Managers of Sewage Disposal Works.

In regard to the application made on behalf of George Dowdney Watts (in the petition called George Watts), Richmond Park, Bournemouth, formerly carrying on business at Camberley, Surrey, builder, Poole, the order of discharge has been suspended for three years ending May 8 1914.

Under the supervision of Mr. Stallebrass, architect, of Peterborough, the building at Ramsey, Hunts, hitherto used as the police-station is being converted into a parish institute, with a large room for lectures and meetings. Mr. Bateman is the contractor, and the work will be completed by the end of July.

At Padstow, the Hon. Mrs. Prideaux-Brune has fired the first shot in the under-water blasting operations about to be carried out for the extension of the harbour, to benefit the granite and clay industries. The new works are to cost £15,000. Of this sum, £5,000 has been granted by the Government, free of all obligation, £5,000 has been raised from the Public Works Loans Board, and the remainder is secured by the issue of £50 bonds. The works will include new quays and a pier 800ft. in length and 40ft. wide. The contractor is Mr. Arthur Carkeek, and the resident engineer Mr. C. Rickeard.

The President of the Local Government Board formally opened the Walton-on-Thames pumping-station of the Metropolitan Water Board on Saturday. The station has been constructed under Parliamentary powers granted to the Southwark and Vauxhall Water Company by their Act of 1898, and it is the last of the undertakings of the old companies inherited by the Water Board. The main engines driving the pumps are four in number, and are of the tri-compound, three-crank, inverted marine type of 2,000H.P. collectively, and the capacity of each pump is 25,000,000 gallons per twenty-four hours to a total head of 64ft. Mr. John Burns remarked, in the course of his inauguration, that, though he thought the ratepayers of London had paid too much for the water supply, they had one of the best supplies in the world, and one that made for health.

THE NEW YORK PUBLIC LIBRARY.

[illegible]

[illegible] floors [illegible] floor [illegible] and [illegible] floor [illegible] Light [illegible] are used instead [illegible] the [illegible] doors, each light [illegible] its own particular [illegible] and [illegible] the north and south ends [illegible] are similarly equipped.

[illegible] the [illegible] for raising and [illegible] books from the various stack floors [illegible] two horizontal conveyers [illegible] between the sixth stack floor [illegible] to each other. The [illegible] is carried from the one horizontal conveyer to the other and thence to [illegible] which carry it [illegible] to the desk. Each of these horizontal conveyers [illegible] consists of an endless track, [illegible] opening above it [illegible] baskets or wheels [illegible] automatically at the end [illegible] to be brought to a halt at any [illegible] station by means of push [illegible] The cars stop automatically where [illegible]

[illegible] the Library building [illegible] provided with sloping [illegible] for the use of readers and [illegible] The room which [illegible] has space for 200 [illegible]

[illegible] is a room 80ft. [illegible] with shelving space [illegible] 200,000 volumes. The books in the stacks, [illegible] are available for circulation, [illegible] from the circulating room [illegible] direct communication with the stacks.

Circulating rooms and libraries are by no means new; but the new library has, perhaps, the best of the kind ever designed. The low bookshelves that line the walls, the low tables and chairs, the cosy window seats, all of them suggest the library for children's use.

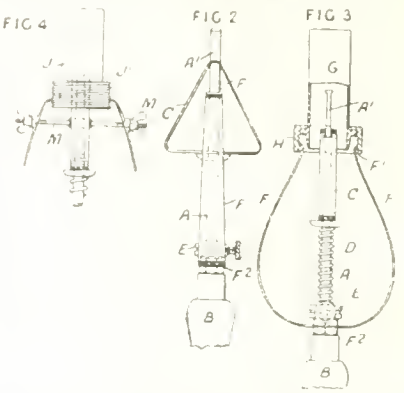
Other departments are the office, lecture-room, and classroom of the library school; a white marble exhibition room, 80ft. square, for the display of bibliographical treasures; reading rooms for current periodicals, having a total seating capacity of 100; technology rooms in which 50,000 volumes are shelved for the use of engineers, patent attorneys, chemists, and other investigators in the field of applied science; two rooms for the science collection, in which are shelved the 50,000 volumes in the library relating to the mathematical and natural sciences; a library for the use of the blind; six study rooms for students and investigators; special reading-rooms for the consultation of the Slavonic, Jewish, and similar collections; a reading-room for economics and sociology, shelving about 20,000 volumes, and seating twenty readers; a public document room, which contains about 80,000 volumes; a room devoted to 20,000 volumes on local history and genealogy; two rooms for the collection of music; rooms for the exhibition of prints and paintings; a room for the Stuart collection of books, prints, minerals, shells, [illegible] numismatics kept in the Lenox Library; a room for 20,000 volumes on art of [illegible]; a room for the study of prints and photographs, with a working space for [illegible] who wish to copy in pastels; a map room, [illegible] room for Americana, with 50,000 volumes on Americana alone.

[illegible] suggestion of the director [illegible] Messrs. Carrère and Hastings, [illegible] building which is not only [illegible] but which [illegible] thousands of readers [illegible] the books into the [illegible] which they belong.

[illegible] Queen's Park and [illegible] Middlesex, surveyor.

PLUMBER'S HOLDING TOOL.

[illegible] by Mr. F. E. Burn [illegible] Hawthorn street, Beeston, Nottingham, a plumber's tool for holding unions, nipples, cases, collars, or like objects while preparing and soldering them to pipes or the like. It comprises a triangular member, C, slidable along the flat end I A of the bar A, and urged forwards by a helical spring, D, [illegible] held by an adjustable collar, E, and a part of spring, or pivoted spring actuated



jaws, F, [illegible] at F'. In use, the apex of the member C is engaged in the end of the object such as a nipple, G, Fig. 3, and the handle B is pressed forwards until the ends F of the jaws F are in position to be engaged with internal screw threads on the nipple itself, or on a sliding collar, H, thereon, or with external threads J', on the union J, as shown in Fig. 4, the jaws springing outwards in the former case, and inwards in the latter. If preferred, mechanical means, such as a screw, M, Fig. 4, may be provided for holding the object more firmly.

Mr. J. C. Boyd, of Carlisle, has been appointed engineer to the Home Cultram Urban District Council for the extension of the apron to the sea wall at Silloth.

Miss Burrell, of Botley, Hampshire, has undertaken to defray the cost of building a new out-patients' building in connection with the Royal South Hants and Southampton Hospital. The cost will exceed £10,000.

A Local Government Board inquiry was held at the town hall, Todmorden, yesterday (Thursday), in reference to the corporation's application for permission to borrow £11,000 for the purchase of the Centre Vale Estate.

The first part of the memorial to the late George Frederick Bodley, R.A., F.R.I.B.A., which has been erected in Holy Trinity Church, Prince Consort-road, Kensington-gore, will be unveiled by Viscount Halifax this (Friday) evening.

Notice is given by the liquidator, pursuant to section 188 of the Companies (Consolidation) Act 1908, that a meeting of the creditors of Buffalo Forge Company, Ltd., will be held at the Westminster Palace Hotel, Westminster, London, S.W., on Wednesday, 28th day of June, 1911, at three o'clock in the afternoon, for the purposes provided for in the said section.

The Bishop of Columbia dedicated on Wednesday a peal of ten bells in Wimborne Minster. The former peal of eight bells has been re-cast and increased by two. Prior to Wednesday the diocese of Salisbury was the only one in England which did not possess a ten-bell tower. The scheme, which included the substitution of [illegible] for the old timber belfry frame, has cost about £600.

A statue of the late Dr. George Salmon, who was Provost of Trinity College, Dublin, from 1888 to 1904, was unveiled on Wednesday evening in one of the halls of that college. The statue, which was executed by Mr. John Hughes, R.H.A., is of white Galway marble, and represents Dr. Salmon wearing his academical gown. It was erected by the subscriptions of friends and admirers.

An interesting find of Roman pottery has been made in Fenchurch street during some excavations for the rebuilding of No. 80A. It consists of the remains of bowls and vases of red ware, of a rich dark hue. Figures in high relief, in a fine state of preservation, representing gladiators and hounds, adorn the ware. A Roman urn, containing human bones, was cut through in the course of the excavations. The spot is in close proximity to the old Roman city wall.

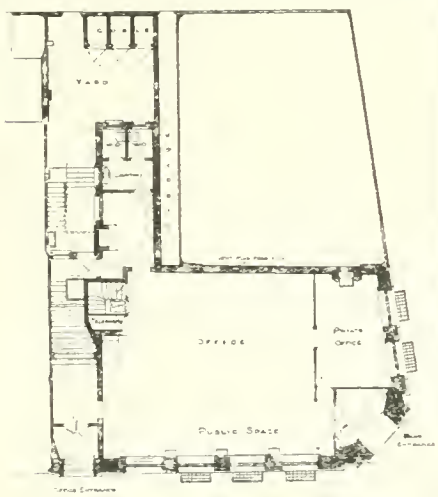
Our Illustrations.

HENRY VI. AND THE DUKE OF YORK (AFTERWARDS EDWARD IV.) MARCHING WITH THE LONDON TRAINBANDS TO THE BATTLE OF BARNET (1471).

This panel in the Royal Exchange, recently unveiled, has been painted by Mr. J. H. Amschewitz, of 2, Parkhill Studios, Parkhill-road, Hampstead, N.W., represents Henry VI. and the march of the London Trainbands to the support of Edward IV. at the Battle of Barnet (1471), and was presented as a memorial to the late Ellis A. Franklin by his sons. The picture shows Henry VI. (on the white horse), accompanied by the Duke of York, afterwards Edward IV., with the trainbands marching to the Battle of Barnet (1471) against the Earl of Warwick. Henry VI is a prisoner, Edward's object in taking him to the scene of the encounter being to safeguard himself in the event of the Earl of Warwick proving victorious. Mr. J. H. Amschewitz was born in Ramsgate in 1884, and received his art training in the Royal Academy schools, where he won the prize for mural decoration. In 1907 he was awarded the first place and the commission for a series of designs for the Liverpool Pageant Memorial Competition, and he has executed the designs in the vestibule of the town-hall there. Immediately following came the commission for the panel in the Royal Exchange, on the completion of which all will heartily congratulate him.

EAST BRANCH, BANK OF LIVERPOOL. MOSS-STREET, LIVERPOOL.

This building is built of Aberdeen granite and Portland stone. The ground floor is well fitted up for the bank purposes, with a handsome bank clock executed by Mr. Percy

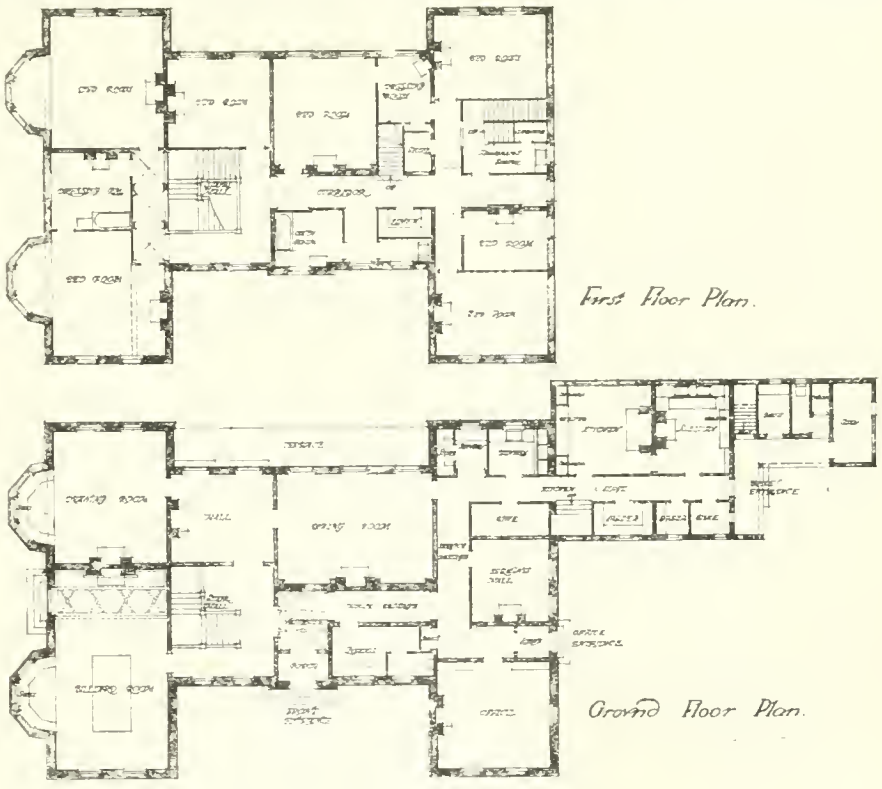


Ground Plan

Webster, of Great Portland-street, London, W. The architect was Mr. J. Francis Doyle, and the contractors were Messrs. Joshua Henshaw and Sons, of Liverpool. On our plate, the locality of the bank is given as "Blandford." That is an error; it is located in Moss-street, Liverpool.

CHAPEL OF ALL SOULS, ST. MICHAEL'S, BEDFORD PARK, W.

This building opens out of the chancel and south aisle of Bedford Park Church, and is connected with it by a stairway in stone, which is out of sight in the accompanying interior view. This stair forms a return way for communicants. A memorial wrought-iron screen, designed by the same architect, has been erected in the chancel archway by the friends of the late vicar, the Rev. Alfred Wilson, M.A. The chapel has a vaulted nave, with arched brick ceiled aisles on each side, while the sanctuary arch runs



HOVENDEN HOUSE, LINCOLN.

up higher than the chapel nave arches, and has sunk and cusped panels, a sculptured representation of a dove being carved in the apex on a boss. Cross vaults span the nave of the chapel, and are arched in brick, to match the walling of the interior. A feature is made of the oak-panelled dado. Doulting stone is used externally. The altar-pace and steps are in marble, and the floor is of highly-waxed pitch-pine block flooring. Messrs. T. H. Adamson and Sons, of Putney, were the builders. Mr. Nathaniel Hitch did the carving. Mr. Maurice B. Adams, F.R.I.B.A., is the architect.

HOVENDEN HOUSE, FLEET, LINCOLNSHIRE.

This residence is now being erected at Fleet, Lincolnshire, for Mr. Arthur H. Worth, and the drawing we reproduce is hung in this year's Royal Academy Exhibition. The design, by Mr. J. E. Dixon-Spain, follows the traditions of the typical English Renaissance manor-house, and the detailing of the joinery, etc., throughout is on the same lines. The brickwork varies in colour from a rich warm purple to a silver-grey, and the roof is of hand-made tiles. The house is to be lighted by electricity, and will have independent heating and hot water systems, and be supplied with both hard and soft water throughout. The contractors are Messrs. J. C. Tennant and Co., Grange Works, Willesden Green, N.W.

COTTAGE AT PONTELAND.

This cottage is being erected on the Darras Hall Estate, Ponteland. The materials are light red local bricks 2½in. thick, with dark hand-made tiles to roof. The woodwork to entrance is of oak. The builder is Mr. W. R. Jameson, of Kenton, and the architect Mr. R. Manchlen, of Newcastle-on-Tyne.

In the case of the application on behalf of Edwin James Smith Stokes, builder, Poole, the order of discharge has been suspended for two years ending May 8, 1913.

The centenary of the Wesleyan chapel at Brixworth, Northants, was celebrated on Thursday, when the building, which was enlarged in 1860, and refitted in 1889, was reopened after re-flooring, reseating, and the provision of new heating apparatus. Messrs. Brown and Mayor, of Northampton, were the architects, and Mr. W. T. Crane, of Brixworth, was the builder.

COMPETITIONS.

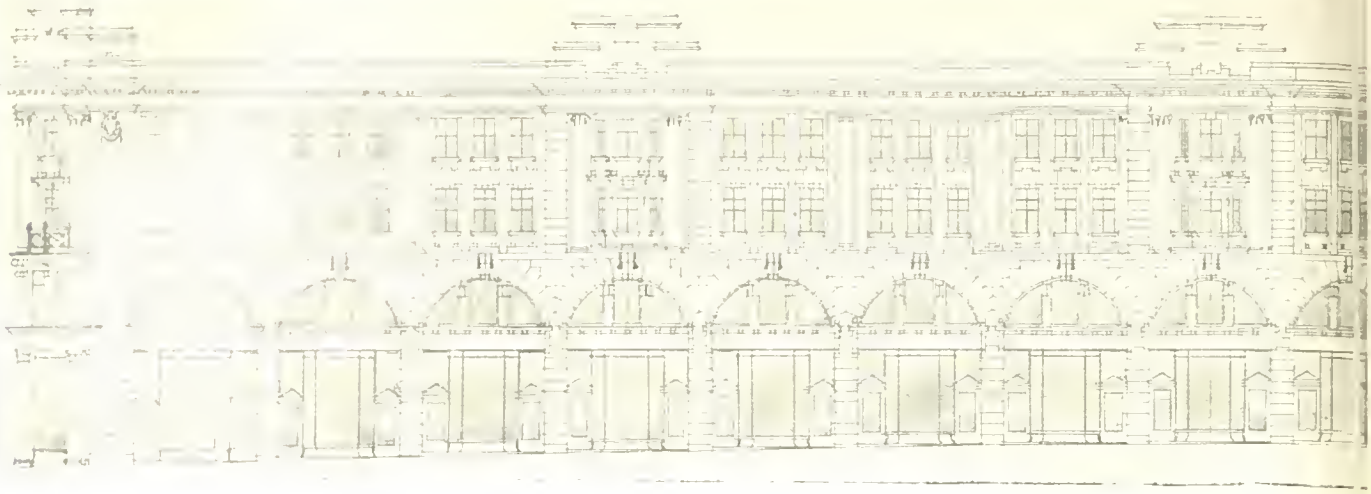
MONKSEATON.—The Whitley and Monkseaton Urban District Council invited architects practising in the county of Northumberland and City of Newcastle-on-Tyne to submit designs for some new cemetery buildings to be built at Monkseaton. The council has appointed Mr. Alfred W. S. Cross, M.A., V.P.R.I.B.A., as assessor. Twenty sets of designs were submitted on the 7th inst., and the award is expected at an early date.

THE LAYING-OUT OF YASCANBERRA.—The Federal Commonwealth of Australia has just made public the prizes it will give for the three best designs for the laying-out of its capital city at Yascanberra. The designs must be in the hands of the Federal Secretary for the Department of Home Affairs on or before January 31, 1912. The design which obtains first place brings its designer £1,750. The design placed next gets £750, while there is a third premium of £500. For the purposes of the design the population of the capital city is assumed to be 24,000, and it is also assumed that it will increase at least in proportion to that of the Commonwealth, which is at present 4,421,795.

Mr. Elias Pitts Squarey, of The Moot, Downton, Salisbury, land agent and surveyor, one of the founders and a past-president of the Surveyors' Institute, who died on February 25, aged 87, left estate valued at £33,365 gross, with net personalty £26,723.

In connection with the problem of safeguarding the purity of London's water supply, as well as that of its own district, the Weybridge and Walton Joint Sewerage Committee is considering a scheme submitted by its engineer, Mr. J. S. Crawshaw, for taking the sewage of the Lower Thames and Wey Valleys by iron pumping-mains to some point on the tidal part of the river, there to be discharged after proper treatment.

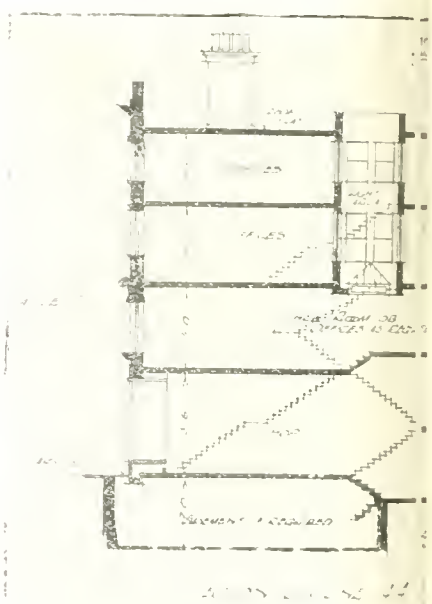
Mr. Arthur Henry Barker, B.A., B.Sc., vice-president of the Institution of Heating and Ventilating Engineers, has been appointed lecturer for the session 1911-12 in the new Department of Heating and Ventilating Engineering at University College, Gower-street, towards which the London County Council have made a grant in aid. Mr. E. Kilburn Scott has been appointed Lecturer in Electrical Design at University College for the session 1911-12, in succession to Mr. H. M. Hobart, resigned. Mr. Scott was formerly head of the Electrical Department at Sydney University.

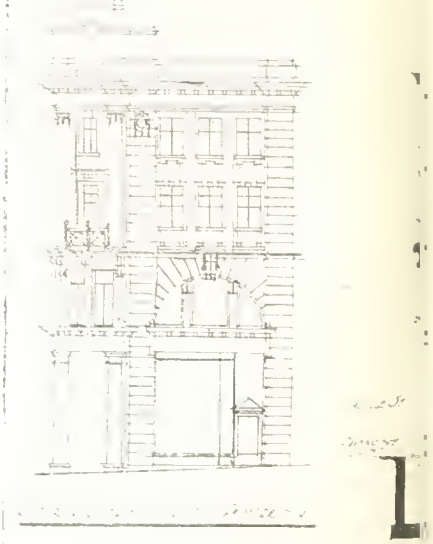


BOROUGH OF SWANSEA

Elevation

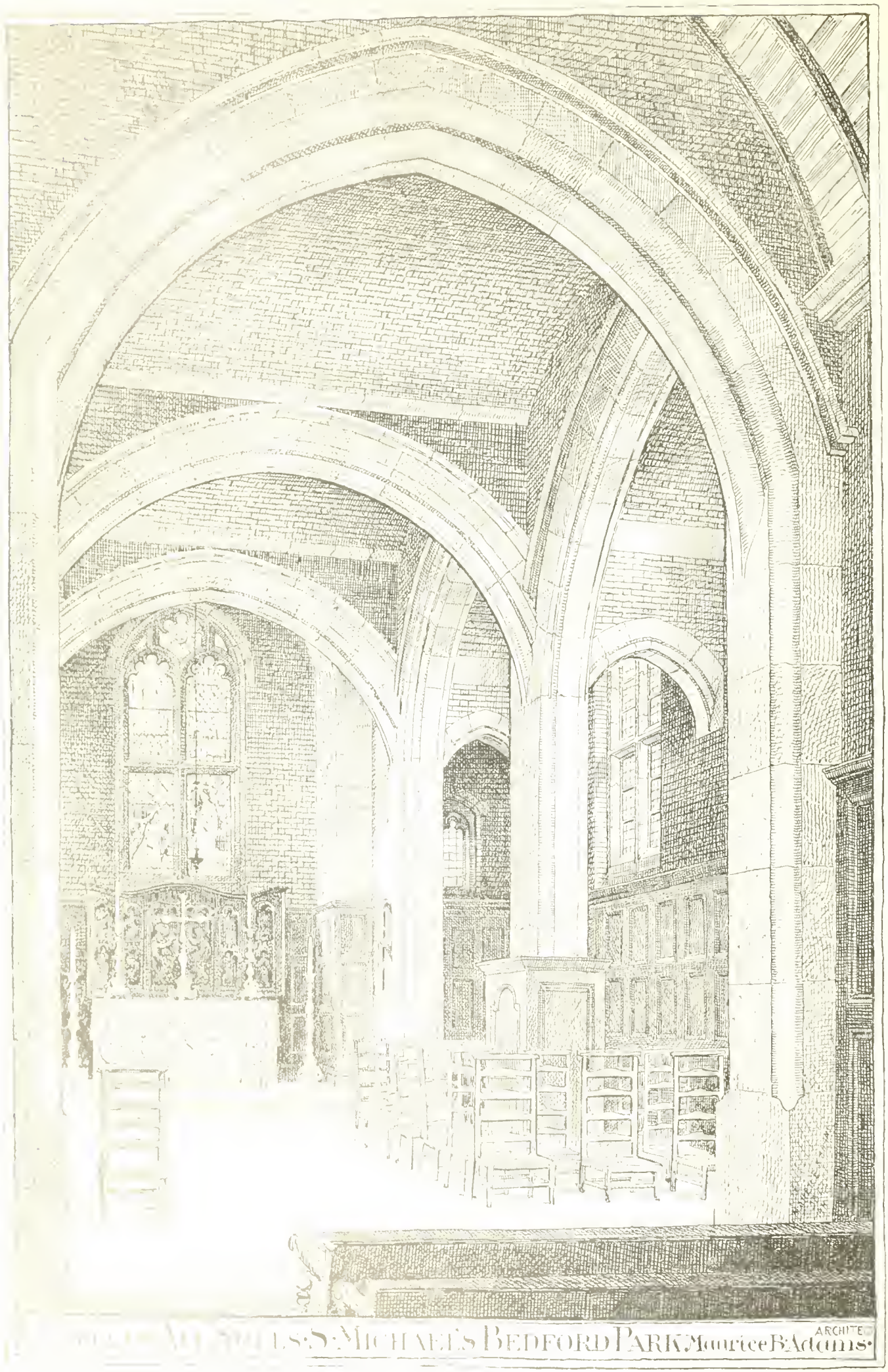
PERSPECTIVE VIEW
NORTH CORNER

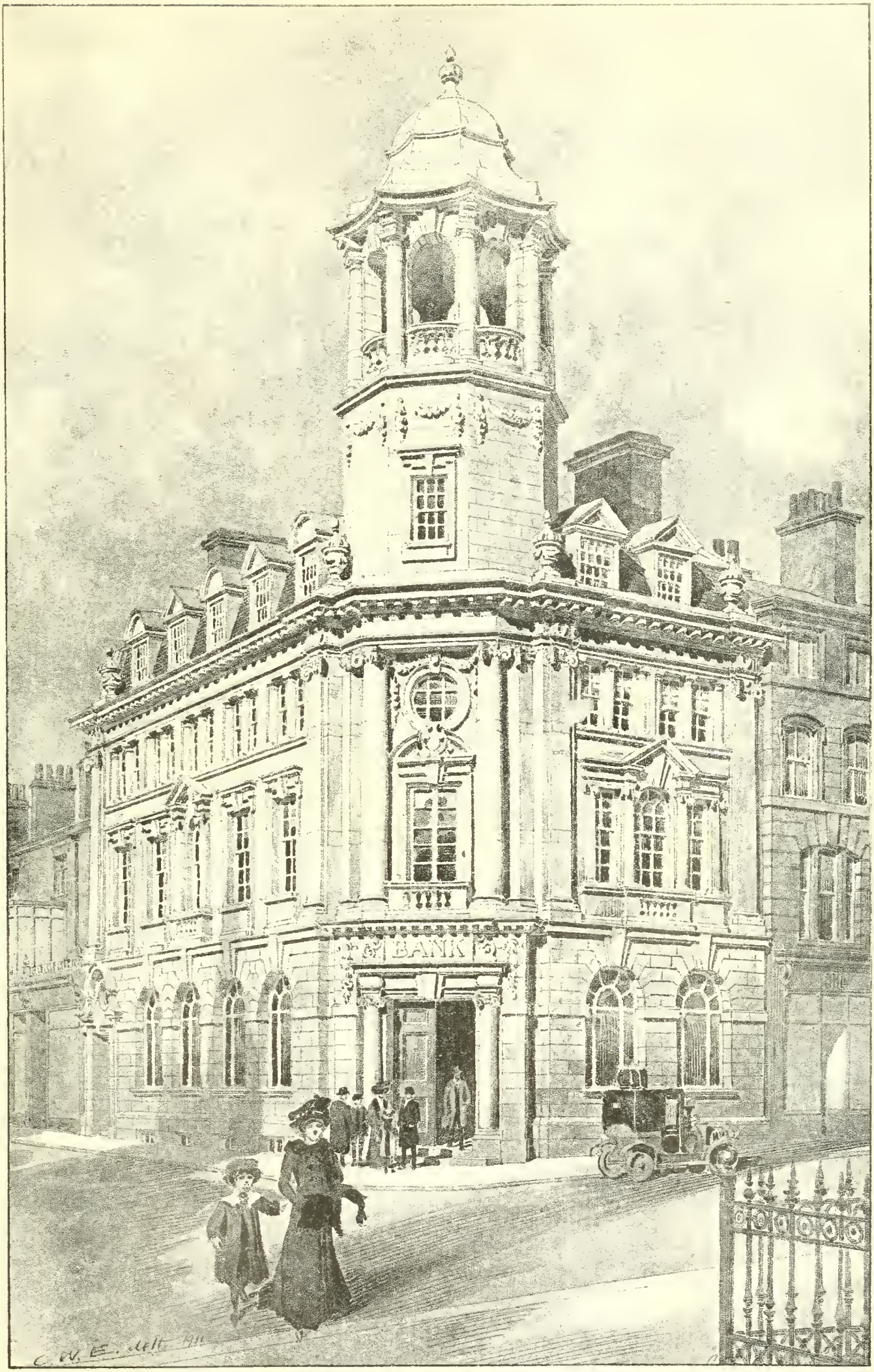




SELECTED DESIGN.— MESSRS. PHILL

PLAN
COTTAGE AT
PONTELAND
FOR MISS WAKINSHAW
R. MAUCHLEN ARCH.T
NEWCASTLE · ON · TYNE.
R. MAUCHLEN DELT. 1911


S. MICHAEL'S BEDFORD PARK
Maurice B. Adams
ARCHITE



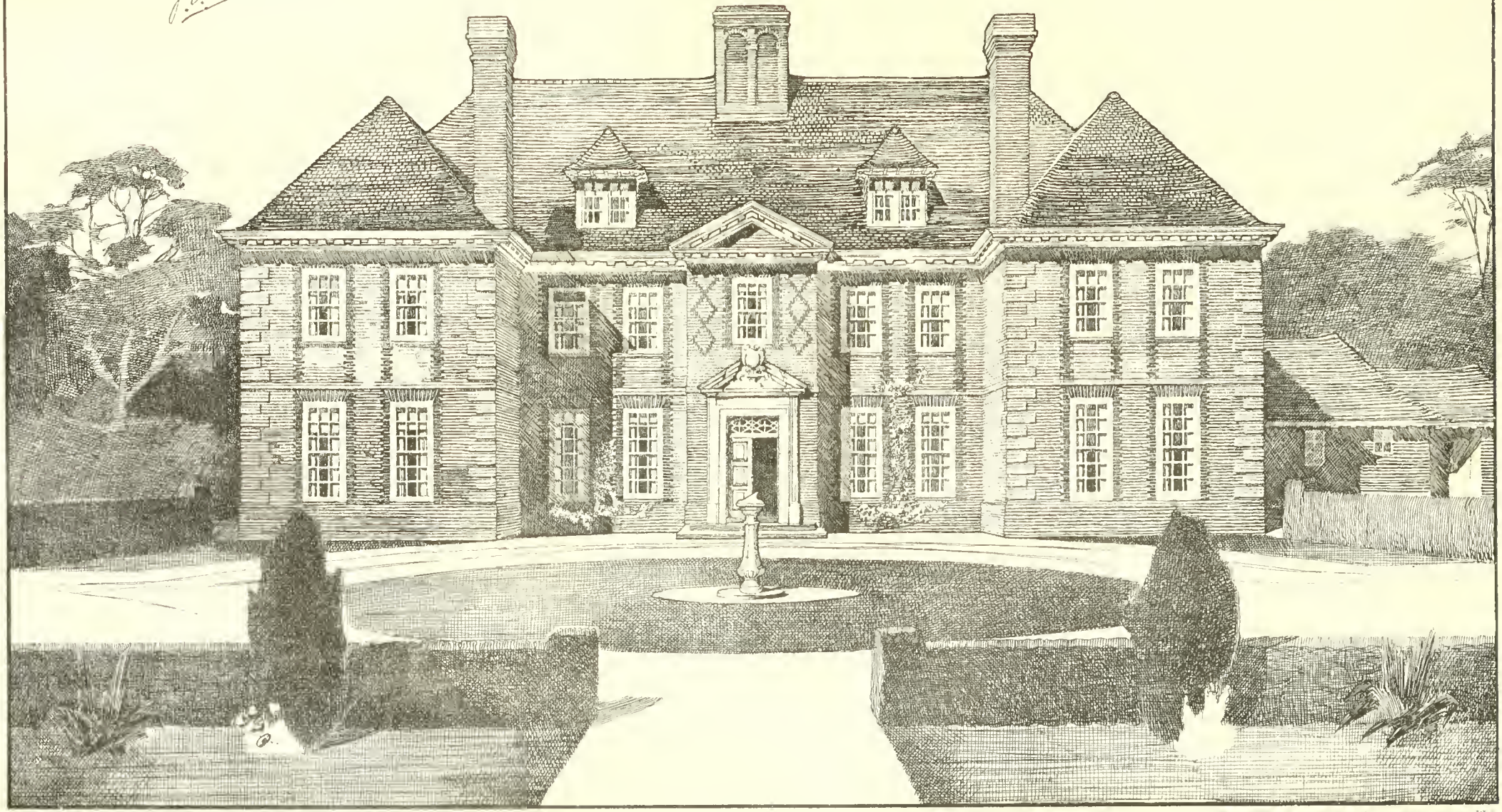
"PHOTO-TINT" by James Akerman 6 Queen Square London W

BRANCH OFFICES BANK OF LIVERPOOL BLANDFORD J. FRANCIS DOYLE ARCHITECT

HOVENDEN HOUSE LINCOLNSHIRE

FOR ARTHUR H. WORTH ESQ.

J.E. Dixon-Spain ARCHITECT



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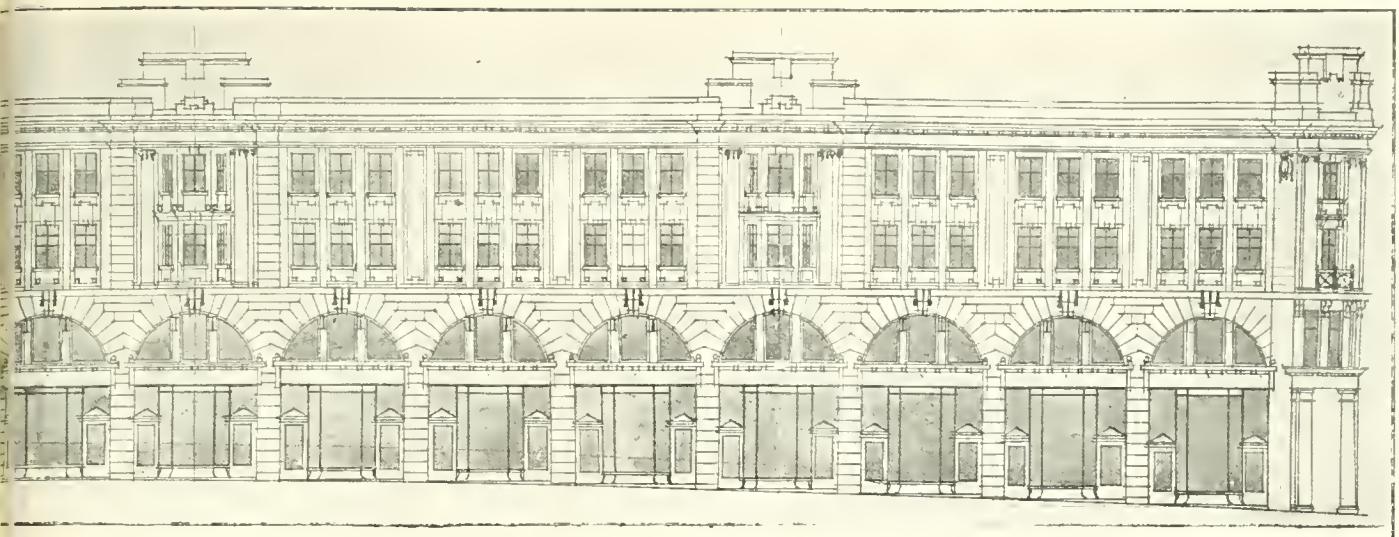

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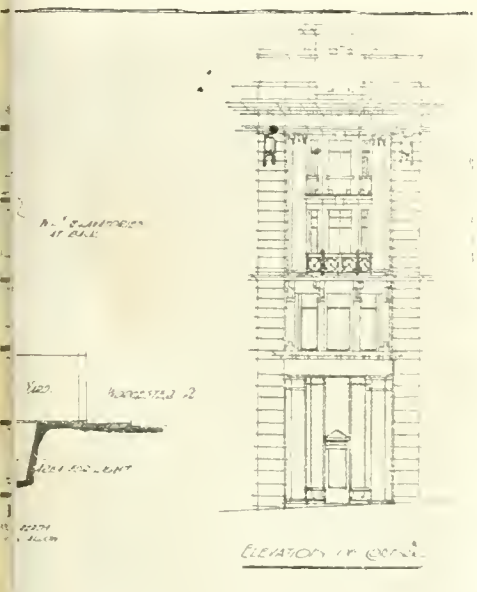
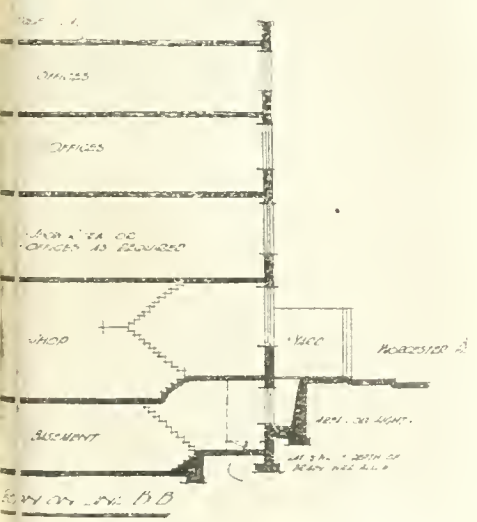
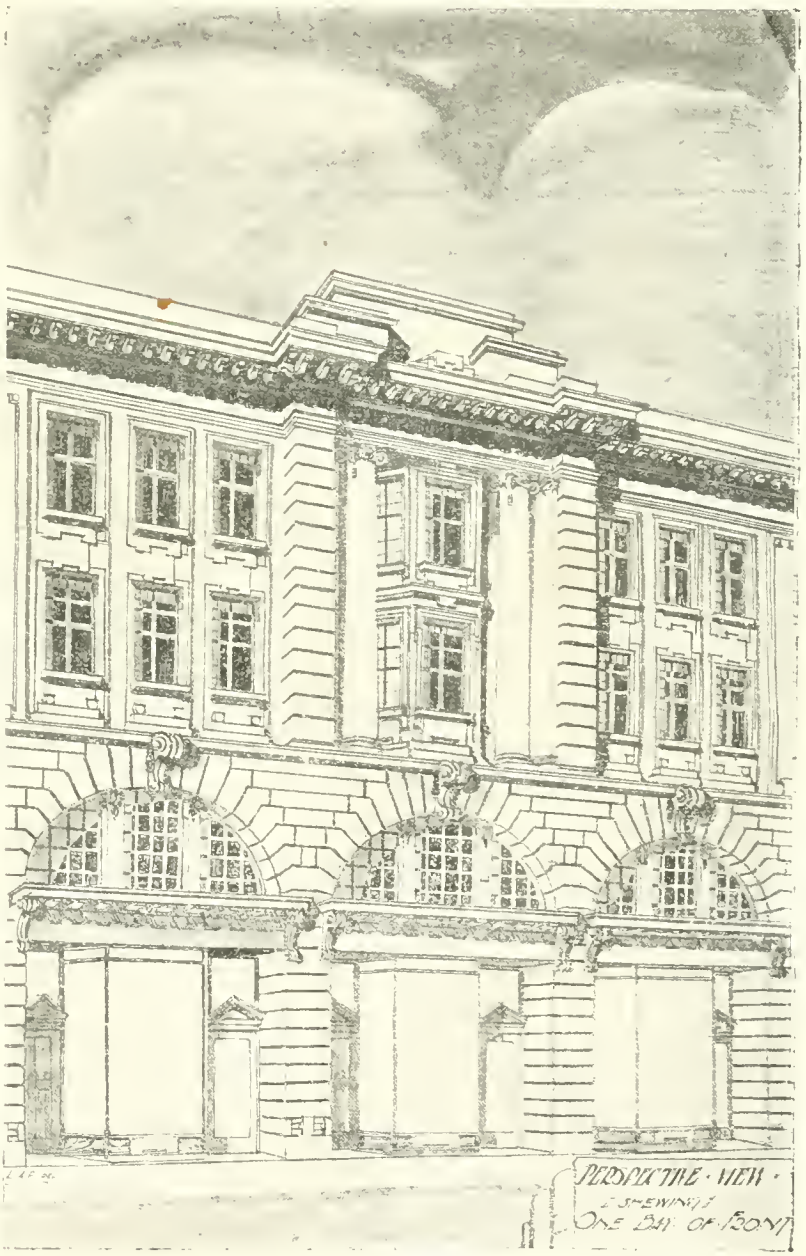
Castle Street Improvement







ND VAUGHAN, AA.R.I.B.A., *Architects.*

a Fell test on cement. (b) The coarse material and sand for the laboratory tests, which is to be taken from bulk as delivered to the works, shall be sieved, and the voids ascertained of 1 the whole, and 2) of each separate grading. (c) The proportion of each grading to the whole. (e) The specific gravity of the coarse material and sand. (b) The exact dimensions of specimen cubes. (c) The weight per cubic foot of all specimens immediately before testing. (f) The testing of concrete specimens to be conducted on three laboratory specimens, and three specimens made on the work, and to be tested at the periods varying from seven days to twelve months.

In the afternoon a visit was paid to the Wesleyan Memorial Hall, Tothill street, Westminster, now in course of construction, and in large part of reinforced concrete.

On the morning of Thursday, June 8, a meeting took place in the lecture hall of the Institute at Denison House, Westminster, Mr. E. P. Wells, J.P., in the chair, when a paper was read by Mr. Alfred E. Corbett, F.R.I.B.A. (of Messrs. Woodhouse, Corbett, and Dean, of Manchester), on "The Y.M.C.A. Building at Manchester." A discussion followed, in which Messrs. W. C. Perkins, G. C. Workman, H. E. Yeatman, S. Bylander, and E. P. Wells took part.

The report of the Reinforced Concrete Practice Standing Committee, on the

STANDARDISATION OF DRAWINGS OF REINFORCED CONCRETE WORK,

was then presented. As reinforced concrete is only one branch of general structural engineering and building construction, the preparation of drawings should conform, the committee thought, most closely to general architectural practice. The standards which will be found advisable for the preparation of drawings for reinforced concrete in architectural work will serve quite well for engineering work. A great number of scales have been, and are, employed by architects and engineers, but only a few are generally adopted. These few can be used to fulfil almost all requirements. The following are suggested as the best scales for standardisation for the preparation of drawings for reinforced concrete work:—For general drawings showing schemes in outline without detailing the reinforcements: ⅛in. scale (¼in. scale to be substituted for ⅛in. scale for large jobs). For detail drawings:—For framing plans and slab reinforcements: ¾in. scale. For elevation of beams, etc., and general detail drawings: ½in. scale (¾in. scale to be substituted for ½in. scale for large members). For sections of beams, etc.: 1½in. scale. For large details of intricate work: 3in. scale.

All dimensions should be figured on the plans, and nothing left to be scaled. It is suggested that the size of sheets upon which drawings are made should be standardised. For general purposes two sizes are advocated—namely, 40in. by 27in. and 20in. by 27in. Larger sheets would be of the same depth, 27in., but of greater length. These are measurements within the margin line, which latter should be ruled upon the tracing cloth, and photographic prints should be trimmed to this ruled margin line.

As regards the indication of reinforcements upon the plans, it is suggested that it will be found convenient generally on ¼in. scale drawings to show main bars by means of thick solid lines, secondary bars by means of lines of medium thickness, and the outlines of the concrete and other work by means of thin lines. Working with this small scale, it may often be found an advantage to omit the reinforcements in adjoining members, as, for instance, the bars in floor slabs when drawing elevations of I beams, as otherwise the main reinforcements may be obscured. In 1½in. and 3in. scale drawings it will often be found advisable to show bars, when not of very small size, by means of double lines. The lines should, however, be strongly drawn.

Sections will often require picking out. Etching is often employed, but if adopted it should be very open. Many draughtsmen prefer, however, to indicate the concrete by marks intended to show stones, as it is claimed that etching takes longer to do, and

requires great care to insure the lines being spaced regularly apart. Reinforcements shown in section should always be blacked in, even on the largest drawings. Shading of bars should not be employed on anything less than half full-size drawings. Waterproof black ink should always be employed, and lines should be strong and solid. No washes or shading should be employed.

In showing reinforcements on plans and elevations to ¼in. scale, it is necessary to employ some form of stop to the ends of each line, to show where the ends of a bar terminate.

In writing particulars and descriptions of the work to be done and the nature of the reinforcement upon the drawings, a standard list of abbreviations will not only save much time in draughtsmanship, but will be clearer to everyone consulting the drawings. The following list of abbreviations is advocated:—Bars, *b*; top bars, *t b*; cranked bars, *c b*; distributing bars, *d b*; special signs should be employed for steel structural shapes. Initial letter (or letters) of trade name for special bars. On plans, the mesh to be drawn on a part only of each bay, the boundary line of each bay being dotted. Pitch or spacing (as in columns or slabs), *p*; feet, ′; inches, ″; square inches, in.²; cubic inches, in.³; pounds per square inch, lbs./in.²; imperial wire gauge, I.W.G.; British standard section, B.S.S.

It is suggested that the position of the reinforcements in columns need not be indicated on every floor plan, it being only necessary on the larger scale drawings to show the position of beams, the outline of the columns being merely dotted in. On ¼in. scale drawings the columns may be blacked in solid.

The columns throughout the structure should be detailed as a complete series, the outlines only of connecting beams being shown. If thought desirable, connections can be detailed to 1½in. or 3in. scales.

On plans the outlines of secondary beams should butt against the outlines of main beams. Walls standing upon any floor and carrying beams over, if shown upon the same plan as the beams, may be distinguished by etching. The plan of any floor should be drawn looking up—i.e., showing the beams and floor over.

In ¼in. scale drawings the sections of floor slabs and beams can be blacked in solid. Titles should be put in the lower right-hand corners of all drawings, together with serial drawing numbers, this position being best for reference when drawings are kept either in rolls or flat in drawers. The lettering upon drawings should be large and open. It is inadvisable to colour drawings for reinforced concrete, and in drawing details, except of large size—i.e., 3in. scale or half-full-size, it is not advisable to dot in the concrete in any way.

In the afternoon a visit was paid to inspect a wharf and warehouse now being constructed of reinforced concrete piles, floors, and walls in London Dock, by permission of Mr. Frederick Palmer, C.I.E., M.Inst.C.E., Engineer to the Port of London Commissioners.

In the evening, a Conversazione was held in the galleries of the Royal Institute of British Architects, Conduit-street, W. Members were received by the President, Sir Henry Tanner.

Mr. H. S. Morris, A.R.I.B.A., who has been appointed by the Secretary of State for India as consulting architect to the Government of Burma, has arrived at Rangoon.

At an extraordinary general meeting of the Stonwood Fireproof Flooring Company, held at the registered office of the company, 109, Victoria-street, Westminster, S.W., on June 8, the following extraordinary resolution was duly passed:—"That it has been proven to the satisfaction of this meeting that the Stonwood Fireproof Flooring Co., Ltd., cannot, by reason of its liabilities, continue its business, and that it is advisable to wind up the same, and that accordingly the company be wound up voluntarily, and that Mr. R. C. Lee, of 109, Victoria-street, Westminster, S.W., and Cobham, Surrey, be and is hereby appointed liquidator for the purposes of such winding-up." The liquidator announces the first meeting of creditors for June 27, at 11 a.m., at his address.

INTERIOR, CALDY MANOR, CHESHIRE.—Mr. E. GUY DAWBER, Architect.
(From "English House Design," by Mr. Ernest Willmott, F.R.I.B.A.)

"ENGLISH HOUSE DESIGN."

[WITH ILLUSTRATIONS.]

"A Selection and Brief Analysis of Some of the Best Achievements in English Domestic Architecture from the 16th to the 20th centuries, together with Numerous Examples of Contemporary Design," is the comprehensive sub-title of a popularly-handled and pleasantly-written octavo volume on "English House Design," by Mr. Ernest Willmott, F.R.I.B.A., just published by Mr. B. T. Batsford at half a guinea net. This freely-augmented and convenient handbook clearly could not have been managed at this figure without the co-operation of the publisher, who has allowed illustrations to be culled from some of the great standard works issued under his fostering and enterprising hand. Of this the reader has the advantage. A good number of the modern examples are reproduced from special or local photographs, while there can be no doubt that the selection thus given is sufficiently representative, including not a few already familiar residences by such well-known architects as Professor Lethaby, Mr. E. Guy Dawber, Mr. E. L. Lutyens, Mr. Ernest Newton, A.R.A., Mr. John Belcher, R.A., Mr. Reginald Blomfield, A.R.A., Mr. Ralph Knott, Mr. Horace Field, Professor Beresford Pite, and others, harking back also to the work of Mr. Philip Webb, Messrs. Bodley and Garner, and Mr. Norman Shaw. It was somehow an unaccountable mistake to attribute the late E. W. Godwin's corner houses at Bedford Park to the late George Godwin, who never did anything of the kind, and could not have done so, had he tried. His ability lay in quite another direction. The plan of Blickling Hall, also given in this volume, is based on the only contemporary correct plan hitherto published, so far as we know. This plan was contributed to Mr. Gotch's "Renaissance Architecture in England," by Mr. Maurice B. Adams, who had the plans measured and made when he carried out alterations and renovations to this mansion some years ago. This present reproduction should have been acknowledged. Mr. Herbert Baker contributes some good South African new houses, and Mr. R. S. Lorimer shows part of his Lympne Castle additions in Kent. The author is represented by a broadly-handled plastered house at Shorne Hill, near Totton, Hants, and by a house at Berkhampstead, with its garden scheme of large scale. Those who do not happen to possess some of the larger books alluded to on the subjects treated of by Mr. Willmott will find this "Review" of his very useful as a record of old houses. The plans of the new houses materially add to the value of the volume, and particularly so on account of the class of work represented, such as "Orchards," near Godalming, by Mr. Lutyens, whose originality makes for distinction, with the cloistered quadrangle in this example, having at one end a study, and at the other a studio, the latter with canted sides, in correspondence with those of a sitting-room of a separate dwelling, the two in combination contrived to form the flanks of an archway between making the main approach to the house, which is very uncommonly contrived. For the exterior we have nothing but praise, and accordingly give two photographic views of the house. Mr. Lorimer's "Ardkinglas," built in Argyllshire, is truly Scottish in style, and has a totally different type of plan, with rounded forms and palatial dignity inside, marked by a big salon as the chief apartment, and it is associated with a grand corridor and upper hall beyond, which is a

THE ORCHARDS, GODALMING.—Mr. E. L. Lutyens, Architect.
(From "English House Design," by Mr. Ernest Willmott, F.R.I.B.A.)

THE ORCHARDS, GODALMING.—Mr. E. L. Lutyens, Architect.
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loggia arcaded in an original manner, like most of the designs by this architect. Mr. E. Guy Dawber's "Caldy Manor" is represented by an interior of refined character, and though not described, is quite one of the best examples in Mr. Willmott's book, and so we have reproduced the plate, as making one of the samples from Cheshire, the home of famous country homes, both old as well as modern, set as most of them are in lovely surroundings.

PRINCIPLES AND PLANNING.

The third edition of "The Principles of Planning Buildings" has just been published by Mr. B. T. Batsford in a revised and enlarged form, by Mr. Percy L. Marks, whose book now contains over two hundred plans or types of planning, chiefly representing executed works by well-known architects. The compilation has been brought up to date by one or two plates of cinematograph buildings and their details. They are also some designs from recent competitions by the author. The Gaiety New Theatre, in the Strand, is given to a good-size scale, with capital sections. This building has the advantage of an exceptionally fine site. The Piccadilly Hotel, designed by Messrs. Norman Shaw, William Woodward, and Walter Emden, is represented by four plans. It is a pity that this particular building is not to be extended up to Air-street by the completion of the façade, as originally intended, on the Piccadilly side, so that the end gabled pavilion, or bay, at the western end of the colonnaded terrace will not be repeated, as Mr. Norman Shaw contemplated. The façade will therefore fall short of its original conception. This unfortunate shortcoming seems now to be inevitable.

Mr. Marks is in error when he describes the indicator system for the planning of public library building as the old type as contrasted with the open-access method, which he speaks of as "the modern library." Both methods of arrangement are up-to-date, and in vogue, some preferring one system, and some the other. The trouble comes about, of course, when a library intentionally built for one type of working, and is then made to serve for the other method, and when this change is made without allowing the architect to effect

any structural modifications for the adaptation needed. We know of no instance in point. Church planning and the ecclesiastical ordination of buildings of that nature can scarcely be expected, perhaps, to be elaborated in a book of general limitations; but the differences between the different types are clearly shown by comparing the West London Synagogue with the Congregational Chapel at Harlesden, and Cricklewood Baptist Chapel with the Church of All Saints', W. Dulwich, or the R.C. Church of St. Alban, at Blackburn. Municipal and other public buildings necessarily vary as to extent and special requirements in most cases, and the shape of sites render plans of this sort difficult to adapt elsewhere. The Bromley Buildings, by Mr. Frank Atkinson, F.R.I.B.A., furnishes an instance in question; but Colchester Town-hall, by Mr. John Belcher, R.A., stands on a more ordinary plot of town land, although nearly on the summit of a very steep slope from the High street towards the River Colne. The domestic buildings class varies even still more; but some excellent examples are given, and the appendix contains much useful information.

THE "BUILDING NEWS" DESIGNING CLUB.

A COUNTRY-SIDE GARAGE AND COTTAGE.

We have received the following letters, which speak for themselves:—

"SIR,—Is it not time that something should be mentioned about the design by 'Margis,' placed first? Being familiar with the designs of houses by T. H. Mawson, I was somewhat surprised to find that the design mentioned was nothing but a copy of the Three Cottages, West Bank, Lancaster, by T. H. Mawson, with, of course, slight—and only slight—alterations. Even the perspective by 'Margis' was as near as possible an exact reproduction of the perspective reproduced in your issue of June 1, 1907. The shrub mentioned by the assessor is also exactly as that on Mawson's perspective. I should be glad if all competitors will correct for themselves my statements.—I am, etc., "THOS. YATES ('Tee Why.')

"7, Lexden-terrace, St. Thomas'-green, Haverfordwest, S. Wales, June 3."

"SIR,—As an old competitor, and one who still takes an interest in your Designing Club, I was rather annoyed to see the first design for Cottages, by 'Margis,' in your issue of Friday, June 2. The first consideration ought, surely, to be originality, and not a mere copy, as in this case.

"You will find Three Cottages, by T. H. Mawson, in your number of June 7, 1907, which 'Margis' has copied, even to the perspective.—I am, etc., "F. W. BEECH.

"Rhiborough, The Grove, Woking."

"SIR,—May we, as competitors in the recent subject of the Designing Club—'A Countryside Garage and Cottages'—call your attention to the following matter?

"It has been discovered that the design placed first has been, in our opinion, copied and adapted from an illustration of some Cottages by T. H. Mawson, architect, which appeared in the BUILDING NEWS of June 7, 1907. If the design by 'Margis' is held facing and the other illustration viewed from the back, as now pinned together, the similarity, even to small details, will be easily seen.

"We hope it will not be thought that we write this letter in any unsportsmanlike manner, as we quite agree with the excellence of 'Margis'' work, and the high position he has obtained.—We are, etc.,

"('Also Ran') S. F. MAZOR.
"('Oxonian') H. W. SMITH.
"('Granite') R. S. CAVE.

"3, New-road, Oxford."

We have asked "Margis" for an explanation, and this is his reply:—

SIR,—In reply to your letter, my design, as regards plans and elevations, was prepared before seeing the view you mention of the cottages by Mr. T. H. Mawson. This I came across while filing some back numbers of the "B.N.," and noticing the similarity of the two designs, the country-like appearance given by the surroundings, and the manner of expressing the light and shade, I used this as a model in making my sketch.—Yours faithfully,

ALEX. PEASE ("Margis").

3, St. Mary's-road, Worthing.

If we accept the explanation, which does not explain the similarity of plan, we do not think it desirable that the use of any design as a "model" in this way should be permitted. We must cancel our award, as far as the position awarded this design goes. We regret to do so, because we agree, of course, with the three correspondents as to the general excellence of "Margis's" work.

Building Intelligence.

BRISTOL.—The Bishop of Bristol consecrated the first portion of the new church of St. John's, Fishponds, on the 25th ult., consisting of four bays of the nave and aisles, baptistery, two porches, and a temporary chancel, vestry, and organ-chamber. The present accommodation is for 529, and outlay about £3,800. The builder was Mr. W. F. Read, of Fishponds, and the architect Mr. E. H. Lingen Barker, of London, Manchester, and Bristol.

EDINBURGH. — A new cinematograph theatre has just been opened in Nicolson-street, immediately to the south of Surgeons' Hall, and almost opposite Nicolson-square. It occupies the site of dancing and entertainment-rooms. The theatre proper is 65ft. by 45ft., with semicircular ribbed ceiling divided into 15 panels. The picture-screen is at the east end set in a recessed proscenium panel, the sides of which are draped with curtains; the fireproof operating-box is in the west wall, and on each side of it are two balconies with semicircular fronts constructed on the cantilever principle. The scheme of decoration is in the Louis Quinze. The walls and ceiling are in white and gold; the wall panels are in Wedgwood blue with white floral festoons. In the area the fauteuils are arranged in three divisions, and set on a sloping floor. The theatre will accommodate about 600 people. The heating is by means of hot-water radiators set flush with the dado. The theatre has been built to the designs of Mr. H. J. Blanc, R.S.A., of Edinburgh, and the work has been carried out under the superintendence of Mr. Frank Blanc. The cost has been about £5,000.

WINCHESTER CATHEDRAL. — After consideration of various designs of buttresses and schemes for dealing with the south side of the nave of Winchester Cathedral, the Dean and Chapter have approved a design by Mr. T. G. Jackson, R.A., for a double flying buttress. The buttress, which will terminate in a graceful pinnacle in the Perpendicular style on the lines of Wykeham's pinnacles on the north side of the nave, will be placed at a distance of 6ft. 6in. from the main wall, and at half its height there will be a Perpendicular arch from buttress to wall, and from near its apex a flying arch in alignment with the arches in the nave aisle which supports the thrust of the central vaulting of the nave. The front of the buttress will be richly panelled and traceried. There will be a walk beneath the arches, and a carriage-drive is to be formed outside the buttresses.

Linthwaite Urban District Council decided on Monday to give Mr. Edward Pearson, of Milnsbridge, contractor, notice to pull down three houses in course of erection in Southern-road, it being alleged that he has omitted to provide a damp-proof course.

The new church-house and institute at Moreton Saye, near Market Drayton, was formally opened on Tuesday. The buildings, of which Mr. G. A. Craig, L.R.I.B.A., of Market Drayton, is the architect, have been erected in memory of Robert Baron Clive, of Plassey, founder of the British Empire in India, who was born at Styche-in-Woodlands, in the parish. Lord Clive was educated at Market Drayton Grammar School, and his body lies in the churchyard at Moreton Saye. The premises include a concert-hall, billiard-room, and reading-rooms.

PROFESSIONAL AND TRADE SOCIETIES.

SURVEYORS' INSTITUTION: WARWICKSHIRE AND WORCESTERSHIRE PROVINCIAL COMMITTEE. — The quarterly meeting of this branch took place at 61, Temple-row, Birmingham, on Thursday afternoon in last week, Mr. Henry Hendriks in the chair. A resolution of condolence with the widow and family of a past chairman of this committee, and a former member of the council of the institution, Mr. R. N. Holbeche, was passed. The enlargement of the scope of the work of the committee was decided upon, and it was agreed to examine and undertake the custody of the recently-prepared Ordnance Survey and geological maps of Warwickshire and Worcestershire. The chairman reported that he had for some time past been taking action with a view to the amendment of the inhabited house duty, which caused great hardship to owners of large blocks of buildings. The matter had been taken up by the local M.P.'s, and the town clerk was interesting himself most actively to obtain a revision of the present arrangement, in order that only premises used for residential purposes should be separately assessed instead of, as now, the whole building being assessed if only a small portion were occupied as a residential flat. An interesting discussion took place on points arising on provisional valuations issued under the Finance Act of 1909-10, and a resolution was passed recommending the appointment of local referees. A discussion on Section 51 of the State Insurance Bill, and a resolution was decided upon to call the attention of the proper authorities to the hardship that would be imposed upon property owners should such clause be allowed to pass into law. An animated discussion took place upon schemes and practices under the Town-Planning Act. Special reference was made to the new regulations sought to be imposed by the local authority with regard to the arrangement of outbuildings. In the opinion of the members present the proposals would necessitate a greater expenditure per house, or less accommodation for the rent, without improving the sanitary conditions. It was subsequently decided to ask the city surveyor to receive a small deputation upon the subject.

Mr. G. F. Pennington, architect, Castleford, was badly bruised on Monday by losing control of his motor-cycle when passing out of Wesley-street, and colliding with the buildings in Sagar-street, having failed to make the necessary turn.

Wellington House Hotel, Buckingham Gate, S.W., which was erected from designs by Messrs. Palgrave and Co., and opened about a year ago, is to be further extended by the erection of seventy additional bedrooms, also club and business premises adjoining. The style adopted will be in unison with the main elevation by the same architects.

There was a further discussion at a meeting of the town hall extension committee of Bradford Corporation on Monday with regard to the scheme for linking-up the town hall with the new extension by way of the main entrance, in spite of the fact that the finance committee had decided to postpone the whole question for a month. The city architect produced a model of the proposed scheme, which was rejected by six votes to four.

The nave of All Souls' Church, Ascot, has been dedicated by the Bishop of Oxford. The chancel, side-chapel, and transepts were built by Lord Strathmore some few years ago in memory of his late wife. Afterwards he contributed £2,000 of the £3,000 required to complete the nave, and also added to his former gifts that of a baptistery. A spire and north porch remain now to be added. The church was designed by the late J. L. Pearson, R.A., and has been completed by his son, Mr. F. L. Pearson. The style is Early Fourteenth Century.

Sir Lionel Jacob, who has lately retired from the post of Secretary to the Government of India in the Public Works Department, entered the Punjab Irrigation Branch of the Public Works Department in 1875. He was subsequently associated with a large number of irrigation works, was entrusted with the Chenab, Swat, and Western Jumna Canal projects, and in 1903 he was appointed Chief Engineer of Burma. Two years later he became Inspector-General of Irrigation and Secretary to the Public Works Department.

Correspondence.

[illegible]

A new parish room was opened last week at Burnham Norton, Norfolk. It is built of white bricks, with a wood block floor. Mr. W. J. Bolton was the hon. architect, and Mr. G. Pennington, of Stalham, the builder.

The foundation-stone of a new Congregational church has been laid at Llanbythor. The outlay is to be about £1,400. The builder is Mr. Ben Lewis, of Penybryn, and the architect Mr. W. Beddoe Rees, of Cardiff.

Mr. J. Odbrd Scott, F.R.I.B.A., has prepared plans and a report for the restoration of the tower and spire of All Saints' Church, Hereford. The estimated outlay of the entire scheme, including the re-leading of the plain and modern tower parapet, is £3,000.

It was resolved on Monday by a considerable majority of Dunfermline Town Council to carry out a public improvement, at a cost of about £650, at the east end of the city. A part of the north-east side of the Public Park will be cut off, and the railway correspondingly widened in Appin-crescent.

The Glasgow School of Art, authorised by the Scotch Education Department, have awarded diplomas to seven students, as follows: Section of drawing and painting: Eric M. Agnew, Henry Y. Alison, Alma F. M. Assafrey, Agnes F. Dickie, Alexander Gordon. Section of design and decorative art: James E. Jordan. Section of architecture: Edward G. Wylie.

The annual report on the National Gallery of Scotland has been issued as a Parliamentary Paper. It enumerates a large number of additional pictures acquired by gift and purchase during the year, and states that to meet the cost of the proposed alterations on the National Gallery building, a total expenditure of £11,380 has now been sanctioned by the Treasury, and it is anticipated that this work will be proceeded with during the ensuing financial year.

To meet the wishes of the Corporation of Blackpool, it is proposed to sweep away the whole of the existing unsightly structures from the widened platform at the centre of the Central Pier, and in their stead to erect a large pavilion. Competitive plans have been invited by the directors from half a dozen architects. Fifty guineas are offered in prizes—£35 for the first premiated design, the author of which will be engaged to carry out the work of carrying out the scheme, and £15 for the second.

The Ipswich Dock Commissioners at their meeting on Friday decided to proceed with the construction of a new entrance basin, at an estimated cost of £20,000. For the purpose of constructing the south side of the river wall it was announced that the Dock Board had entered into a contract with a view to the improvement of the port, to the Dock Board and St. [illegible] com[illegible] be [illegible]

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of the date must accompany each.

As space being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. Gordon L. Thorne, 10, Atherley-road, Southampton.

QUESTIONS.

[13053.]—PARTY-WALL.—In building a house in a terrace (separate owners), and using adjoining owner's party-wall. What course shall I follow to safeguard the rights of both parties for all time?—C. L.

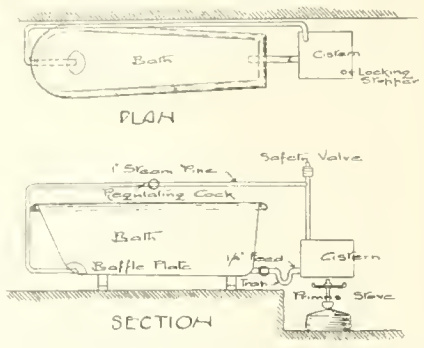
13054.—ROMANESQUE BRICK MISSION CHURCHES NEAR LONDON.—Could anyone supply me with a list of mission churches recently erected in and around London, built in the Romanesque style and preferably in brickwork? A church committee for whom I am acting have expressed a desire to see something of this class of work. Is there any book published illustrating such churches?—D.

13055.—GAS FOR USE IN LABORATORIES.—Some chemical and biological laboratories have to be fitted up where ordinary coal-gas is not available. Have any of the new gases, such as nitrogen, petrol gas, acetylene-gas, Praed patent safety-gas, been used, and if so, with what result? If used, where should the generator be put, (a) in the basement, which is quite fireproof; or (b) in a separate hut or shed outside the building? If these gases are not satisfactory, what is the best substitute? Electric current can be obtained if necessary.—B'rush.

REPLIES.

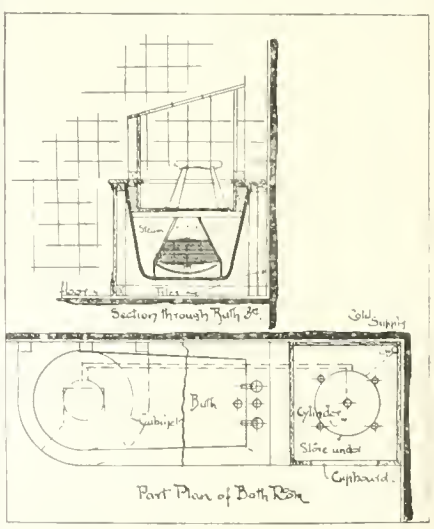
[13046.]—DAMPNESS.—At the beginning of the present year the writer was called to advise on the best and most effective treatment for preventing the woodwork of an entrance-hall to a semi-detached house from any further decay, and as the case, both the situation and surroundings including the description by correspondent, is identical to the writer's case, the result of the examination and the steps taken may be valuable to querist. As is usual, the decay was immediately attributed to be that known as dry-rot (Merulius lacrymans); but after making a scrupulous examination of the affected parts it was found to be the fungus known as Polyporus, and not the aforesaid. Now comes the question: What is actually the cause of the trouble? The writer found that it was entirely due to the washing down of the tiled floor to the hall, where the water so used had gradually penetrated into the pores of the wood, where in time the present state of affairs was the result. As stated, "The floor-joists run at right-angles to front of house, and on examination these are found to be sound, with the exception of the one next to the hall-wall, and the one next to the outer wall," and, as just mentioned, the penetration of the water takes place between the floor and wall on either side: hence the source of the decay is thus discovered, assisted by large amount of vegetation and soil beneath, containing the spores of various fungi. Good ventilation and dryness beneath, with just sufficient moisture, as mentioned, are the ideal conditions under which this form of fungus rapidly develops, instead of stopping its growth, as is the case with most forms of dry rot. This form of decay, however, is not such a serious matter as dry-rot, although measures must be taken to completely eradicate it, and immediately: otherwise the case will very soon be an expensive one. The most effacious remedy is to remove all the affected timber, replace with good, sound stuff, and treat the woodwork generally that is, the joists, sleepers, under side of flooring, etc. (including the new), and liberally with a coating of hot gas-tar. Should any of the affected timber be used again, it must first be well scraped, cleaned, and coated with hot tar. The site, of course, should have been covered with 6in. of concrete and dampcourses inserted in all walls; but to minimise any further liability of the spores of the Polyporus spreading and attacking the timber from the surrounding soil and brickwork, such should be well treated with hot tar. This will be found as good a remedy as is practicable under these circumstances. Query should obtain Leaflet No. 113, entitled "Dry-rot," from the Board of Agriculture and Fisheries. This leaflet, which is issued gratuitously, gives full and practical information on the subject, and is well worth reading over carefully by anyone interested therein.—Chas. A. Longley, 5?, Ivanhoe-road, Denmark Park, London.

[13051.]—STEAM BATH.—It is not quite evident from this question whether the querist is requiring to convert his bath into a vapour bath only, or is wanting to heat the water for use in the bath by steam, as is done in many cases in public swimming baths. In any case I should not advise anything of this sort to be fixed up so as to be portable. The sketch indicates how a simple and inexpensive system could be arranged to serve both purposes. A small galvanised-iron cistern of 4in. metal, with closed top, is required about 18in. by 18in. by 12in. will be



sufficient, as we only require enough water-holding capacity to provide sufficient steam for the vapour bath, and this amount of water will provide something like 3,800 cubic feet of steam. Fix the cistern on strong iron brackets, so that when the bath is filled the water will also fill the cistern. This may necessitate a sinking in the floor, as shown, or, perhaps, the bath can be raised up, to allow of the stove being placed underneath the cistern. Fit as shown a 1¼in. galvanised supply-pipe from the bath to the cistern, with a deep trap in same, and a 1in. ditto steam-pipe from top of cistern to bath, with a finely-perforated baffle-plate at outlet to bath, to prevent scalding. In each of these pipes to be fixed a stopcock of a pattern which plainly indicates Open or Shut. A dead-weight safety-valve to be fixed on the steam-pipe where shown and having outlet in the open air, this to be regulated to a pressure of 10lb. to the inch. If to be used as a vapour bath the cock in the water-supply pipe to be shut and the cistern filled with water from a special screw-down stopper. The Primus stove then being placed in position, the water will quickly boil and the steam can be allowed to pass into the bath and regulated through the cock in the steam-pipe by the person in the bath. In this case a cover will be required for the bath, and this can easily be made from a thin waterproofed canvas tightened around the rim of the bath by a run cord and a similar cord around the bather's neck and hands. A bath-seat will also be required. If to be used as a water-heating system the bath to be filled in the usual way, the stove lighted and applied to the cistern; all cocks to be open. One pound of water reduced to steam will increase the temperature of about 1,000lb. of water one degree: the greater the increase proportionately to the increase of pressure on the steam. Sufficient water for a bath will be increased in temperature from 50deg. F. to 180deg. F. in about thirteen minutes by this system.—Gordon L. Thorne, 10, Atherley-road, Southampton.

[13051.]—STEAM BATH.—During the meantime the writer has been able to inspect a bath to which has been added a portable steam bath for occasional use, and is of opinion that the arrangement will meet all the requirements of querist. The bath is fitted in the following manner: To the circular end is fitted a light airtight framework, consisting of uprights, studding, and matching, and forming an enclosed cabinet, as per the annexed sketch. In the bath is



fitted a steam coil, which is of a circular form, and is connected to the hot-water cylinder in cupboard by a flow-and-return pipe, as shown, while the coil is partly submerged in a pan containing water, for the express purpose of obtaining the necessary amount of moisture. The hot-water cylinder is supplied direct by the cold-water supply-tank over, the cylinder also being fitted up, as usual, with automatic water-regulating (inlet) valve, safety-valve, etc. The Primus stove is fitted under the cylinder with a heat-

containing box between the former and the latter, and should be enclosed, and the burner fitted with a gauze heat-distributor, while an exhaust ventilating-pipe should be carried from same through the wall to discharge the noxious fumes into the open air. Such an arrangement can be readily disconnected whenever required, and the cylinder used for heating water for the bath in the ordinary manner.—Chas. A. Longley, Denmark Park, London.

[13051.]—STEAM BATH.—The simplest method of providing a steam bath would be to construct a cabinet on the lines of the portable vapour baths sold in this country from about £2 upwards, made to fit over a chair, with front, back, and side all hinged, and with flap at top having an aperture for the neck. The receptacle for the water and lamp (Primus stove) should be outside the cabinet, and connected by means of a long spout, injecting the steam into the cabinet about 9in. from the bottom. To use the honsehold bath is practically an impossibility. A waterproof covering strained over the top on arched rods, if necessary, with holes cut for the neck and injection-pipe from the kettle. The large area of metal of the bath would cool the steam far too quickly, and in all probability the required heat would never be obtained.—K. H. Read, Lecturer on Building Construction, Gloucester Technical Schools.

[13052.]—STAIN.—The writer has of recent years, owing to the importance attached to colour-decoration in both concrete and reinforced concrete construction, experimented in several ways specially to ascertain the best and most permanent colours to use—their application to, and chemical reaction and combination with, various matrices and aggregates used in this description of building. The question is somewhat a complicated one theoretically; but some of the results obtained practically have proved most satisfactory. The most important point is that of the free lime present in the cement used, and, secondly, other foreign matters present in the sand or other aggregate used. The former, however, when moist, acts upon most pigments or stains chemically, whether incorporated bodily with the cement or concrete during mixing, or when applied only upon the surface of the work after complete crystallisation, and as, doubtless, will have been seen, in many instances the colour is more or less uneven and patchy, due to this bleaching action, which continually goes on under these conditions, resulting in a complete disfiguration of the work. Owing to this difficulty, many attempts at carrying out colour schemes have been abandoned. The writer's experiments have now covered almost every colour desired, and from these the following are the stains or pigments used, their proportions to the cement, etc., which include (1) red, (2) blue, (3) green, (4) yellow, (5) black, (6) white, (7) brown. (1) For a red finish, take 85 parts by weight of Portland cement, 13 parts oxide of iron, and 2 parts of black oxide of iron. By adding a small quantity of permanganate brown, terracotta is obtained. (2) Blue: The best mixture consists of 79 parts cement, 19 parts ultramarine blue, and 2 parts of black oxide of iron. (3) Green: Mix together 83 parts cement, 14 parts chromium oxide (the only green mineral pigment standing the action of lime compounds), and 3 parts black oxide of iron. (4) Yellow: Mix together 85 parts cement, 13 parts yellow ochre (yellow oxide of iron), and 2 parts of black oxide of iron. Eight per cent. of ochre produces a bright colour, while the addition of a small quantity of permanganate brown produces a buff colour which is useful in many instances. An addition of 3 per cent. of the latter will be found sufficient. (5) Black shades may be readily obtained by using carbon black or black oxide of manganese. The mixture recommended consists of 85 cement and 15 of either the carbon or manganese. For a blue-black, use 10 per cent. black oxide of iron. (6) For a white colour, mix 35 parts of sulphate of baryte with 65 parts of cement. (7) Brown shades may be obtained by using manganese brown and oxides of iron and manganese. A mixture consisting of black oxide and red oxide of iron, black oxide of manganese and cement, in the proportions of 3, 5, 7, and 85 respectively will be found to give a good rich brown stain. The Portland cement used must be to the requirements of the Standard Specification, and finely ground, and the colouring substances levigated. The cohesibility of the mass in each case will in no way be weakened, but rather on the other hand—that is, increased tenacity throughout the mass. The above methods of staining cement and concrete work may be relied on for their intended purpose in each case, and under any climatic conditions. In the case of staining or painting the surface of the work only, reference should be made to the paragraph in these columns and on page 454 of the current volume.—Chas. A. Longley, 52, Ivanhoe-road, Denmark Park, London.

[13052.]—STAIN.—The only satisfactory method of colouring Portland cement, rendering to walls, or floor surfaces, either neat or with sand, is with mineral oxides. Earthy colours—i.e., many common ochres, Venetian red, umbers, etc.—fade quickly, and appreciably weaken the cement, but these oxides actually have a tendency to strengthen it. The best oxides for the purpose are those containing a large quantity of pure ferric oxide. They are usually a by-product of other manufactures. For this work the following points should be noted:—Mineral oxides are more expensive than common colours. They vary much in strength; 5 per cent. by weight of a good strong oxide may be sufficient to use, but with a weak one as much as 20 per cent. may be requisite. It is only necessary to colour the finishing coat, and this should be ¼in. to ½in. thick for walls, and ½in. to 1in. for floors. The colours must first be thoroughly mixed with the cement in a dry state. To obtain the desired shade, make up small quantities of the stuff with varying percentages of the colour. Four bushels of cement, four bushels of sand, with 5 per cent. oxide colouring, will cover about 10 yards super. ½in. thick. Colours. For black, oxide of manganese; for yellow, yellow oxide; for red, red oxide; for buff or orange, yellow and red oxide; for brown, red oxide and oxide of manganese. Green or blue cannot be produced satisfactorily. To stain work to walls (already set), the following washes are suitable, and are also permanent:—For brown, a solution of 1 part green copperas and 3 parts water; for yellow, add alum (as required) to the above solution; for green, add chrome alum.—George Norman, 83, New Kent-road, S.E.

Our Office Table.

A carved armoire is being given to the King and Queen as a Coronation gift by the staff and students of the School of Art Wood-carving, South Kensington. The armoire was designed by the head master, and carved by the students of the school. The wood used is French walnut, and the design is carried out on the lines of the Transitional Gothic of the "François Premier" period. The details are modern, but treated somewhat severely in accordance with the style. The cabinet stands 4ft. 6in. high, and is 2ft. 9in. wide, the upper portion forming a cupboard, with an opening of 2ft. by 1ft. 4½in. by 1ft. 7½in. high. Beneath the centre of the cupboard is a drawer 8in. by 5in. by 15in. deep. The Royal monogram is introduced in the carved panel on the front of this drawer. The door, which forms the centre panel, is carved with the Royal Arms, the Rose, the Thistle, and the Shamrock. On either side, and at the sides of the cupboard, are six panels ornamented with the linenfold pattern, with a line of carving down the centre of each. The three front panels are separated by small columns tooled and finished off with finials and pendants. The cupboard rests on three arches and bands of pierced tracery. These arches are supported by small shafts with caps and bases; they are octagonal in section, and covered with tooled ornament. The whole is surmounted by a cornice consisting of a convex moulding pierced and carved with roses and foliage, and a frieze on which is carved an inscribed Garter. At the two angles are winged cherubs' heads carved out of the angle posts.

The National Road Board is finding half the money for modernising and utilising as a highway six miles of the Fosse Way, the ancient Roman road between Leicester and Lincoln. Part of the Fosse Way, near Newark, is in use as a first class modern road; but further south, in the extensive space outlined by roads connecting Nottingham, Loughborough, Melton Mowbray, and Leicester, the old highway was disused, swampy, grass-grown, and well wooded. A good deal of the Roman paving had been abstracted in former times, and what remained has now been taken out for a width of 15ft. and a depth of 12in. In this space heavy and closely-packed furnace clinker is being laid, and amongst it is used the small portion of ancient paving which has been recovered. This consists of dark sandstone boulders, water-worn all over, and small smooth flint gravel. There are no villages on the Fosse Way in the Wolds, but old farmsteads are ranged along it at intervals of about half a mile. The villages are on lower ground a mile or so from the Roman road. The latter, in fact, throughout most of its course is a parish boundary, and sometimes a county boundary as well. The work was begun in March, and is rapidly approaching completion.

At a meeting of the Royal Archæological Institute at Burlington House on Wednesday night, Mr. G. C. Druce read some "Notes on the Heraldic Jall or Gale." He began by tracing the history of the jall and the antelope before their introduction into heraldry. Some persons, he remarked, were anxious to derive the English name of the former from an Arabic source; but he felt sure the word was an Anglicised form of the Latin "eale." Pliny was as far back as they could go in the history of the eale, and he believed Pliny regarded it as a composite beast. There was much in common between the two beasts. The principal difference was in the horns. So far as the so-called heraldic antelope was concerned, he doubted whether they had taken enough account of the extent to which fabulous and composite beasts were employed in heraldry, and of their manipulation by the heralds. The heraldic antelope was not intended for a natural beast. With regard to the question, how it was that the jall's name dropped out so completely, they might be sure that when a composite beast was concocted they would not have equal parts of each. In the case of the heraldic antelopes, the horns were a much more prominent feature than the tusks, and this, coupled with preconceived ideas of the heralds that both were antelopes, would cause the antelope element to outdo the jall element. He had found nothing about the jall in any heraldic treatise, but he thought its reputation was clearly established.

The Rev. P. Clementi Smith, rector of St. Andrews-by-the-Wardrobe, London, has consulted the authorities at Heralds' College, which is very close to his church, as to what is the correct flag to fly on a church tower, and he has been informed by the greatest authority on these matters that the correct ecclesiastical flag to fly on the occasion of the Coronation, or any other great national or religious festival, is a combination of the cross of St. George with the arms of the diocese. In the case of London the arms of the diocese are two crossed swords on a red ground. It is usual to fly the cross of St. George from church towers, but the detail of the arms of the diocese in the corner is probably not so well understood.

Grout instead of bituminous filler for brick pavements is recommended by Mr. Samuel Whinery, consulting engineer, in his preliminary report to the Commission on City Expenditures, Chicago. It is pointed out that the advantage of the bituminous filler lies in the fact that the streets may be thrown open to travel as soon as the filler cools and hardens, which will be well within 24 hours. If the grout filling is used, the street must be closed until the cement sets hard enough to withstand the travel—from four to seven days. Notwithstanding this, the grout filler, in Mr. Whinery's opinion, is so superior, and so increases the useful life of the pavement, that it should be used, except in the case of busy streets, where closing of traffic would work a hardship.

A patent (3960, Feb. 17, 1911) for a new artificial stone, by R. Berner, 42, Palffygasse, Baden, near Vienna, relates to the process of manufacture of artificial stone, in which 3 to 6 parts of washed sereened sand, 3 to 6 parts of rubble, 5 to 6 parts of pit-coal cinders, and 1 to 1½ parts of Portland cement are formed into a paste by adding 20 per cent. of milk of lime and 10 per cent. of calcium-chloride solution, the material being then moulded and dried, and consists in replacing the coal cinders wholly or in part by blast furnace or like slag. Part of the Portland cement may be replaced by Roman cement, puzzuolana, or slag cement.

A new convent for Sisters of Mercy is being built in Nenagh, Co. Tipperary. The contractor is Mr. Sheridan, of Newbridge.

The larch saw-fly, which some years ago did such serious damage to the larch plantations in Cumberland, has again made its appearance in the Lake District. The fly was first noticed on May 20, and the larvæ are now hatching out rapidly and defoliating the trees.

Last week the Bishop of Guildford consecrated the new nave and chancel of the Aldershot Parish Church. The church, which now consists of a new chancel, nave, and north aisle, designed by Mr. T. G. Jackson, R.A., the old nave and chancel forming the south aisle and side-chapel, is the crowning-point of a scheme of church extension started in 1906, and including a mission-church in an outlying district.

Severe shocks of earthquake occurred in San José, Cartago, and adjacent districts on April 13, 1910, causing very general damage to buildings. Shocks of varying intensity continued daily for two months, and on May 4 a shock of great violence destroyed the city of Cartago almost completely, and caused the death of about 500 inhabitants. The damage to property exceeded £500,000. The rebuilding of Cartago has been commenced, and a considerable impetus has been given to the building trade in the capital. A demand has sprung up for metal-lathing, light structural iron, roof-iron, and Portland cement.

LATEST PRICES.

IRON.

				B.W.G.	
				per cwt.	
				Per ton.	
	£	s.	d.		
				£8 10	0
				8 10	0
	8	5	0	8 10	0
	8	5	0	8 10	0
	7	15	0	8 5	0
				5 5	0
		15	0	—	
	16	0	0	—	
		14	5	0	—

Plain Domed Corrugated Iron, 6in. corrugated—

£	s.	£	s.	£	s.	£	s.	£	s.	£	s.	
	9		14		12					B.W.G.		
£10	5	£11	0	£11	15	0	£11	0	0	£11	10	0 per ton.

Cast-Iron Soil Pipes—

		£6	2	6	to	£6	7	0
		6	0	0	,,	6	5	0
		5	7	6	,,	6	0	0

Wrought-iron Pipes, 5s. 0d. per ton extra.
[Cast-iron Bends and Fittings, 5s. 0d. per ton extra.]

Per ton.

		£10	8	0	to	£11	7	0
		10	0	0	,,	10	15

June 23, 1911. Volume C.—No. 2946.

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

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THE ARTIST IN YOUTH AND AGE.

Two hundred and thirty-four years ago—namely, on June 15, 1677—Sir Christopher Wren laid the first stone of St. Paul's Cathedral in the presence of the Bishop of London and others. Sir Christopher's age was then forty-five, so that more than half his working life as an architect was still before him. But he had already built one campanile unparalleled in England and unequalled abroad. Perhaps as a tower, he could not have surpassed it himself. But it was now open to him to show what he could do in church-planning, a subject which then, and even now, interests only a very few people. It was in Wren's time as it has been since. For most people to "see a church" means only to see the outside of it. For St. Paul's, before it was begun, Wren had had several different schemes. Of these, perhaps the best known one in our time, is what has been called by some writers the Protestant one. It contained a vast central area—perhaps too wide and too lofty for any human voice to fill it, or for any human ears to listen to its language if it did. The great architect's estimate of what an average human voice could accomplish in the way of making itself heard was so moderate that he must have known when the wooden model was being made, which used to be in the South Kensington Museum, that he was aiming at what could hardly happen without a miracle. However, the Catholic revival was gaining force when St. Paul's was begun, and this over-ambitious scheme—it is said to Wren's regret—was laid aside. The Cathedral, even as it was actually built, aims at more than men can do. At Westminster Abbey, a recent Archbishop of York could be heard distinctly from the pulpit in the nave to the western door; but it is doubtful if anyone ever lived who could make himself audible so far in the Metropolitan Cathedral. Wren, however, was finally called upon to build a cathedral on the Mediæval plan: that is, with a nave longer than any human voice can fill. But a cathedral is not meant to be filled by one man's voice. The voice it is suited for is the voice of the choir—that is, of many voices agreeing together as one: and for services meant for the cathedral *as a whole*, it serves its purpose if the voices of the choir, as a whole, can be heard throughout. Perhaps we may say that the sermon has had its day—at least, in buildings above a moderate size. The very large congregations which filled St. Paul's and Westminster Abbey to hear eminent preachers did not, as a whole, really hear them. A few people heard who wanted to hear; the rest caught a word here and there, and owed more, perhaps to the well-known service than to the homily whose language was by no means equally familiar to their ears.

The late Mr. James Fergusson, when the new Liverpool Cathedral was being discussed nearly thirty years ago, published in the *Nineteenth Century* a sketch plan of his own to a scale of one hundred feet to an inch. This plan, as was to be expected from its accomplished author, contained some valuable suggestions. It has a nave about 60ft. wide between the main columns, but only one bay long; a great central dome, 100ft. in span and about 150ft. high from the nave floor to the crown; and side aisles to the nave and choir, arcaded like those of St. Mark's and of the Catholic Cathedral, Westminster. These aisles in the choir would be from 20ft. to 25ft. in width. Mr. Fergusson's plan, on paper, looks rather too short, and would be better for having another bay in the length of the nave, with another 60ft. dome over it. But, even so, it would be too large and too high for one voice to be heard, even throughout the nave and transepts; and, so far, would fail to conform to Mr. Fergusson's rather outworn ideal of 1884. The author of it proposes over the great 100ft. dome "a straightlined stone roof": perhaps like that of Santa Maria delle Grazie, Milan, or like some of the much older Romanesque churches, of which that in Milan is to some extent a Renaissance echo. That type of lantern-tower is more natural and more reasonable than the Classic dome, as well as probably more within the power of average mortals to construct. The Classic dome was always something of a *tour de force*, which, indeed, seems to have been to a large extent what endeared it so to that very ambitious set of men, the Renaissance architects. To them, as to the roof builders and bridge builders of later ages, it seemed a glorious thing to do something so difficult, so lacking both in beauty and in use, that men of more modest ideas and, perhaps, of more limited means, willingly shrank from attempting it. The dome about the end of the Middle Ages, fascinated clever men by its very difficulties, and so, in course of time, spread all over Europe. (We may note in passing, that Mr. Fergusson's sketches also appeared in the Building News of December 5, 1884.) It is also worth noting that the dome of the Pantheon, at Rome, is 142ft. in diameter; the dome of Santa Sophia, Constantinople, is 107ft. in diameter; that of Florence Cathedral, 138ft.; and that of the Temple of Minerva Medica was 81ft. in diameter. The stone ribs of this dome stood by themselves for a long time after the filling-in between them was removed.

With St. Paul's Cathedral to think about, it is no wonder that from 1681 to 1698 Wren did nothing very novel in parish churches. Still, St. James's, Garlick Hill (built in 1683), has a graceful little octagonal lantern on the usual high square tower. St. Vedast's, Foster-lane, built 1697, has an ornate stone lantern of pleasing form. St. Dunstan's-in-the-East, slight as it looks to the casual passer-by, has withstood many storms, and to-day amazes people who never saw a section of it by its surprising strength; while Christchurch, Newgate-street, is a well-proportioned, graceful lantern-tower. Its lantern, apart from the rectangular tower from which it rises, is of three stages. It is smaller on plan than the tower below it, and is carried on its designer's favourite system, by a rather flat segmental arch under each of its four sides. These arches are prevented from spreading by iron tie-bars — contrivances without which few architects but Wren would have ventured to build the tower of St. Stephen's, Walbrook. St. Michael, College-hill, was built in 1713, and is, perhaps, the most successful of the three which follow the same type. Perhaps Wren, like modern architects, became more cautious as he grew older; but, at any rate, the lanterns he built after 1682 are, some of them, braced together by iron tie-bars, which are absent in a similar position from his earlier steeples. It has been said that the tower of St. Martin, Ludgate-hill, and of St. Swithin, Cannon-street, were purposely spire-like to set off by contrast the great dome of St. Paul's. It may have been so, for the "Principal Architect for rebuilding the City of London" had a chance which seldom comes to ordinary men, of making one of his works set off another by contrast.

The tower of St. Magnus, London Bridge (if we except the two western towers of St. Paul's), was nearly the last in which Sir Christopher adequately carried out his favourite ideas in his own adopted style. For the rest of his days his more noticeable designs were Gothic, or rather Gothicesque — just as the more noticeable works of our own days are, some of them, Victorian, Classic, or Classicesque. The public—"good, easy souls"—don't know the difference; but they see that there *is* a difference, and when an architect, say of 1910, reverts to the ways of his grandfathers, about 1850, and does what would have pleased his grandmother when she was taken up to London, in short

[illegible] Exhibition [illegible] the [illegible] has [illegible] [illegible] [illegible]

The cost of this beam would be approximately as follows :—

	£ s. d.
Web— $\frac{16\frac{1}{2} \times 14 \times 24}{144}$ = 38½ cube ft. concrete at 1s. ...	1 18 6
Brackets— $\frac{16\frac{1}{2} \times 8\frac{1}{2} \times 39 \times \frac{1}{2} \times 2}{1,728}$ = 3 cube ft. ditto ditto	0 3 0
Tensile reinforcement— $\frac{19.25 \times 24}{144}$ = 3.21 cube ft. steel at £3	9 12 7
Compressive reinforcement— $\frac{33.47 \times 12}{144}$ = 2.79 cube ft. steel at £3	8 6 5
Negative reinforcement (from quarter points to centre of supports)— $\frac{9.17 \times 12}{144}$ = .76 cube ft. steel at £3	2 5 7
Cross bindings— $\frac{\frac{1}{2}^2 \times .7854 \times 3\frac{1}{2} \times 8}{144}$ = .0082 cube ft. steel	0 0 7
Stirrups— As before	1 13 4
Shear rods— $\frac{\frac{5}{8}^2 \times .7854}{144}$ (4 × 63 + 24 × 24) = 1.764 cube ft. steel.....	5 5 10
Total cost of double-reinforced T-beam	£29 5 10

This is £13 19s. 11d. more than the single-reinforced beam in Example 12, making the total cost per bay £64 8s. 10d., or about 2s. 3d. per square foot, an increase of 6d. per square foot for 8¾in. gain in head-room or saving in walls and pillars, as the case might be.

THEORY AND SYMBOLIC FORMULÆ FOR SHORT PILLARS WITH AXIAL LOADING.

A pillar may be considered as short when its length does not exceed eighteen times its least lateral dimension.

Fig. 20 is a cross-section of a pillar with longitudinal reinforcing rods.

Total load at foot of pillar P = superload P + weight of pillar—

$$P = \frac{1}{144 \times 2,240}\left(w_c A + [w_s - w_c]\frac{P' - A f_c}{[r - 1] f_c}\right)$$

The compressive resistance of the concrete will be—

$$(A - C_s) f_c.$$

Since there is the same strain in the concrete and the reinforcement, the stresses will be proportional to their moduli; therefore—

$$f_s' = r f_c,$$

and the compressive resistance of the reinforcement will be—

$$C_s r f_c.$$

Therefore—

$$P' = A f_c + C_s (r - 1) f_c \quad \ldots\ldots\ldots (48)$$

and—

$$C_s = \frac{P' - A f_c}{(r - 1) f_c} \quad \ldots\ldots\ldots (49)$$

Cross bindings of $\frac{3}{16}$in. or ¼in. diameter steel wire should be used, at distances apart not greater than the least lateral dimension of the pillar.

The lower ends of reinforcing rods may rest on a steel plate in the footing, as shown by

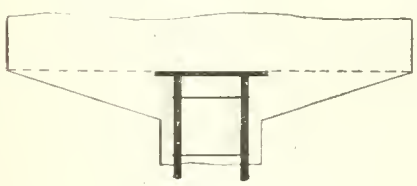


FIG. 21.

Fig. 21, the thickness of the plate being half the diameter of the rods, and its area—

$$P' f_c \text{ sq.in.}$$

REDUCED WORKING FORMULÆ AND DIAGRAM 22 FOR SHORT PILLARS WITH AXIAL LOADING.

f_c = 2·9 ton per square inch, r = 15, w_c = 140, w_s = 490. Cost of concrete, including timber forms, 1s. per cube foot, cost of steel £3 per cube foot.

Length of pillar not to exceed eighteen times its least lateral dimension.

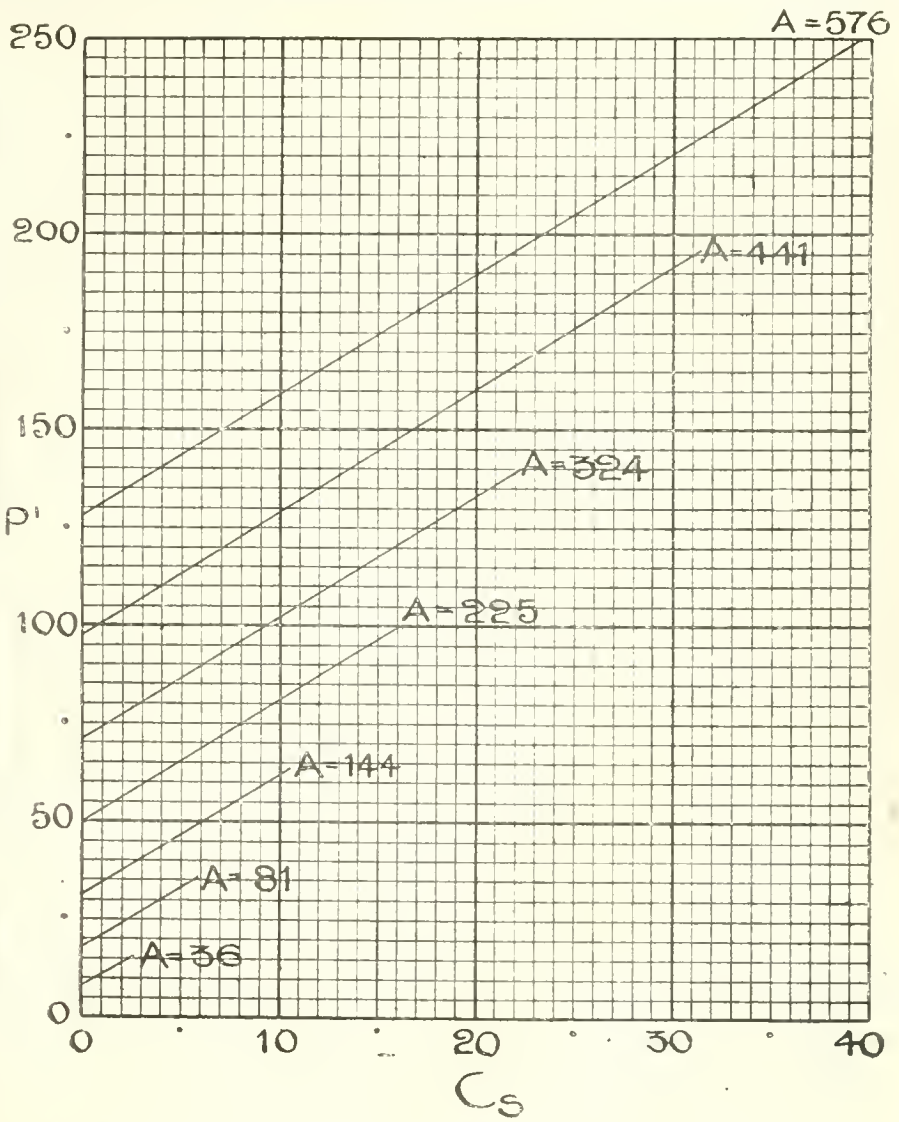


DIAGRAM 22.—Short Pillars with Axial Loading.—f_c = 2·9 ton per sq.in., r = 15. Length of pillar not to exceed 18 times its least lateral dimension. To obtain area of longitudinal reinforcement, using total load at base of pillar P', and curve for area of cross-section A, read C_s on base line. Each curve terminates at the point where the strength of pillar is equal to double that of plain concrete, or 4·9 ton per inch of sectional area.

Area of compressive reinforcement

$$C_s = .32\,P' - .07\,A,$$

or it may be obtained from Diagram 22.

Cross bindings of $\frac{3}{16}$in. or ¼in. diameter steel wire to be used, at distances apart not greater than the least lateral dimension of the pillar.

The reinforcing rods to rest on a square steel plate in the footing, as shown by Fig. 21, the thickness of the plate to be half the diameter of the reinforcing rods, and its area—

4.5 P' sq.in.

Weight of pillar—

.00035 (P' + A) tons per foot length.

Cost of pillar (excluding plate)—

.133 P' − .022 A shillings per foot length.

Cost of plate—

.156 P' shillings per inch of thickness.

EXAMPLE 14.

Taking the pillar shown in Example 12, the superload P = 97.65 tons, and, assuming its length to be 15ft. and cross section 18in. square, its sectional area A = 324sq.in.

Weight of pillar—

= 15 × .00035 (97.65 + 324) = 2.21 tons.

Total load at base of pillar P = P + weight of pillar—

P' = 97.65 + 2.21 = 99.86—say, 100 tons.

Using Diagram 22—

C_s = 9.25sq.in.

and four 1¾in. diam. rods might be used, with ¼in. diam. cross bindings, say, 12in. apart.

Area of steel plate at base—

4.5 P' = 450sq.in.

say 21in. square, and thickness = ½ diam. of rod = ⅝in.

Cost of pillar—

15 (.133 × 100 − .022 × 324) = £4 12s.

Cost of plate—

.156 × 100 × ⅝ = 13s. 8d.

Total cost of pillar and plate—

£5 6s. 8d.

ERRATA IN ARTICLE X.—Insert d (depth of beam) on left of Diagram 19.

(To be continued.)

THE STUDIO: ITS CONSTRUCTION AND DECORATION.—II.*

By DRINKWATER BUTT, F.R.P.S., Architect.

The introduction of the next few slides here, before I proceed to show you those of the studios contributed by the body of members already referred to, will also enable me to bring before you some of the points necessary

* A paper read at the Recent Congress of the Professional Photographers' Association. For all the illustrations but one, we are indebted, with the Author's consent, to our contemporary, the *British Journal of Photography*. Mr. Drinkwater Butt, who is well known both as architect and photographer, is a specialist in the construction of both photographic and artistic studios.

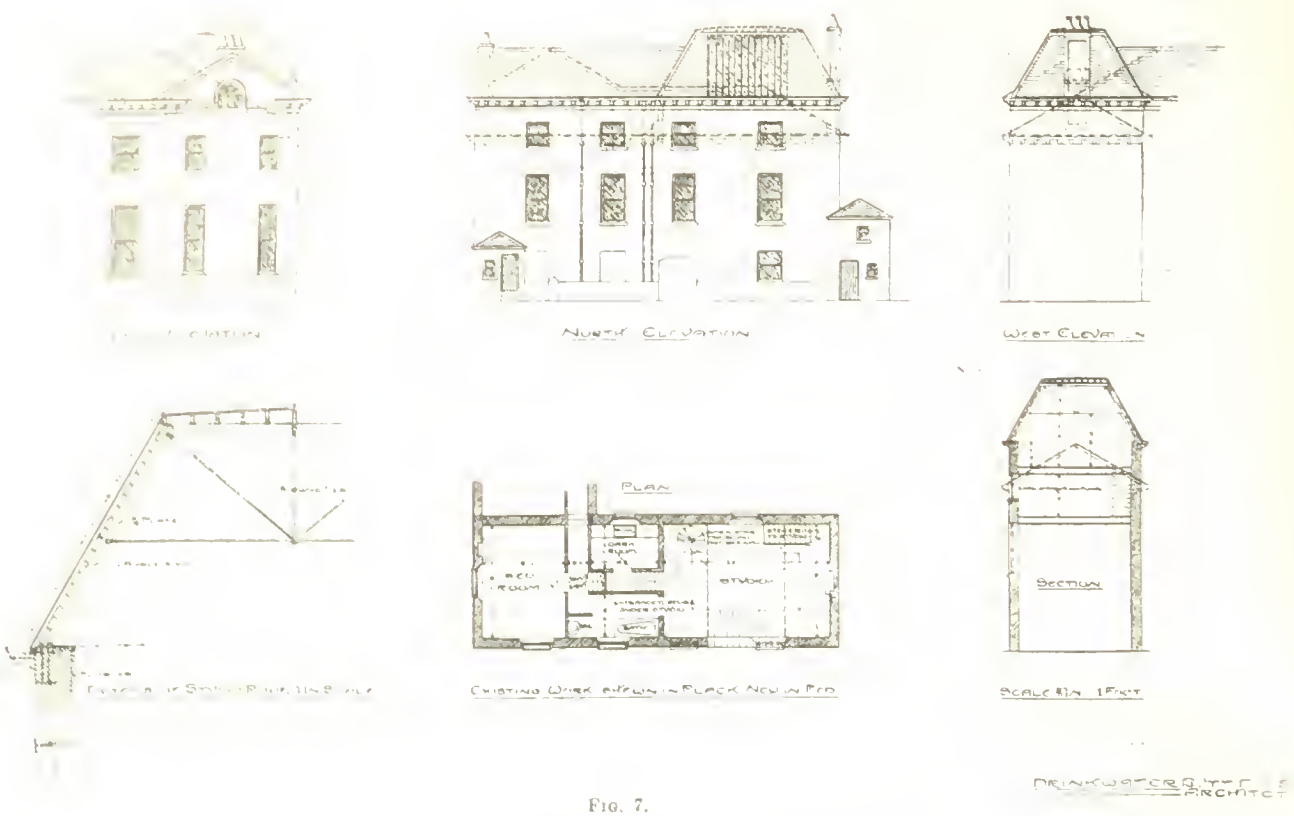

NORTH ELEVATION
WEST ELEVATION
PLAN
SECTION
SCALE ⅛IN. 1 FOOT

FIG. 7.

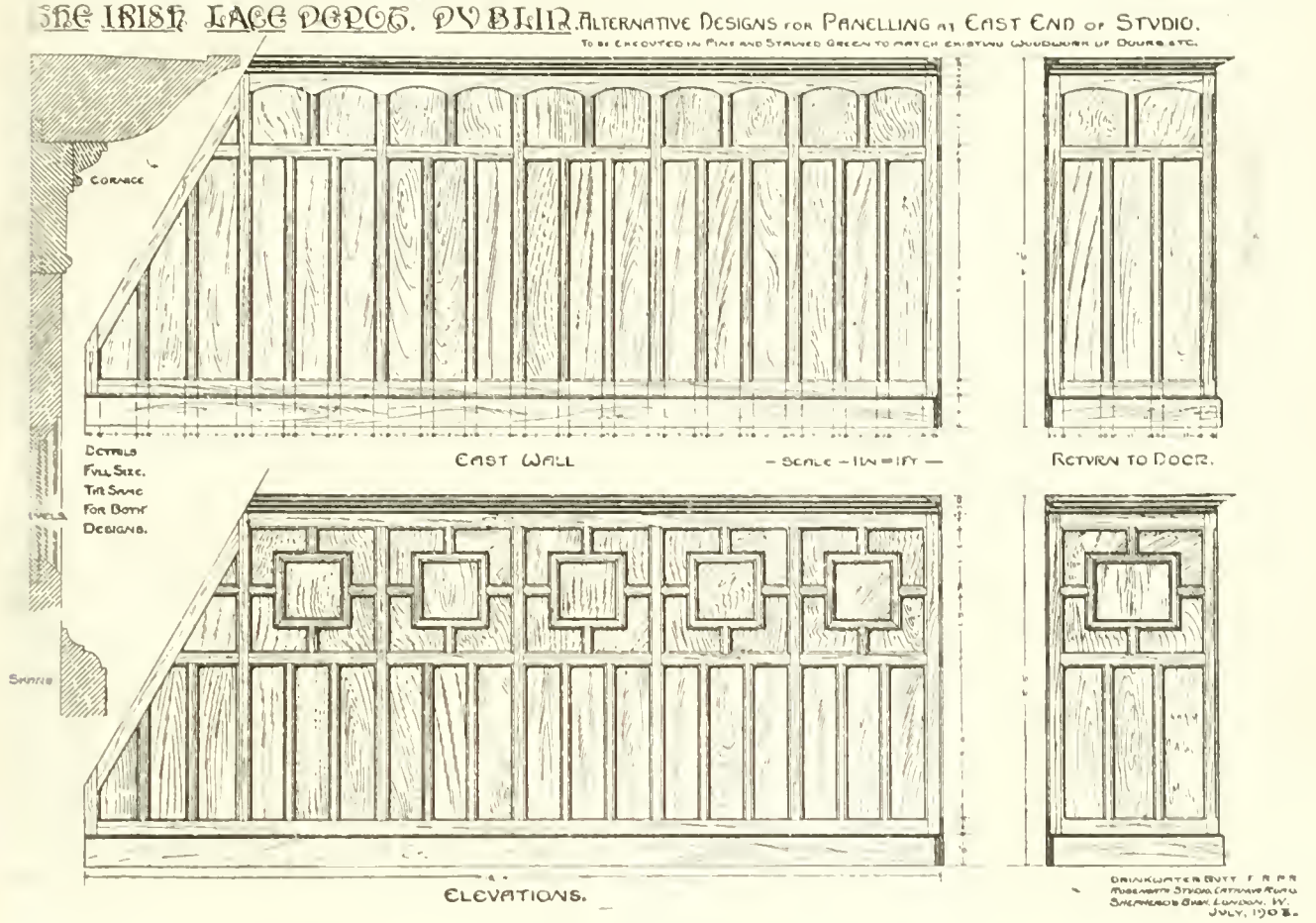

THE IRISH LACE DEPOT, DUBLIN. ALTERNATIVE DESIGNS FOR PANELLING AT EAST END OF STUDIO.
TO BE EXECUTED IN PINE AND STAINED GREEN TO MATCH EXISTING WOODWORK OF DOORS ETC.
CORNICE
DETAILS FULL SIZE. THE SAME FOR BOTH DESIGNS.
SKIRTING
EAST WALL
SCALE 1IN=1FT
RETURN TO DOOR.
ELEVATIONS.
DRINKWATER BUTT, F.R.P.S. ROSENEATH STUDIO, CATHNOR ROAD, SHEPHERDS BUSH, LONDON, W. JULY, 1908.

FIG. 9.

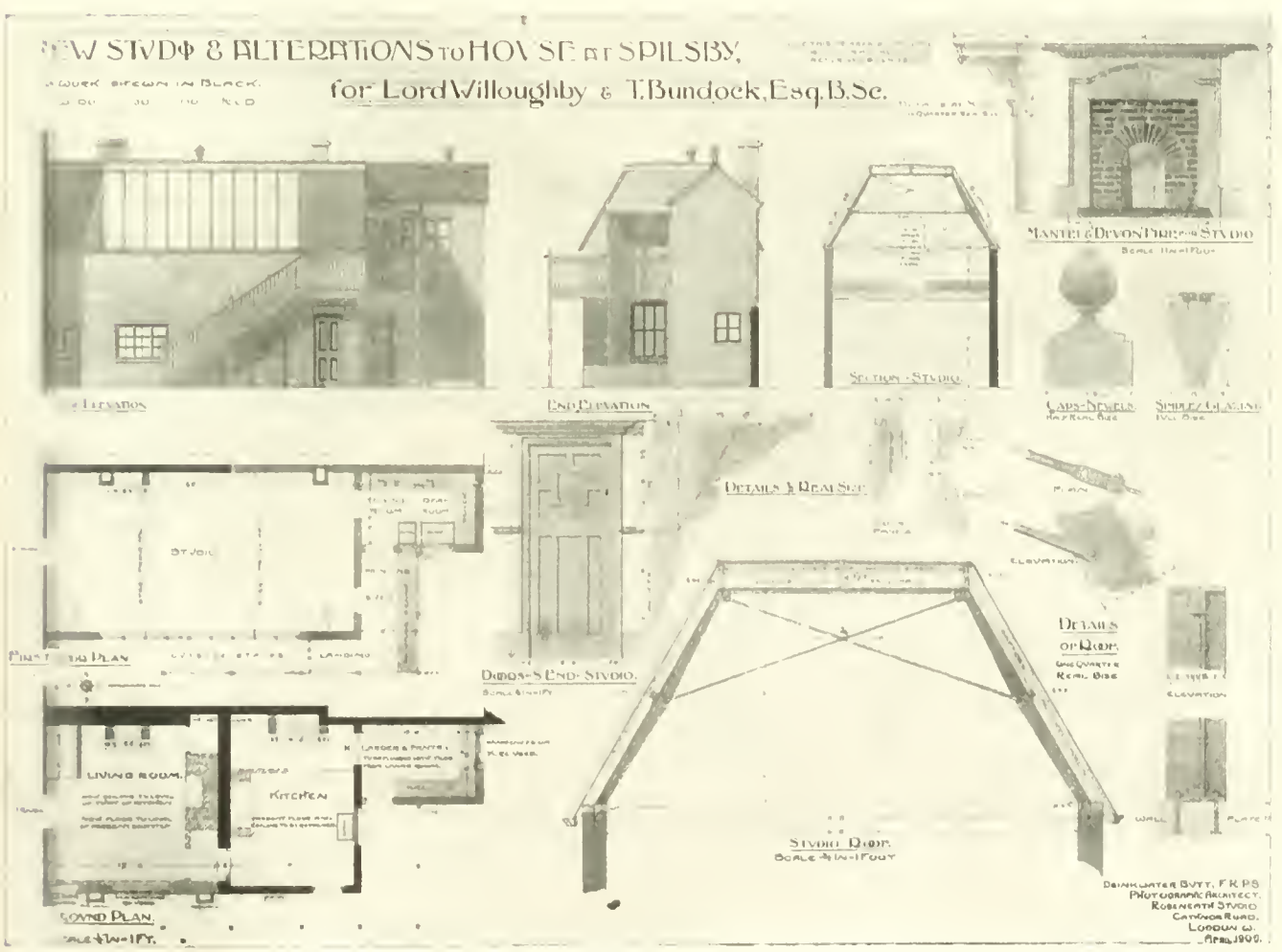

NEW STUDIO & ALTERATIONS TO HOUSE AT SPILSBY,
for Lord Willoughby & T. Bundock, Esq. B.Sc.
MANTEL & DEVON FIRE IN STUDIO
SECTION THRO STUDIO.
END ELEVATION
CAPS & DENTILS
SIMPLE CLASSIC
DETAILS & REAL SIZE
DETAILS OF ROOF.
STUDIO DOOR.
SCALE 1IN=1FOOT
DRINKWATER BUTT, F.R.P.S. PHOTOGRAPHIC ARCHITECT. ROSENEATH STUDIO, CATHNOR ROAD, LONDON W. APRIL 1909.

FIG. 10.

NEW STUDIO & ALTERATIONS, at DERRY ORMOND, CARDIGANSHIRE.
for W. Inglis Jones, Esqre.

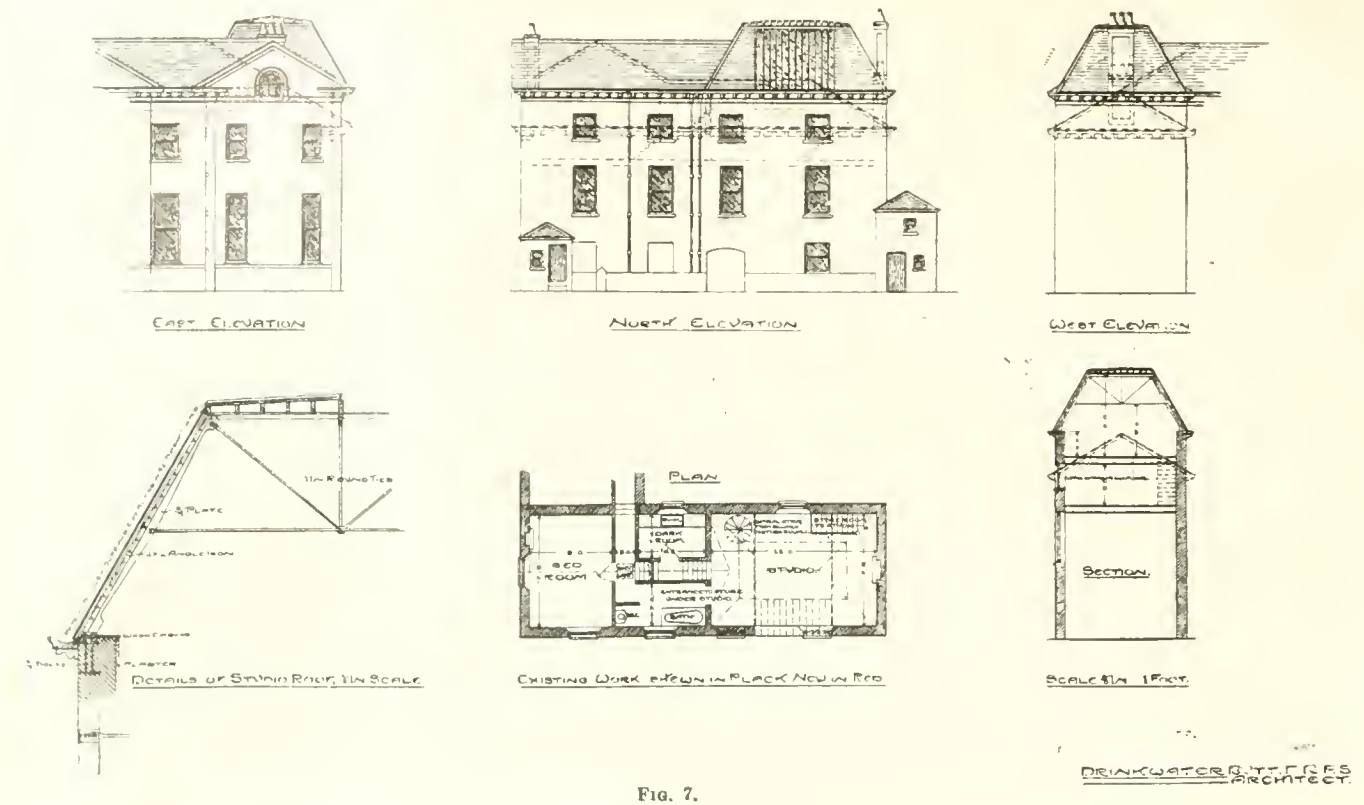


Fig. 7.

to be observed in the design of such structures, as exemplified in my own practice. I may just premise that if you do not find these lantern slides particularly good from the photographic point of view, it is to be remembered that they have not been made from specially prepared diagrams, but are merely copies of working architectural drawings, some not too carefully executed as regards finish, and some also the worse for wear. They have also lost a good deal on account of the great amount of reduction necessary to get them on to lantern slides. The first one (Fig. 7) shows the drawings for a studio erected for a wealthy amateur in Wales. Like many of those designed for professional use, it takes the form of an addition to an already existing building being, in this case, practically the addition of a story to the back part of a large country house. In the original drawing the old work is shown in black and the new in red; but the extent of the additions can be seen even on the slide by noting the dotted lines showing the old roof in the elevations. Reference to the plan shows that the new accommodation provided consists of a new bedroom and bathroom, both intended for the use of servants, and a dark room and studio for the master of the house, with a storeroom for apparatus, etc., under the latter apartment. On the lower floor is an already existing billiard room, from which the studio is approached by a spiral iron staircase, which was the only possible means of access in the limited space available. The studio itself is some 26ft. by 17ft., quite large enough for the general work of an amateur, and, indeed, larger than the studios possessed by many fortunate professionals. Reference to the single-slant section shows the studio to be of the single-slant form, with the light commencing at 11ft. from the floor, and going up to the 15ft. ceiling, and the north elevation shows the studio is roofed as a slated lean-to with a zinc flat on the top, to harmonize with the style of the already existing building. The detail of the studio roof shows part of one of the steel principals by which it is carried, the tie-rod of which is sufficiently high to admit of strained backgrounds being moved about under it. The glazing was executed on the well-known "Simplex" system, without putty, in which the glass is fixed to the wooden sash-bars by lead fillets, which form a weathertight casing, and yet permit of the easy removal of any chance broken panes. I should have liked to have shown you a view of the interior of the studio, which is principally furnished with things selected by myself from the showrooms of Messrs. Liberty and Co.; but Mr. Inglis-Jones's social engagements, which are many at the opening of this London Coronation season, have prevented his taking and supplying me with the necessary negative. The next drawing, reproduced in Fig. 8, however, shows the interior of a studio which I designed two or three years ago for the Irish Lace Depot, of Dublin, where it forms part of their new premises in Molesworth street. Its main purpose is the photography of the goods in which they deal—that is, lace of Irish production in all forms, from the smallest specimens up to complete and costly costumes. To show the latter, they often want groups of many living models, and so I have given as large and roomy studio as the place at command will allow, with a single-slant north light, beginning about 18in. from the floor, and going to a height of some 14ft. You may, in passing, just note the panelling at the back, which is of dark green stained pine to match other already existing woodwork, as I am able also to show you a slide of my original drawing from which it was executed (Fig. 9). As you will see, two designs were prepared, of which the upper one was selected. The comparative costs of the two are noted in the right-hand margin, and may be interesting to anyone contemplating similar work. Fig. 10 shows the drawings for a small studio for one of our members, Mr. Bundock, of Spilsby, where it was erected for him by his landlord, Lord Willoughby, as an addition to already existing premises. It is approached by sitters, as will be seen, by an outside staircase, which also gives access to the printing-shed, toning-room, and dark-room, as shown on the plan. The studio itself is also reached from the private part of

Fig. 8.—Studio, Irish Lace Depot, Dublin.

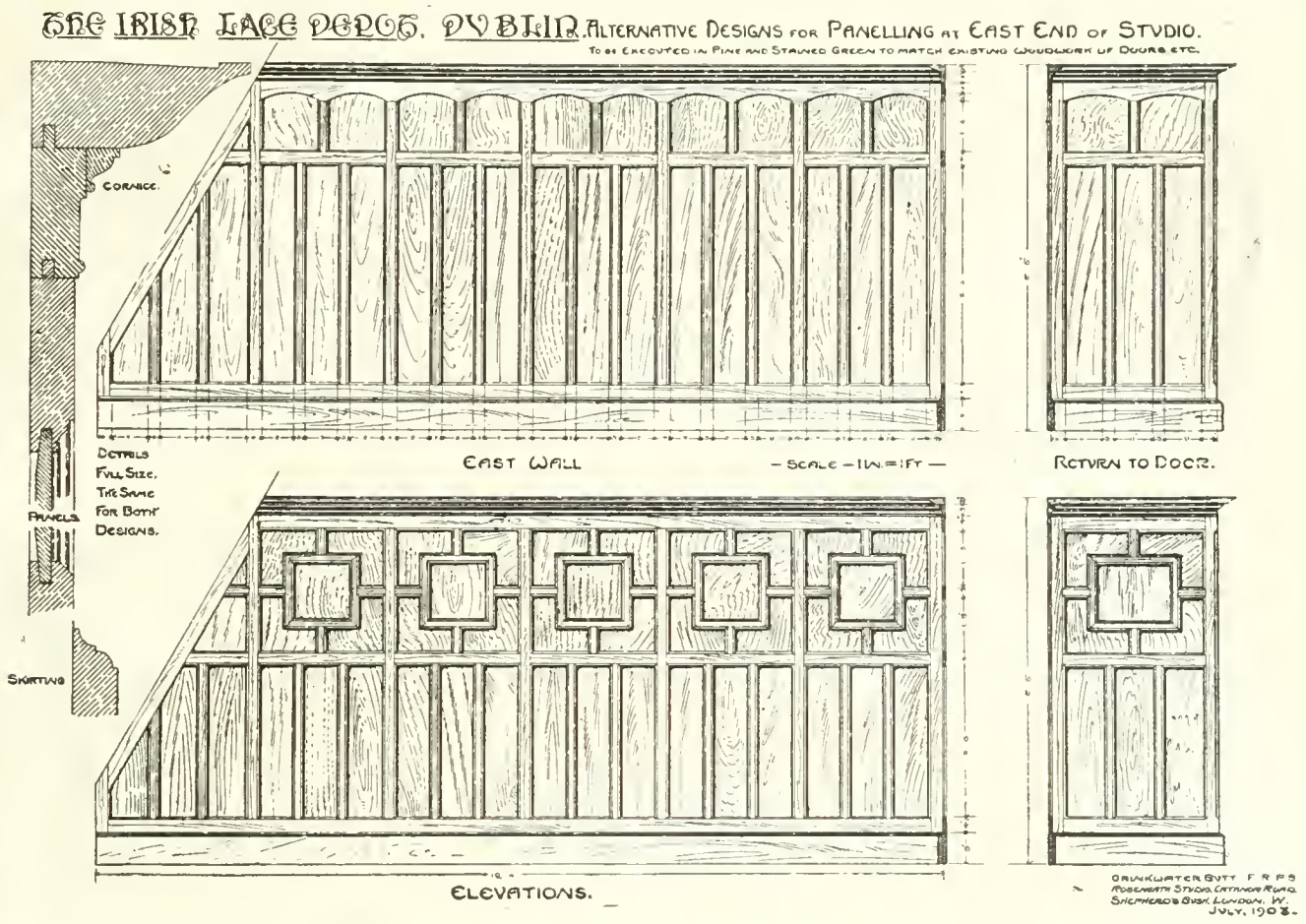

THE IRISH LACE DEPOT, DUBLIN. ALTERNATIVE DESIGNS FOR PANELLING AT EAST END OF STUDIO.
TO BE EXECUTED IN PINE AND STAINED GREEN TO MATCH EXISTING WOODWORK OF DOORS ETC.
CORNICE.
PANELS
SKIRTING
DETAILS FULL SIZE. THE SAME FOR BOTH DESIGNS.
EAST WALL
— SCALE — 1IN. = 1FT —
RETURN TO DOOR.
ELEVATIONS.
DRINKWATER BUTT F.R.P.S. ROSEMARTH STUDIO, CATHNOR RD. SHEPHERDS BUSH, LONDON, W. JULY, 1908.

FIG. 9.

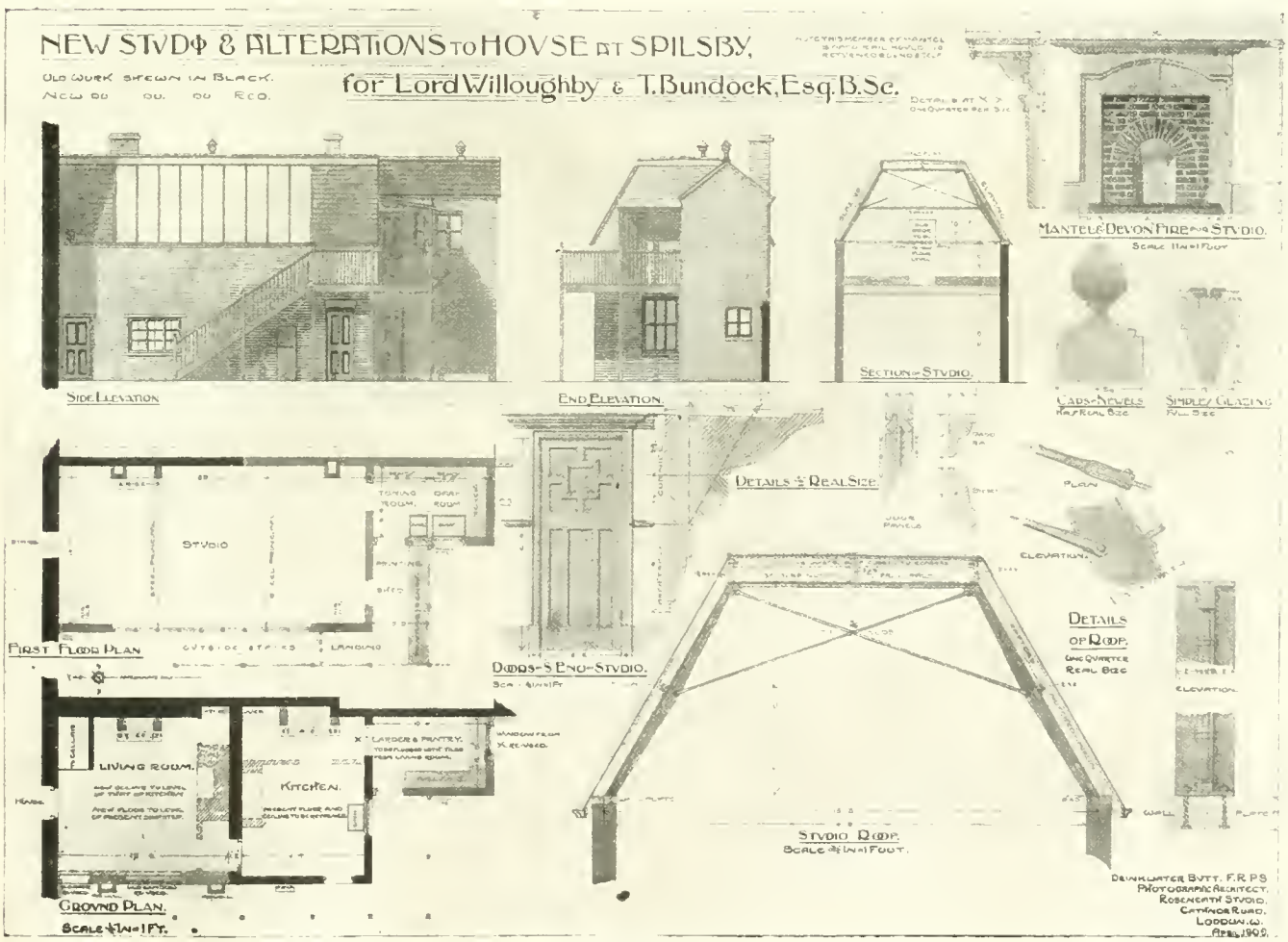

NEW STUDIO & ALTERATIONS TO HOUSE AT SPILSBY,
for Lord Willoughby & T. Bundock, Esq. B.Sc.
OLD WORK SHEWN IN BLACK.
NEW DO DO DO ETC.
SIDE ELEVATION
END ELEVATION
SECTION OF STUDIO.
MANTELS DEVON FIRE & STUDIO.
SCALE 1IN. = 1FOOT
CAPS & NEWELS
SIMPLEX GLAZING
DETAILS AT REAL SIZE.
PLAN
ELEVATION.
DETAILS OF ROOF.
ONE QUARTER REAL SIZE
FIRST FLOOR PLAN
STUDIO
LIVING ROOM.
KITCHEN.
LARDER & PANTRY.
GROUND PLAN.
SCALE 1IN. = 1FT.
DOORS - S. END - STUDIO.
STUDIO ROOF.
SCALE 1IN. = 1FOOT.
DRINKWATER BUTT, F.R.P.S. PHOTOGRAPHIC ARCHITECT, ROSEMARTH STUDIO, CATHNOR ROAD, LONDON, W. APRIL 1909.

FIG. 10.

[illegible] Mr. [illegible] Bostock, Speke.

Fig. 13.—[illegible] Mr. Hugh West, Cobham.

[illegible] Mr. Hugh West, Cobham.

Fig. 16.—Shop Front for Mr. Keith Dannatt, Woking.

a door at the east end. The size of studio, 27ft. by 14ft., was, of course, fixed by the already existing building of which it now forms the first floor. The section is much the same as in the case of Mr. Hughes-Jones, and the same herringbone glazing, of which a detail showing the scale is here given under that of the section in the top right-hand corner of the page. Mr. Bostock has kindly supplied me with a view of the interior of the studio [illegible]. It may be noted that the roof lights, which are painted white, do not appear to obstruct or affect either the light or the shadows of backgrounds etc. Following [illegible] I have the pleasure of showing you [illegible] 12 and interior and exterior views of house and studio which I have designed for one of our members, Mr. [illegible] West, of Cobham. The building [illegible] corner of the Fairmiles and [illegible] that place, and, as will be observed, is both business and residential. In addition to the [illegible] I have endeavoured to [illegible] practically [illegible] close touch with each [illegible] a central porch we [illegible] offices to the left and [illegible] to the right. Going into the [illegible] reception room, with [illegible] bay looking towards the open [illegible] left at the corner [illegible] the inspector's office. Beyond the [illegible] [illegible] from the [illegible] [illegible] [illegible]

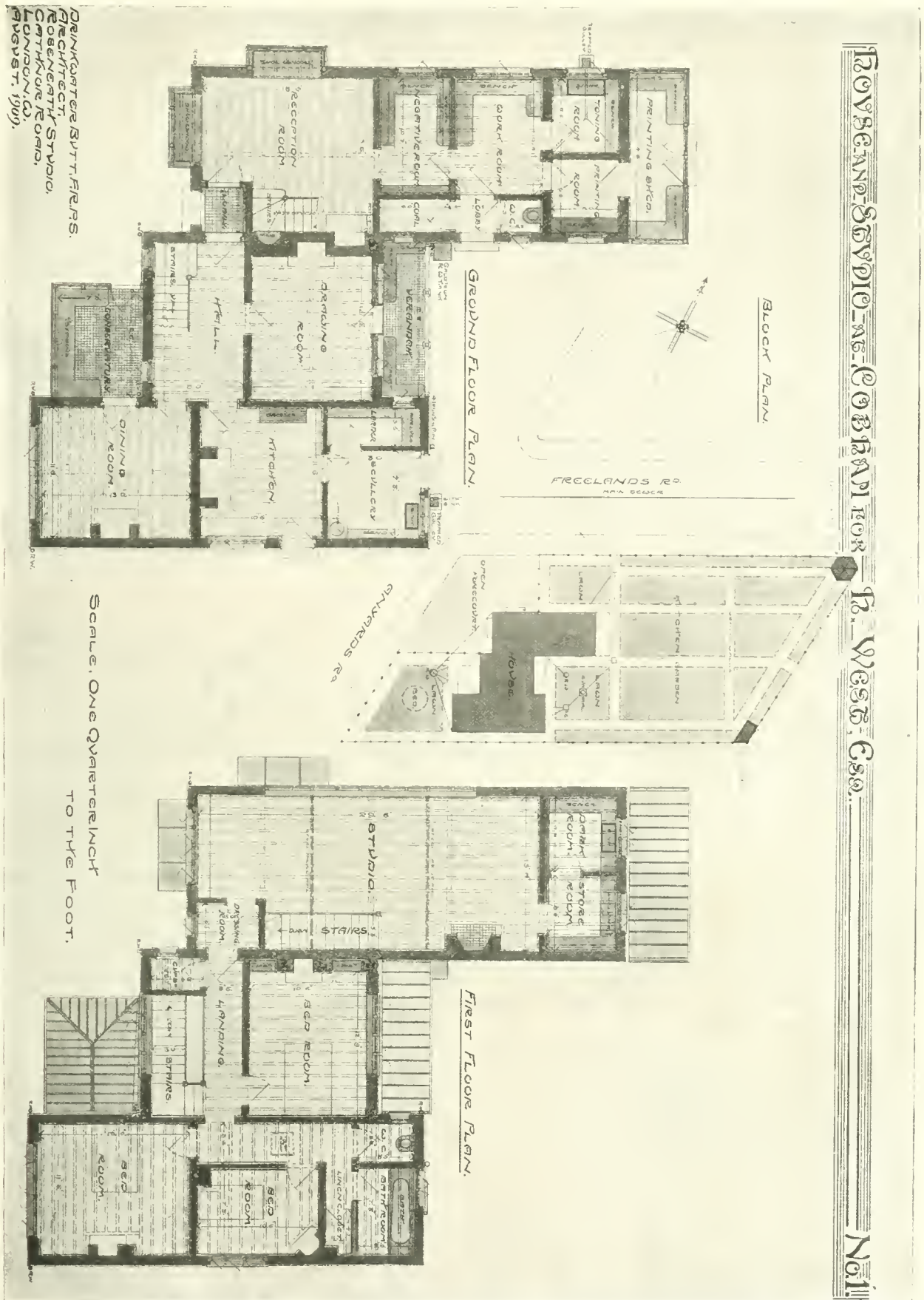


Fig. 12.

inlets, an important point, both for the comfort of sitters and the health of operators. At the west end of the studio is a small dressing-room, which can be approached either from the studio or house, and, indeed, forms the means of communication between them on the first floor. Fig. 13 shows the interior of the studio, the woodwork of which, as also throughout the interior of the whole of the building, is stained brown with "solignum" and wax polished. The plaster is at present too new for much interior decoration to be done; but later Mr. West will treat the studio in cool, soft tints of Muresco, and I am also designing for him some appropriate inscriptions for the interior, as well as name-boards, etc., to go outside. The view shows the head of the stairs and the window at the west end. This latter, being glazed with obscured Muranese glass, can, with its broad window-seat, be itself used as a backgrounnd and accessory, or can be curtained when it would otherwise interfere with the scheme of lighting in use. Then we have a view (Fig. 14) of the exterior, showing the forecourt, the two show-windows, and the single-slant light of the studio. The elevations are formed, as will be seen, of red brick on the ground floor with roughcast over, with the roofs of tiles, to harmonise with other work in the immediate vicinity. The exterior wood generally is stained brown with solignum, with window easements painted a creamy white. At some

[illegible] from the drawing [illegible] front for Mr [illegible] W[illegible] 1 2 16, which was [illegible] fittings of oak [illegible] paper which forms a [illegible] carbon, and [illegible] the [illegible] now [illegible] [illegible] shape of [illegible] [illegible] [illegible]

Fig. 1.—EXTERIOR OF THE TEMPLE CHURCH, FROM THE SOUTH.

Fig. 2.—THE NAVE OF THE TEMPLE CHURCH IN THE EIGHTEENTH CENTURY.

32, Walbrook, E.C., being responsible for the adaptation of that part of the premises to be occupied by the Playgoers' Club.

THE ESSENTIALS OF A COUNTRY HOUSE.*

This is essentially a drawing-room book of dissertations giving suggestions by Mr. R. A. Briggs on a variety of things lightly handled, and based on what the author terms "the three C's—Completeness, Convenience, and Comfort"—avoiding Defects, Deficiencies, and Dilapidations without too many technicalities, though the truism is properly insisted on that it is in his details the architect succeeds, while the jerry-builder usually fails. The usual hints to the prudent householder follow, and graining is alluded to as "anathema," the caution being added, "Never have an imitation." Surely, no one objects to plain "combing" with a transparent colour over a plain ground, and then varnishing, it thereby gaining a better appearance and appropriateness for some purposes than plain flat colours give, besides insuring permanence, for certainly nothing is so enduring as, or resists wear and tear better than, copal protected graining.

The author has had a good deal of experience in erecting residences, whether in the "Georgian" or the "Manorial" style, as here pictured. The bungalows, shown by photographs and with plans, from his former books, are, of course, neither "Georgian" nor "Manorial," and the ordinary tile, brick, and gabled houses, like Lilyfields, Ewhurst, are more in what was called "the vicarage" style. Some plans are given which, at any rate, show schemes in which the principles advocated have been, or were intended to be, carried out. A brief chapter is allocated to summerhouses, pergolas, and fountains; a page to gates and fences. The book has a page index. The suggestions embodied in these epitomes may serve to whet the appetite for more precise particulars. Some samples, too, are given which should meet all requirements and modes of life, and, after all, these are the "essentials" which settle most questions involved.

* The Essentials of a Country House. By R. A. Briggs, F.R.I.B.A., Architect. Large 8vo. Cloth, gilt. 218pp., 71 photographs and drawings. 7s. 6d. net. London: B. T. Batsford.

THE TEMPLE CHURCH.*

Four years ago Mr. George Worley wrote for Bell's series of Cathedrals and Great Churches a monograph on the history of the fabric of the Church of the Knights Templars and its monuments. The book has run out of print, and is now published in a revised form. The author expresses his indebtedness to Mr. C. E. A. Bedwell, now chief librarian to the Middle Temple, and to Professor Reginald Blomfield, who has given a full account of his recent work at the east end of the church.

The earliest establishment of the Templars in this country occupied a site at the northern end of Chancery-lane, Holborn, extending from what are now Southampton buildings to Lincoln's Inn-fields. The church, of Caen stone, was of the usual circular form imitated from the Church of the Holy Sepulchre at Jerusalem; but early in the reign of Henry III. an estate between Fleet-street and the Thames, now covered by the Inner, Middle, and Outer Temples, was acquired, and here the present Round church was built, with a magnificent house, stabling, and offices. This church was consecrated in February, 1185, and to it a rectangular choir was added, and was consecrated in 1240. Contemporary with the choir, and immediately south of it, was the chapel of St. Ann. This was greatly injured by an explosion of gunpowder to check the spread of a fire in 1648, and was pulled down as recently as 1825. The estates passed, after the dissolution of the Order of the Templars, to Aymer de Valence in 1322, and a little later to the Hospitallers, who had their own headquarters at St. John's Priory, Clerkenwell. It was eventually leased to the lawyers, who purchased the reversion of the freehold from Charles II., and extinguished the rental in 1677.

Few historic buildings are so completely hidden from sight by lofty modern blocks of chambers and offices, and are approached by such narrow, tortuous passages, as is the Temple Church, and its existence is unnoticed, and probably unsuspected, by thousands who pass up and down the main thoroughfares on either side of it. It has suffered much from restoration. The conical leaden roof over the nave was substituted half a century ago from the designs of the late Mr. J. Piers St. Aubyn; the battlements which crowned the triforium stage of this circular portion, and the whole of the walling of the choir and the south side of the nave were refaced during the middle of the 19th century, as the surface of the Kentish ragstone (still visible on the northern portion of the nave) had become very dilapidated. During the past few months the slender and picturesque bell-turret at the north western angle of the choir, containing the only bell of the church, has been refaced with stone under the direction of Mr. H. J. Wadling, F.R.I.B.A.

By the courtesy of Messrs. Bell, the publishers, we reproduce Fig. 1) an illustration of the Exterior from the South, from a photograph by Mr. Edgar Scamell, F.R.I.B.A., and a second illustration (Fig. 2) showing the nave as it appeared in the 18th century, from a drawing in the Crowle-Pennant Collection. This depicts the three-storied house erected over the fine projecting porch, within which was a shop. We probably owe the preservation of the portal to this vandalistic treatment. This porch, by the way, is a fragment of the great cloister erected about 1195, and exhibits in its deeply-recessed doorway, interesting work of the latest Transitional Norman.*

We publish the unique but simple plan, as drawn for the handbook by Mr. H. J. Wadling. It will be seen that to the circular nave and its porch of 1185, and the almost square choir of fifty-five years later, two additions were made on the north side of the choir in the middle of the 19th century—an organ-chamber, built in 1842 from the plans of Sidney Smirke, R.A., as a deep quasi-transept; and choir and clergy vestries, added in 1858-9. The diameter of the nave is 59ft. 3in., and that of the central area, separated by six piers of clustered and detached columns of Purbeck marble, 32ft. 6in. The choir of five bays, which is vaulted and divided into three portions by very slender marble columns, is 88ft. in length and 59ft. 6in. in width; it is still Early English, but of more advanced type than the nave. Beyond the nave to the south, stones in the pavement of the passage mark the spot where once stood the Chapel

* The Temple Church, London. By George Worley. Second edition, with 32 illustrations. 1s. 6d. net. London: G. Bell and Sons, Ltd.

* A double-page drawing of the west front, as seen from W.N.W., and showing the round nave and its present high-pitched roof, the bell-turret, and west porch, by the late Herbert G. Gribble, was published in the Building News for July 3, 1874.

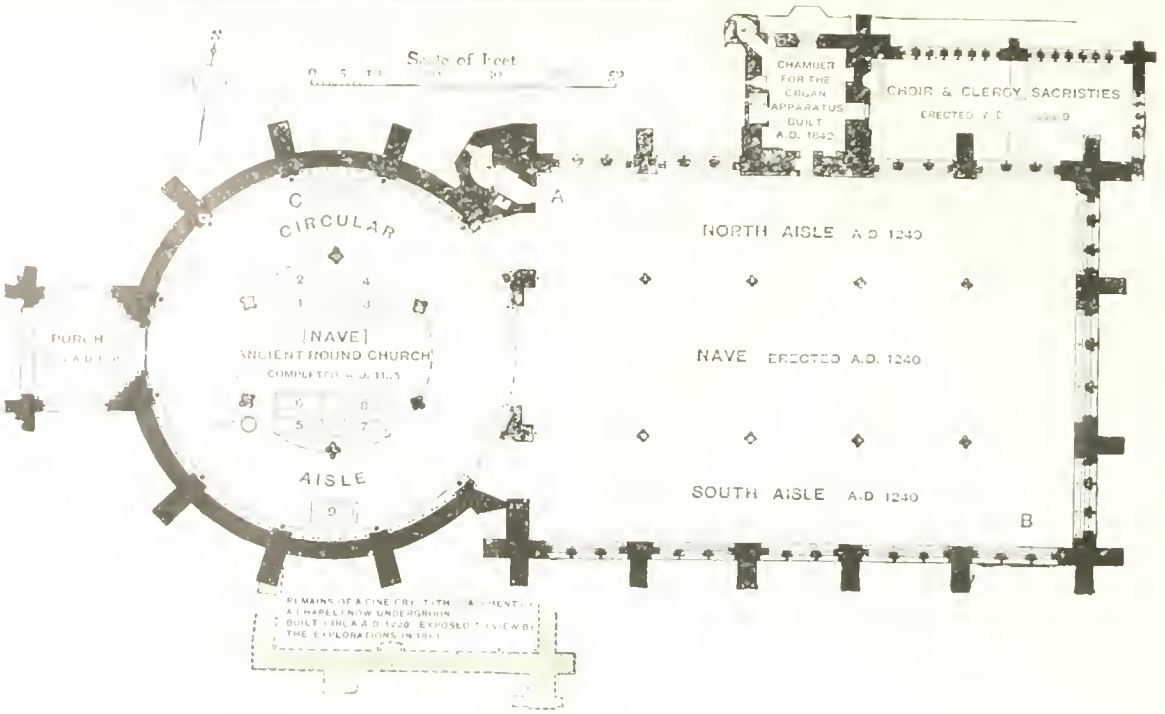


FIG 3.—PLAN OF THE TEMPLE CHURCH

destroyed in 1825. The letter A ... shows the staircase to the choir ... terminating in the bell turret. B, at the south-east angle of the choir, is the ... of the effigy of a Bishop (Fig 3), usually ... to Sylvester de Everden, Bishop of Carlisle 1247-1255), and Chancellor of England, who was killed by a fall from his horse and was buried in this church in 1255. ... coffin beneath this figure was opened in ... and found to contain a skeleton within a ... episcope, fragments of a crozier, and ... vestments. No episcopal ring was found, ... the coffin were the bones of an infant, ... placed there at a previous deserera... tomb when the ring was stolen ... ingeniously concealed behind the ... is indicated on the new church. Nos. 2 and 3 are unidentified Knights, and No. 4 is generally described as a Knight Crusader, on account of the crossed arms and legs, and the wearing of a plain chapelle de fer. In the southern group, No. 5 is, with doubtful authenticity, regarded as William Mareschel the Elder, Earl of Pembroke, d. 1219, and Nos. 5 and 7 as his sons, William Mareschel the Younger, and Gilbert Mareschel, also Earls of Pembroke. No. 8 is simply known as a Knight with crossed legs, and No. 9, in the south ambulatory, is recognised as an effigy of one of the De Ros family by the three water bougets (the family bearing) depicted on the shield.

In an appendix to the present edition the author refers to the important alterations made at the east end of the church by Pro... This eastern wall, which was repaired and more or less tampered with during the restoration of 1840-2, forms the subject of Fig. 5, from a photograph of Mr. A. F. Stone, the verger of the church.

The little handbook is well got up, and of a convenient size for the pocket, while the low price further recommends it.

ANOTHER TALL BUILDING FOR NEW YORK.

The New York correspondent of the Central News writes:—With the exception of the Eiffel Tower, in Paris, the new Woolworth building at the west side of Broadway, between Park-place and Barclay-street, New York, of which Mr. Cass Gilbert is the archi...

...OF THE BISHOP'S TEMPLE CHURCH

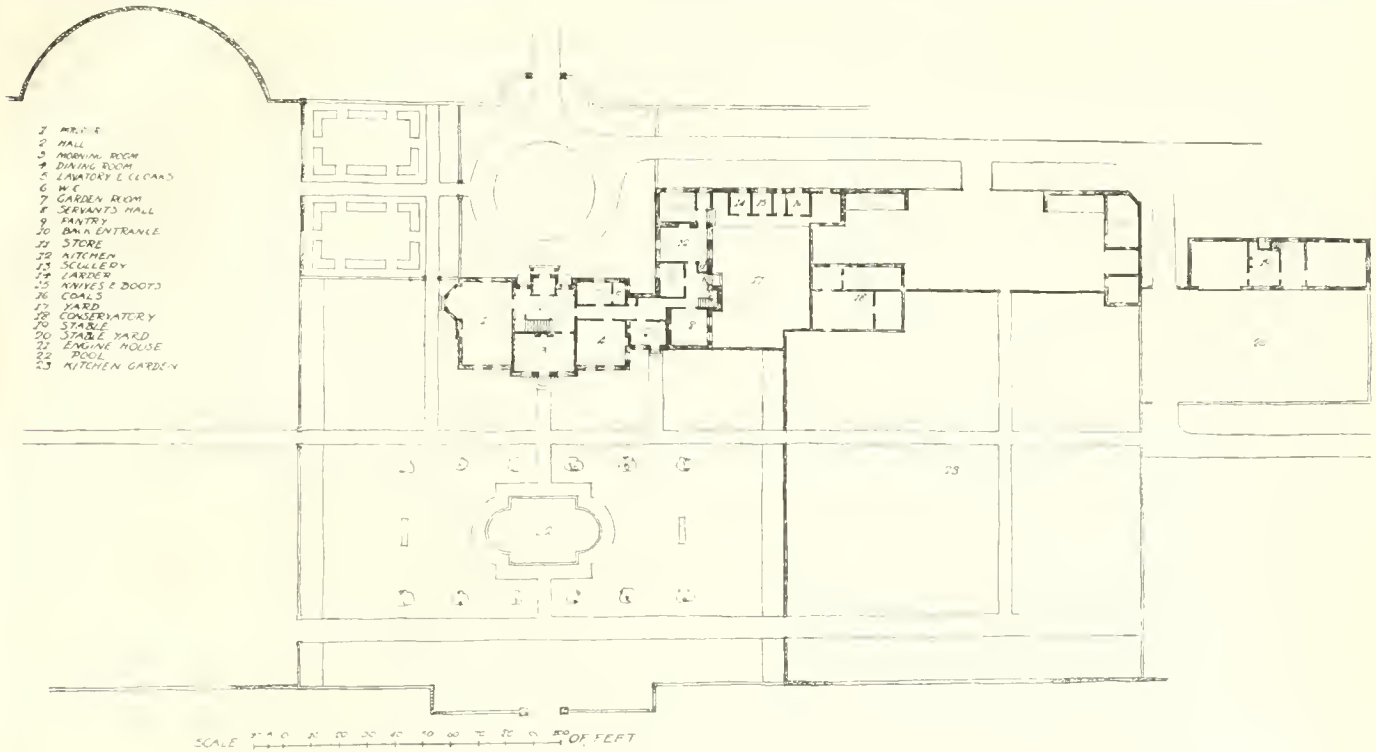
FIG. 5.—INNER EAST WALL OF THE TEMPLE CHURCH.

... of the nave ... Within the ... eight ... and a ninth ... of the nave ... were restored in ... Rood Loft in 1840. The ... often been ... and adopted by ... always ... Geoffrey de ... was ... Bernard ... III. and whose ... Becket ... referred ... the ... Prior Reginald Blomfield, A.R.A., who ... raised the altar by one step, and the five ... central panel of the screen to the extent of ... eighteen inches. The panels containing the Decalogue were shifted to the extremities. The heavy framework was removed from the sanctuary, to be replaced by a railing of Purbeck marble with slender shafts of Irish ... stone. While the work was in progress the original eastern wall was revealed, showing an arcade of three divisions recessed to the depth of ... and consisting of a round-headed ... with another of smaller size, on either side of it, with the latter having ... and pointed headings ... in one plane with the jambs.

... feet, will be the tallest structure in the world. It will be forty-five stories high.

According to the specifications of Mr. Cass Gilbert, the Woolworth building will measure 750ft. from the door of the cupola down to the street level, and will contain more than 20,000 tons of steel girders. The cost of the building will be more than 7,500,000 dollars. The main structure will be twenty-nine stories high, and will measure 152.1ft. on Broadway, 197.1ft. on Park-place, and 192.6ft. on Barclay-street. The main structure will be two stories higher on Park-place and Barclay-street than on Broadway.

One of the principal features of the building will be a tower, which will rise from the



"BURDOCKS," FAIRFORD, GLOUCESTERSHIRE.—Mr. E. GUY DAWBER, F.R.I.B.A., Architect.

main structure to a further height of 366ft. It will be twenty-six stories high, and 86ft. wide and 84ft. deep. On the top of this will be an electric light. On the fifty-fourth story will be the observatory. The first story on the street floor is designed for stores and an arcade, with openings on Broadway, Park-place, and Barclay-street. The banking floor and mezzanine story on the Park-place side will be occupied by the Irving National Exchange Bank, and in the basement will be a safe-deposit vault, a restaurant, and a barber's shop equipped with a swimming-tank. The machinery, cold storage, refrigerating plant, power plant, electric generators, filtration plant, and other mechanical equipment will be placed in the sub-basement.

There will be four self-containing stairways, which will run from the top of the tower to the streets. These will be separated from the corridors and offices by fireproof walls and wire-glass doors. They are expected to make the stairs not only fireproof, but smokeproof as well. There will also be an outside stairway, which will be built in the court, accessible from the corridors on each wing. The elevators will also be inclosed with iron and wire-glass doors. There are to be thirty-four lifts for passenger service, twenty-four of which will be located near the Broadway entrance, arranged in four groups of six each. Sixteen elevators will be of the high-speed type, and six of these will run to the thirtieth floor, six to the forty-first, and four to the fifty-first floor. The cupola will be reached by way of a spiral stairway.

The total cubical contents of the Woolworth building, measured from the top of the caissons, exceeds 13,200,000cu.ft. The caissons extend down to, and are embedded upon, the solid rock from 110ft. to 120ft. below the level of the sidewalk.

The exterior of the building will be of stone and terracotta, and it is stated that the design will be a combination of the Italian, French, and modern Renaissance throughout the main part, with Gothic steeples at the roof of the main structure.

"BURDOCKS," FAIRFORD, GLOS.

This house, which is nearing completion, is situated about a mile from Fairford, in Gloucestershire, and is built with rubble stone and Bath stone dressings and cornice, etc., the roof being covered with stone slates. The entrance lodge and stables, which were completed some short time ago, are built of similar materials. The contractors for these and for the shell of the house are Messrs. Yells Bros., of Fairford. Mr. E. Guy Dawber, F.R.I.B.A., is the architect. The drawing shown is now on view at the Royal Academy Exhibition.

FITTING HINGES.

By W. J. HORNER.

The three types of hinges shown in Fig. 1 are those in common use. They vary in size and details, but not very much in their proportions. The shape of the butt-hinge adapts it for attachment to narrow edges of wood, as those of doors and box-covers. The length of its pivot or knuckle is greater than the extension of its flaps. In the back-flap hinge

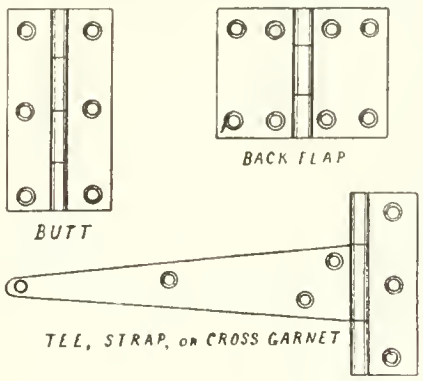


FIG. 1.

these proportions are reversed, the length of the knuckle being less than the measurement across the flaps. This type of hinge is used on broad surfaces, and chiefly for a rougher class of work than butts. The tee-hinge is used similarly, its extremely long extension serving as a brace and stiffener to a broad surface of comparatively thin wood.

The butt-hinge is fitted as in Fig. 2, generally sunk into the wood, but not necessarily so. As far as the hinging of the parts is concerned the effect is the same if it is screwed on the outer surface, as in Fig. 3, instead of in the joint, as in Fig. 2; but a back-flap hinge is more suitably proportioned for such a position. When a butt-hinge is used, as in Fig. 2, long screws can be inserted, and there is no risk of their tearing out or of the wood breaking away. If it is attached as in Fig. 3, the screws are rather close to the edge, and the strain on the hinge tends to split the wood away. For this reason

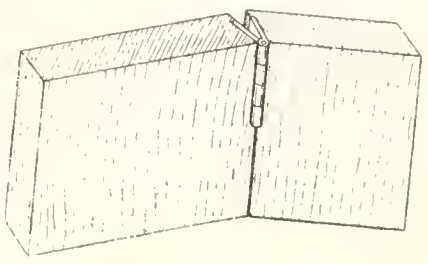


FIG. 2.

a back-flap, or a tee-hinge, as in Fig. 4, is preferred for attachment to the outer surface. The former is occasionally sunk flush with the surface, but the latter never is, being simply adjusted in the required position and screwed on. The butt-hinge, used as in Fig. 2, must be sunk in order to make a close joint between the hinged parts; but when the hinge is placed as in Figs. 3 and 4, its thickness does not interfere with the closeness of the edge joint, but only with the closeness of the broad surfaces, if they are folded back against each other.

Generally it is easier and quicker to attach

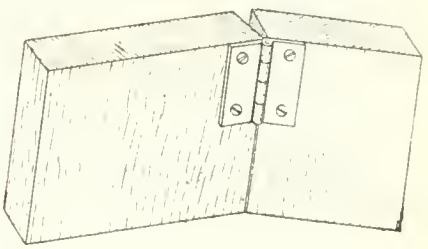


FIG. 3.

a hinge as in Fig. 3 than in Fig. 2. The parts to be hinged simply have to be placed in position, with their edges in contact, and the hinges screwed on, care being taken to set their knuckles central over the joint. In many cases the parts can be laid flat on a bench while this is being done. If the hinges

are to be sunk flush with the surface, they are laid in position, lines marked round them, and the recesses chiselled out to correspond with the thickness of the flaps. Then the hinges are inserted and screwed.

In attaching butt hinges, as in Fig. 2, the

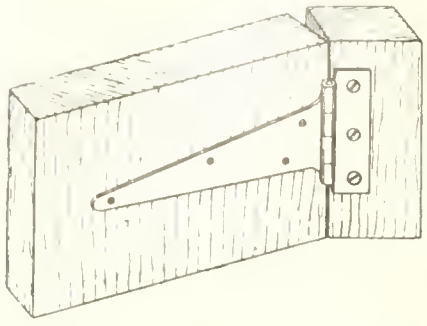


Fig. 4.

procedure is not quite so simple, for the parts can seldom be placed as conveniently. The hinges must be fitted to one of the parts first, and this held in position for attachment to the other. They must be sunk to exactly the right depth or the joint will either be open or will bind and not close properly. This latter defect is shown in Fig. 5. The hinge there is sunk too deeply, and the edges of the wood at the knuckle bind and prevent the farther edges from coming into contact at all. The joint might be closed completely by the use of force, but it would spring open

Fig. 5.

again as soon as released. The remedy is to take the hinge off and replace it with card board packing beneath, or plane the wood down to reduce the depth of the hinge recesses.

Another defect is shown in Fig. 6. The hinge there is sunk correctly, but is out of centre. In the view showing the hinge open the centre-line of the knuckle is to one side of the joint. The consequence is that the

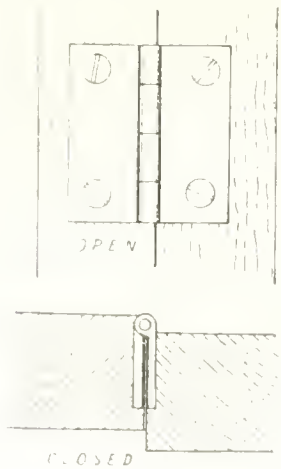


Fig. 6.

[illegible] the parts are not flush with each other when the hinge is closed.

Figs. 7 and 8 show butt hinges attached correctly. In Fig. 7 the hinge is the full width of the wood; in Fig. 8 it is less, and the recesses are, consequently, not cut right [illegible]. Fig. 8 is the neatest and most [illegible] method; but when the wood is thin [illegible] have to correspond with [illegible] as in Fig. 7. In other cases, where [illegible] is hinged to a thicker piece, a combination of the methods is followed, one flap [illegible] hinge extending the full thickness of the wood, and the other having wood extending beyond it.

The flaps of a hinge have to be sunk

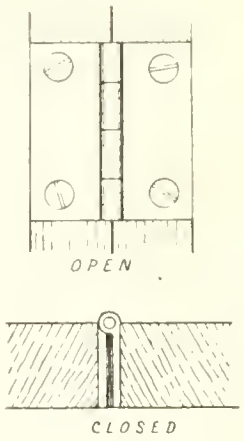


Fig. 7.

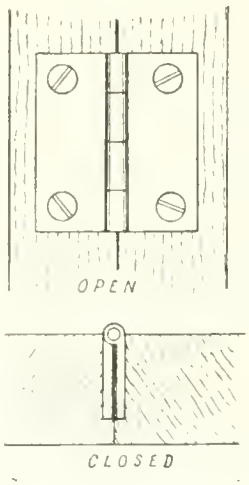


Fig. 8.

slightly more than their thickness, for the wood to make a close joint when closed. This is because the flaps are always made thinner than half the diameter of the knuckle. When a hinge is closed, with its flaps parallel, there is a space between them about equal to the

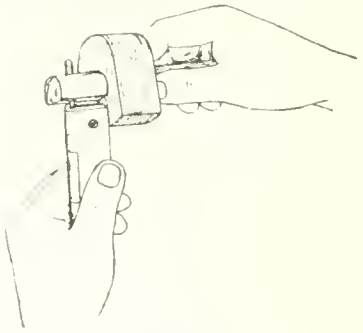


Fig. 9.

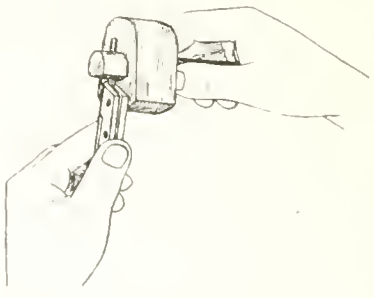


Fig. 10.

thickness of another flap. This space must exist when the hinge is fitted; but the wood should form a close joint, as shown in Figs. 7 and 8. The correct depth for the recesses is marked on the wood with a gauge, which is set, as in Fig. 9, to the centre of the knuckle. When this has been gauged on the wood the measurement in the other direction is taken, as in Fig. 10, from the outer edges of the flaps to the centre of the knuckle.

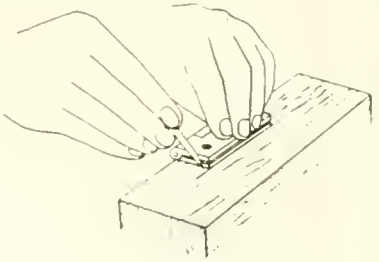


Fig. 11.

The length of the hinge is marked, as in Fig. 11, by laying it in position on the wood. When hinges are simply screwed on the surface, without being let in, no gauging or marking is necessary, unless, perhaps, measurement with a rule, to get them at uniform distances. They are placed in position, screw-holes bored with a bradawl, and the screws inserted.

Box-covers are hinged, as in Fig. 12, one flap of the hinge being on a narrow edge and

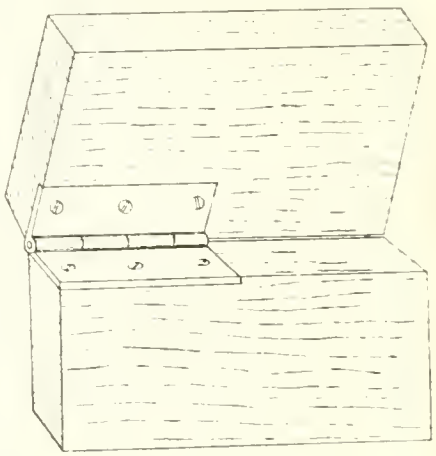


Fig. 12.

the other on a broad surface. In this case also there is the alternative of putting the hinges on the outside, instead of in the joint; but the latter is the neatest and the usual way. The hinges are put on the lid first, as in Fig. 13, and this is held in position, first for marking the lengths of the recesses on the box, and, finally, for screwing the hinges. It is better to complete the fitting of the hinges to the cover before marking their position on the body of the box, though the lines of

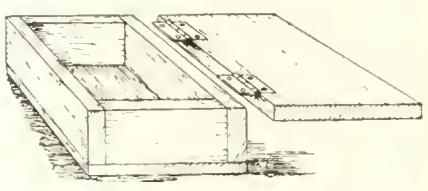


Fig. 13

thickness and width may be gauged on both simultaneously.

Doors are treated in the same way, the hinges being put on the door first, and then it is supported in position against the post for marking the height of the hinges, and, finally, for screwing them. The weight of the door is supported during these processes by packing it up with thin bits of wood or wedges beneath. The door should be turned back as far as possible, so that the hinges are wide open, as in the upper views in Figs. 7 and 8. There is then no difficulty in attaching it properly. In house doors an open joint is often allowed, so that the door will open reasonably wide, without binding against the moulding of the doorway. The open joint is not made by screwing the hinges on the surface, but by letting their knuckles stand out a little farther when the door is closed.

CURRENTE CALAMO.

The knighthood conferred on Mr. Ernest George, A.R.A., will be hailed with pleasure by all his friends, who include every member of the architectural profession. Himself the most modest and retiring of men, honours have come late in life upon the ex-President of the Royal Institute of British Architects, and all will heartily congratulate Sir Ernest and Lady George, and wish for them many years in which to enjoy the well-deserved honour. Among other recipients of Coronation honours the name will be noted of Mr. Frank Short, R.A., President of the Royal Society of Painter-Etchers, while art also gains by the inclusion of Mr. Frederick Eaton, the Secretary to the Royal Academy; Mr. Claude Phillips, the art critic, and till recently the Keeper of the Wallace Museum; and Mr. Arthur J. Evans, the authority on Mycenean art, the Institute Royal Gold Medallist for 1910—each of whom is to be knighted. Sir Henry Tanner, I.S.O., architect of the new General Post Office, and Mr. G. Waller Wilcocks, chief engineering inspector to the Local Government Board, receive a Commandership of the Bath.

Exactly what we anticipated last week has happened with regard to the St. Paul's Bridge scheme. The defeat in the House of Commons on Wednesday week of the City Corporation Bill was followed the next day by the moving by Mr. Morrell of a modified instruction to the Committee. It was agreed to in the following terms:—"That it be an instruction to the Committee on the Corporation of London (Bridges) Bill not to agree to any scheme for the construction of the proposed new bridge, including the approaches thereto, until they are satisfied that the scheme, both in respect of architectural design and convenience of traffic, is the one best adapted to the public needs, and best suited to the character of the site." Sir Frederick Banbury, who on the Wednesday had supported the Corporation Bill, seconded the motion of Mr. Morrell, and Mr. A. C. Morton said that he was authorised to state that the Corporation would undertake to call in an independent architect of repute to advise.

That is quite proper, as far as it goes. But, as we hinted last week, we have no guarantee that the "advice" will be worth much, or that it will be taken, if it is. It is therefore still necessary to be very watchful. The City authorities have been beaten in a square fight, and we trust they will accept the situation, and give us a bridge of which London may be proud. But if an unsatisfactory compromise is attempted, under cover of advice sought simply to make Parliament believe the right thing is being done, while it is not, we shall be as badly off as ever. We had best keep this well in mind; otherwise the public presently may be quietly persuaded into false security, and indifference which it may be difficult to arouse again into effective protest, especially if the City authorities play a waiting game subtly, and seize an opportunity of rushing an "amended" Bill through when its opponents are absent, or their attention is otherwise engaged.

The *Times*, which all along has taken vigorously its proper position at the head of the movement organised against the City scheme, quoting our remarks last week, says:—

"Should the apprehension expressed by the BUILDING NEWS prove well-founded, it will behove all who have taken an active part in the opposition to the City's proposals to see that their efforts are not relaxed. Otherwise the advantage just gained may be lost, and all the labour expended in attaining the result of Wednesday night in Parliament thrown away."

There is not much doubt about that! What we want first settled is the certainty that the two main essentials are secured—the maximum of public convenience, and a clear approach to St. Paul's.

Given these as a basis, we incline to favour the suggestion of Messrs. Leeming and Leeming in their letter to the *Morning Leader*:—

"Now that the subject of an amended scheme is so auspiciously launched, may we venture to urge upon the authorities that the design of the new bridge be put to open competition? Under the ægis of the Royal Institute of British Architects, the City Corporation would insure a good and satisfactory result. Perhaps suggestions from your readers and the public generally would also conduce to such result; and, as a beginning, we suggest that in the particulars supplied to competitors, views of all the principal bridges of the world would give a stimulus of emulation to competitors, and the result be a design that would rank as one of the finest monumental assets of the City, and one worthy of our grand cathedral."

The Bridge House Estates Committee of the City Corporation held a special meeting on Monday to consider the situation created by the recommittal of the St. Paul's Bridge Bill. It was decided to refer the matter to a special sub-committee, who will deal with it immediately. Architectural evidence will be called before the Parliamentary Committee, and the sub-committee will endeavour, in the words of the House of Commons instruction, to satisfy the Parliamentary Committee that the Corporation scheme, both in respect of architectural design and convenience of traffic, is the one best adapted to the public needs and best suited to the character of the site. The Corporation, said Mr. Domoney (the chairman of the Bridge House Estates Committee) on Monday, is anxious to get the matter settled as soon as possible. So are we all, but not on the lines the Bridge House Estates Committee seem still resolved to pursue.

Replying to a deputation of Bristol property-owners on Saturday, Mr. Birrell said they might take it that there was little chance of clause 51 of the National Insurance Bill—which provides against a landlord proceeding for the recovery of rent during the sickness of an occupier—passing in its present form, though he could not say the exact course that would be taken by the Government. We suppose not. But Mr. Lloyd George himself by this time has probably discovered that the clause as it stands would work more harm to a good many small property-owners than good to any—except malingerers.

We are glad to hear that the Australian Commonwealth is inclined to take the island site in the Strand, if it can come to terms with the L.C.C., and will erect a noble building thereon in which to house all the Agents-General and other chief representatives of the different States, including the present offices of the State of Victoria. The proposal is being made by Mr. E. L. Batchelor, the Foreign Minister of the Commonwealth. We hope it will be more sympathetically met by the L.C.C. than was a similar offer by Sir William Lyne, who had to withdraw it because the amount demanded was excessive. Since the improvement, the Strand has become an impossible luxury to the ordinary trader as a business locality, and we may as well "Imperialise" it in the best sense by gathering together thereon the palatial offices of our junior partners in the Empire.

We confess there is some reason for the protest of a lady correspondent of the *Manchester Guardian*, who writes to that journal as follows:—

"To me it is a kind of nightmare to look upon rows and rows of new houses with sloping roofs that make the top-floor bedrooms almost uninhabitable, with fancy chimney-stacks outside and arched fireplaces within, of which the arch in some cases could be removed without having the faintest effect upon the construction, with beams out of all proportion to the weight they are supposed to carry, with turrets and gables that mean nothing, with oak doors studded with nails as though to keep out an invading force, with frieze-rails and picture-rails and cornices that rob the walls of all repose, and make dust-traps for the torment of the housewife. Of course, there are exceptions, notably the charming white house which has deservedly won the first prize in Class I.; but if our architects in the mass wish to imitate an older style, why do they hark back to that most uncomfortable and cobwebby period of domestic architecture, the Tudor? Why not copy the best features of the comfortable, stately Georgian style, of which a gorgeous example, Gidea Hall, looks down upon this mushroom growth which has sprung up beneath its walls since New Year's Day, 1911? In one instance, this has been done, and there is one beautiful little row of Georgian houses, good to look upon and good to live in and to keep clean, without gables or turrets or overhanging roofs, with right-angled, well-proportioned rooms and beamless ceilings. It seems a pity that, with this exception, Gidea Park Suburb, for all its undoubted advantages, should not have learnt more from the old doomed house of other days that stands there, overlooking it like a beautiful, pathetic ghost."

We have more than once lately regretted the disposition to fussiness which mars other so-called "garden cities," as well as that referred to, and we wonder sometimes with a shudder what some of those dwellings will look like, say, in twenty years' time!

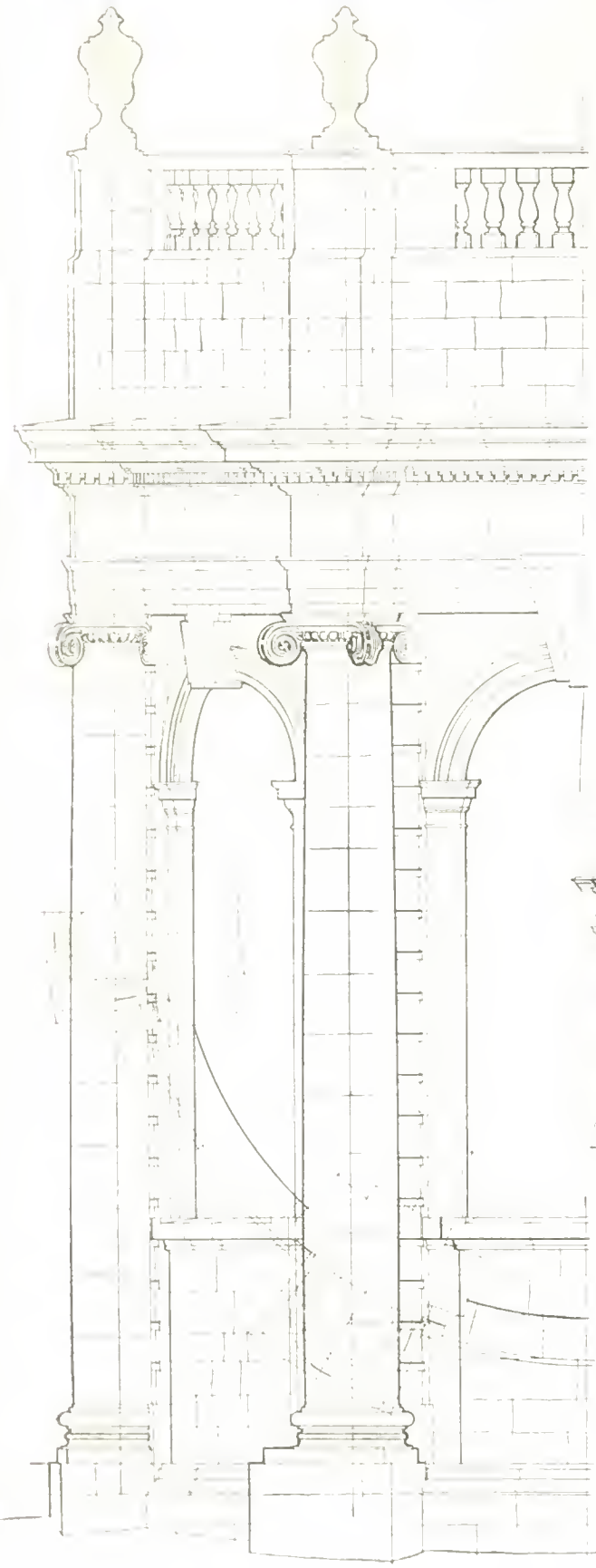
Reinforced-plaster construction in China is doing good to the British needle trade, according to the British Acting Consul at Chungking. In 1910 no less than 334,700,000 needles were imported there—an increase of 31,963,000. It seems John Chinaman likes a nice plaster decoration on his roof-ridge, usually in the form of a design supposed to represent Happiness. So do the crows; and, to keep them off, numbers of needles are stuck in the plaster while wet, with the points outwards. Some of our own enterprising concrete-system geniuses might, perhaps, advantageously study the idiosyncrasies of the Chinese, now the boom is subsiding here.

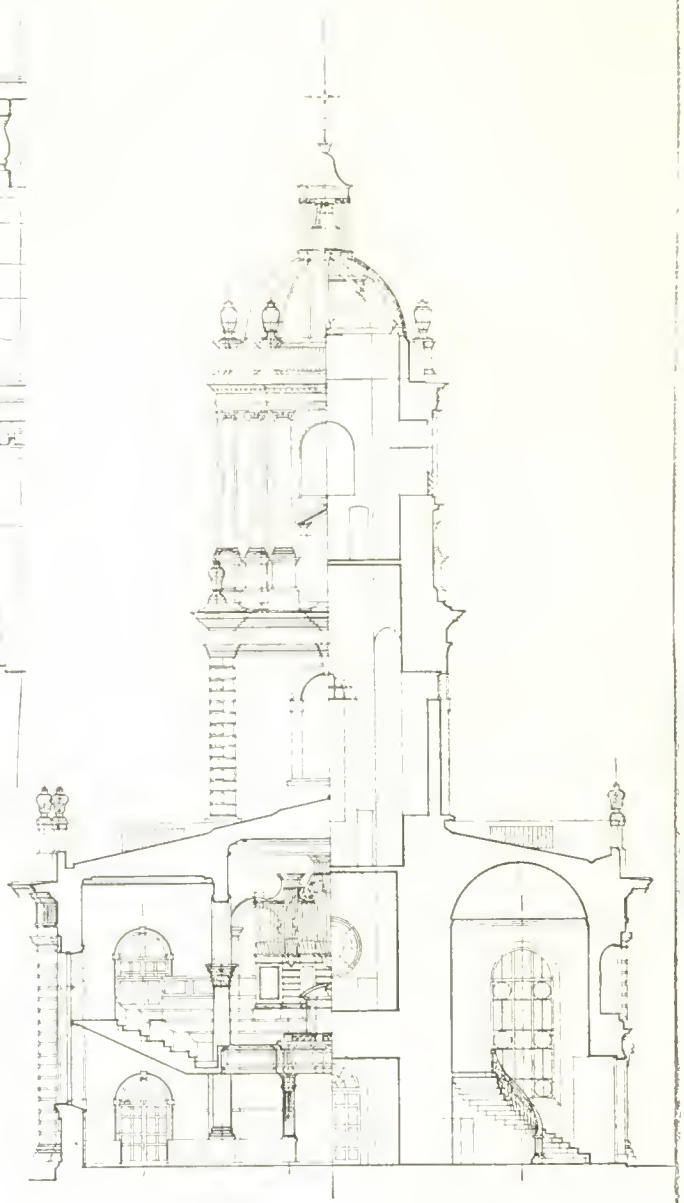
The rural district council of Cranbrook have appointed Mr. E. R. Lewis, of Horsham, as surveyor at £100 per annum, and Mr. J. H. Bayley, of Kingsbridge, as sanitary inspector at £120 per year.

A new Free Church is to be built in the grounds of the present Free Church in Connaught-avenue, Frinton, and is to seat about 600, including a gallery at the end, the present building being used as a school. The front will face Harold-road. There will be a tower, with clock at the south-west corner. The elevations will be of red brick, with stone dressings, and the roof will be covered with Loughborough tiles. The foundation-stone will be laid on August 15. Mr. W. Hayne, J.P., is the architect.

The plans submitted in competition by Messrs. Cooper and Slater, of Blackburn, and selected for the first premium, are now under consideration of the sanitary committee of the Manchester Corporation for the laying-out of a building estate of 103 acres of high-lying farmland at Blackley, on the north side of the city, and for the erection of houses for the working-classes, which, when carried out in its entirety, will involve an outlay well over £600,000. It is proposed to build 2,633 houses on the estate, and an area of 6¼ acres on the northern portion of the site is laid out as a public garden.

NEW CHURCH OF ST PAUL SHEFFIELD.





SECTION A SECTION B

The Church of St Paul Sheffield is a building of stone in the Renaissance style and was built by subscription in 1720-1, the tower being added later
The Register dates from the year 1748
The Interior has several Mural Tablets and a Bust by the famous sculptor "Chantrey" The gallery is approached by spiral staircases of wood from the two porches There are sittings for 1400 people
The Nave columns & pilasters to aisle are Corinthian in plan the columns taper from East to West
The Apse windows are filled with stained glass of a geometrical pattern The lead on the Nave roof was relaid in March 1842 & the roof over the aisles bears a date 1784 also the names of two Church Wardens
The Tower is lead covered & the Bell cot or "Turret" (including the columns) is of cast iron
The Bell is dated 1777 & bears the inscription "Presented by Francis Hurt Esq"

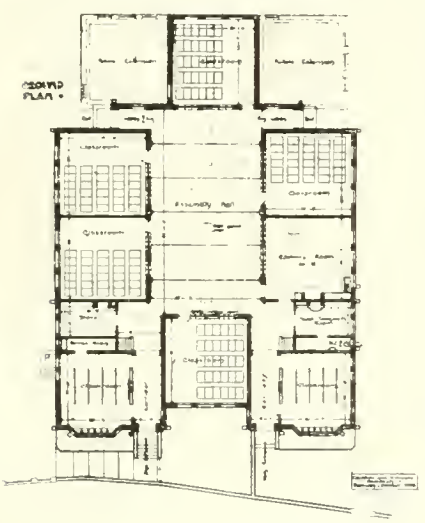
Our Illustrations.

NEW PREMISES FOR THE PLAYGOERS' CLUB, CRANBOURN-STREET, W.C.

(For description and plans, see page 870.)

NEW SCHOOLS AT DARTON, FOR THE WEST RIDING COUNTY COUNCIL.

This new Council school has been lately erected by the Education Committee of the West Riding County Council at Darton from plans by Messrs. Crawshaw and Wilkinson, of Barnsley (selected in a local competition), and occupies a corner site at the junction of Darton and Sackup Lanes, the main front having a south-west aspect. The plan is on the central-hall system, having five class-rooms and cookery-room (which can be used as a classroom) grouped round and opening into the hall. Provision has been made for future extension, which can be carried out without affecting the present arrangements. The present accommodation is for 300 scholars, with 18 more at a cookery class; but provision is made in cloakrooms, hall, lavatories, and latrines for a further 120 scholars. The building is carried out in local pressed brickwork with stone dressings. The



main entrances are from Darton-lane, and secondary exits are provided at the rear into playgrounds. The cloakrooms open out from the main corridors. The hall, 60ft. 0in. by 32ft. 0in., is a lofty room, with an open roof, having dormer windows in both sides and ends insuring light and ventilation. The class-rooms have flat ceilings, with all windows carried well up. Reinforced concrete and asphalt flat roofs occur over the cloakrooms and corridors in front. These are intended for open-air teaching in summer, and are well protected by deep guard and parapet walls. All dadoes in corridors, cloakrooms, hall, and classrooms are of salt-glazed brickwork. The lower portion of the screen openings between class-rooms and hall is fitted with store cupboards with sliding doors on classroom side, surmounted by polished mahogany dustproof museum cases and bookcases. All the rooms are fitted with picture-rails, and the corridors have tiled floors. The cookery-room is fitted with a large range, with high and low ovens for cooking and baking, a gas cooking-stove, also sink with hot and cold water, and store cupboards. The building is lighted by incandescent gas, heated by low-pressure hot-water system with radiators, and ventilated by means of automatic ridge exhaust ventilators. Regulating fresh-air inlets are provided to all radiators. The playgrounds are square, with sunny aspect. Playsheds are provided at the rear, and are each supplied with a drinking-fountain. The present cost amounted to £4,924 18s. 1d. It is estimated that the future two classrooms required to bring the school to its full complement will cost £500, thus making an ultimate cost of £5,424 18s. 1d., for 420 scholars, giving an average cost of £11 6s. per head. The site cost £624 7s. 4d. The sanitary goods are by the Leeds Fireclay Co., Leeds.

NATIONAL MEDAL DRAWINGS OF ST. PAUL'S CHURCH, SHEFFIELD.

The church of St. Paul, Sheffield, is situated on a site adjoining the town-hall, and it is surrounded by a disused but neatly-kept graveyard. Although diminutive in comparison with the town-hall tower, it is not less noble or dignified, and forms a fitting finish to the vista from "the Moor," one of the main thoroughfares. The architect is unknown, but various suggestions have been put forth as to its designer. "Hunter," in "Hallamshire," assigns the design to Mr. Platts, of Rotherham; but it is also suggested—and I think more likely—that Thomas Archer (d. 1743), a pupil of Vanbrugh, was the designer. It is interesting to compare St. Paul's with the church of St. Philip, at Birmingham, designed in 1710 by Archer, and to note the similarity, or, rather, how St. Paul's, built about ten years later, has evidently been influenced by St. Philips's, although it does not attain to such richness of detail. St. Paul's was built in stone in the year 1720-1721; the dome was not added until 1769, and the building remained uncompleted until 1772. The stone, now quite black in consequence of the local atmosphere, is, excepting a few of the ornamental details, in a splendid state of preservation. The south side is overgrown with ivy, which has not been suggested on the drawings, for the sake of clear architectural illustrations. In the actual building, the dome and immediate stonework below are twisted from the lower portions of the tower. This twisting also has not been shown on the drawings, which, besides adding to the complexity, would not add to the beauty of the elevations. The nave columns help to support a gallery which is made of oak. The gallery runs round the building, as shown by the dotted lines on the plan. The approaches to this gallery are by circular wooden staircases from the two entrance porches. The spiral staircase of the tower is also connected with the N.W. porch, and ends at the third floor. Access to the top balustrade surrounding the dome is obtained by means of an ordinary ladder resting on an apparently rotten floor. The note on the drawings concerning the nave columns tapering from east to west is supplemented below, as it may appear a little vague, not showing itself very readily on such a small reproduction of the plan. Taking the centre of the columns, the engaged ones by the apse are wider apart than the adjoining ones, and each successive pair becomes closer together in regular sequence towards the west. This, I should imagine, is due to bad setting out, as the actual difference in width of centres is 11in., and the deviation is not discernible until actually measured. These columns, now painted, have Corinthian capitals supporting the arches, which in turn carry the wall overhead, and the nave and aisle roof trusses. These oak roof trusses are of the king-post type, being complete in the centre, with half-trusses over the aisles. The roofs are lead-covered, and fall to the sides of the church. The roof of the apse is spherical. The apse interior is enriched by four fluted Corinthian pilasters and the entablature. The cornice has modillions, and is full of richness, following closely the Roman Classic type. The apse ceiling has four enriched modelled plaster ribs meeting in a central band, which is one of the units used in the decoration of the main ceiling over the nave. The ceiling over the galleries in the aisles is flat and plain, having only a concave cornice moulding running round, and pierced paterae piereed to the roof for ventilation. The font is of stone, and has a wooden cover. The oak pulpit of the pedestal type, approached by a flight of straight steps. Both pieces of furniture are designed in keeping with the style of the church. All the window openings, except the east, have solid wood easement frames, and are plain glazed. The east windows are filled with stained and painted glass of a geometrical character. The vestry and porches lack decoration; but in the latter the staircases are worth noting, having a fine specimen of a wreathed hand-rail. The middle story of the tower is not square, as might at first be supposed, but is rectangular, measuring 27ft. 6in. by 26ft. The stage above is octagonal, and set out with a true square, being carried at the angles by squinch arches. Outside, on pedestal bases, are sixteen Ionic pilasters with encircling entablature. Above this appear ornamental balustrade and vases. There is a clock on the N. and S. faces of the tower. The inside of the tower is brick lined throughout, and the arches inside to the window and louvred openings are, in some cases, 27in. deep, being built in three rings of 1½, 1, and ½ bricks, from the soffit outwards. The dome is lead-covered, and is built up of oak trusses secured together by iron straps. The bell-cot is of cast iron, and is bolted down to the timbers of the dome below. J. LOMBARDINI NORTHAM.

"BURDOCKS," FAIRFORD, GLOS.

(See description and plan on page 873.)

COMPETITIONS.

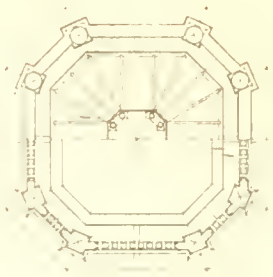
BATTLE OF LARGS MEMORIAL.—Invitations are now being extended to architects to submit sketches of designs for the proposed memorial of the Battle of Largs of 1263. The maximum sum to be expended on the erection is, however, £300. The site has not yet been definitely fixed, but will be on the shore. The selection of the best design is to be left to the subscribers.

BRADFORD.—The award of Mr. Keith D. Young, the assessor in the Royal Infirmary Competition, Bradford, for new buildings in Duckworth-lane, has been confirmed by the authorities, with the result that the scheme submitted by Mr. Wm. A. Pite, F.R.I.B.A., of Jermyn-street, S.W., has been placed first. The second premium is awarded to Messrs. F. E. Halford and F. Cutler, Southampton-street, W.C., and the third place to Messrs. Arthur Marshall, A.R.I.B.A., P. D. Prior, and W. Auger Smith, of Nottingham. There were forty-four designs submitted, as we announced a fortnight ago.

MANCHESTER.—The City of Manchester proposed library and art gallery, to be built on the Piccadilly site, has advanced another stage, and the preliminary competition of 223 designs has been settled. The referee, Mr. Reginald Blomfield, A.R.A., in conjunction with the city architect, has selected ten designs prepared by the following competitors to take part in the final competition (the names being arranged in alphabetical order). The council has confirmed this decision:—Messrs. H. Percy Adams and Charles H. Holden, 28, Woburn-place, Russell-square, London, W.C.; Mr. Robert Atkinson, 2, South-square, Gray's Inn, London, W.C.; Messrs. Bradshaw and Gass, and Mr. Arthur J. Hope, 19, Silverwell-street, Bolton; Messrs. Cooper and Slater, 13, Richmond-terrace, Blackburn; Messrs. Crouch, Butler, and Savage, 39, Newhall-street, Birmingham; Mr. R. Fielding Farrar, 10, Park-row, Leeds; Messrs. A. Graham Henderson and John R. Hacking, 144, St. Vincent-street, Glasgow; Mr. Frank W. Simon, May Buildings, North John-street, Liverpool; Messrs. Warwick and Hall, 13, South-square, Gray's Inn, London, W.C.; Messrs. Thomas Worthington and Son, 46, Brown-street, Manchester.

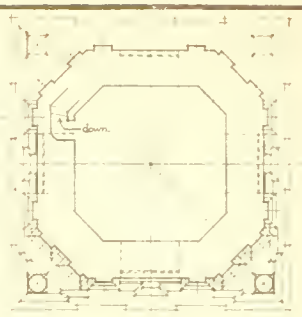
A communication has been received by the city council of Peterborough from the Local Government Board, sanctioning the loan of £2,120 for the Crawthorne-road and other street improvements.

The Glasgow Parish Council, as Poor Law authority, have provisionally adopted plans for a colony for epileptics. The buildings will be erected at Muckcroft, on land rented by the council from the Glasgow District Lunacy Board. The plans allow for the erection of four villa blocks, to accommodate about 200 patients, with provision for the erection at a later stage of two additional villa blocks. The total cost is put at £43,520, or £176 per bed for four blocks, with administration buildings for six blocks, or £145 per bed when the whole of the six blocks are erected.

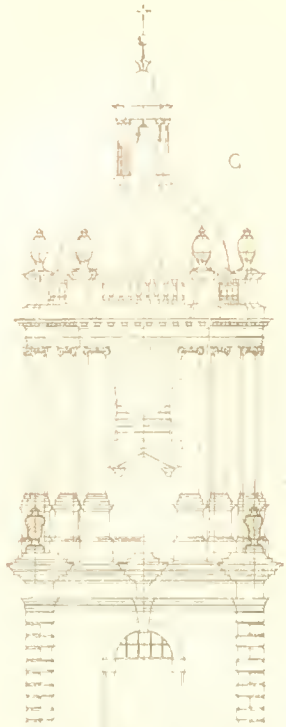


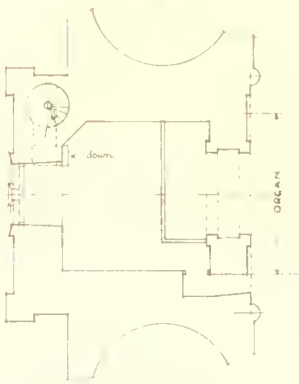
HALF PLAN THRO BELL COT AT G.

HALF PLAN THRO' BALUSTRADE AT E.

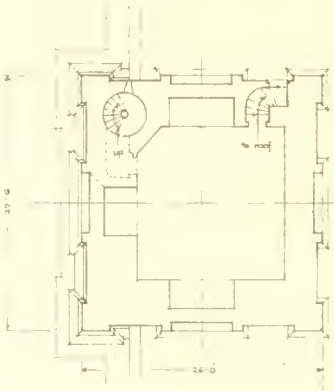


THIRD FLOOR IN TOWER AT E.



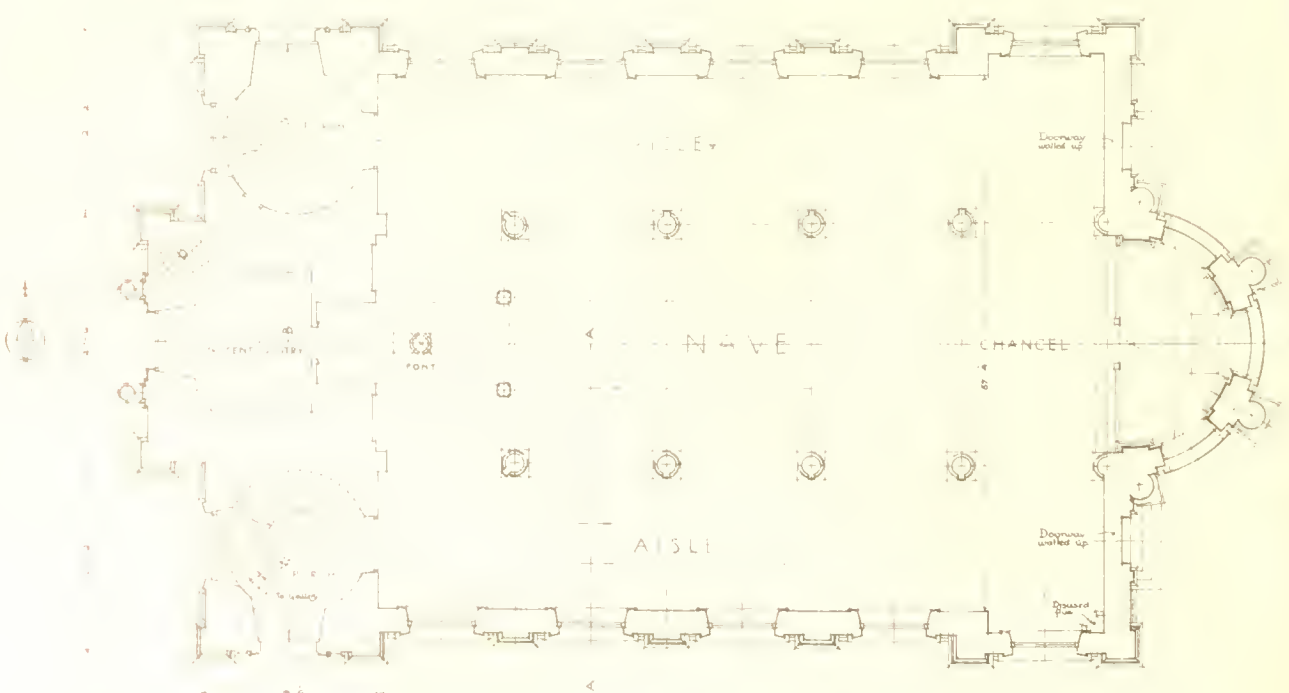


FIRST FLOOR IN TOWER AT C.



SECOND FLOOR IN TOWER AT D.

ELEVATION TO SOUTH.



MEASURED DRAWINGS OF ST. PAUL'S CHURCH SHEFFIELD.
WEST DOORWAY AND PORTION OF TOWER.

NATIONAL MEDAL DRAWINGS BY J. LOMBARDINI NORTHAM

ELEVATION.

SECTION.
(ON CENTRE LINE.)

PLAN.

"PHOTO-TINT" by James Akerman 6 Queen Square London W.C.

BURDOCKS
FAIRFORD · GLOS'

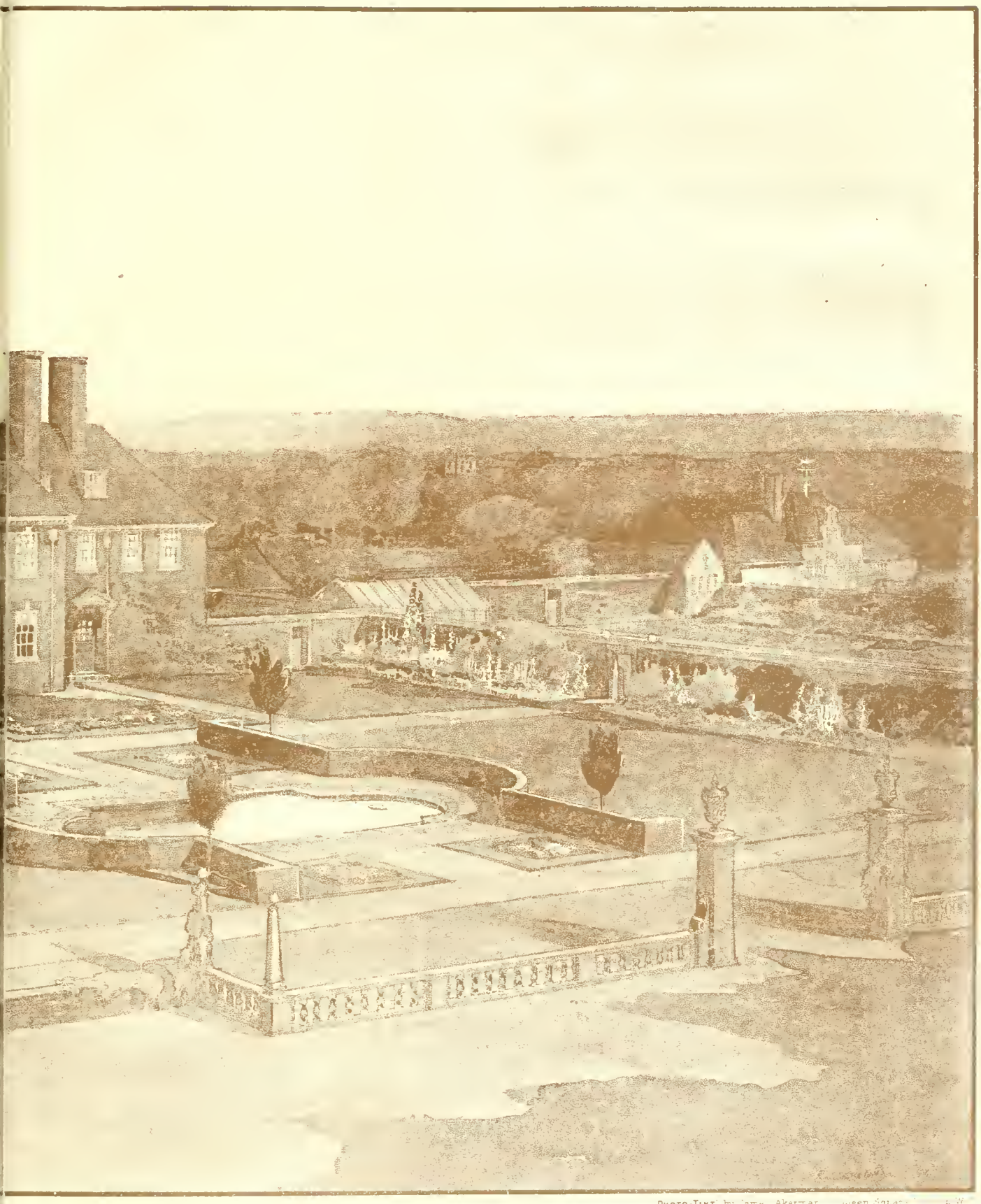
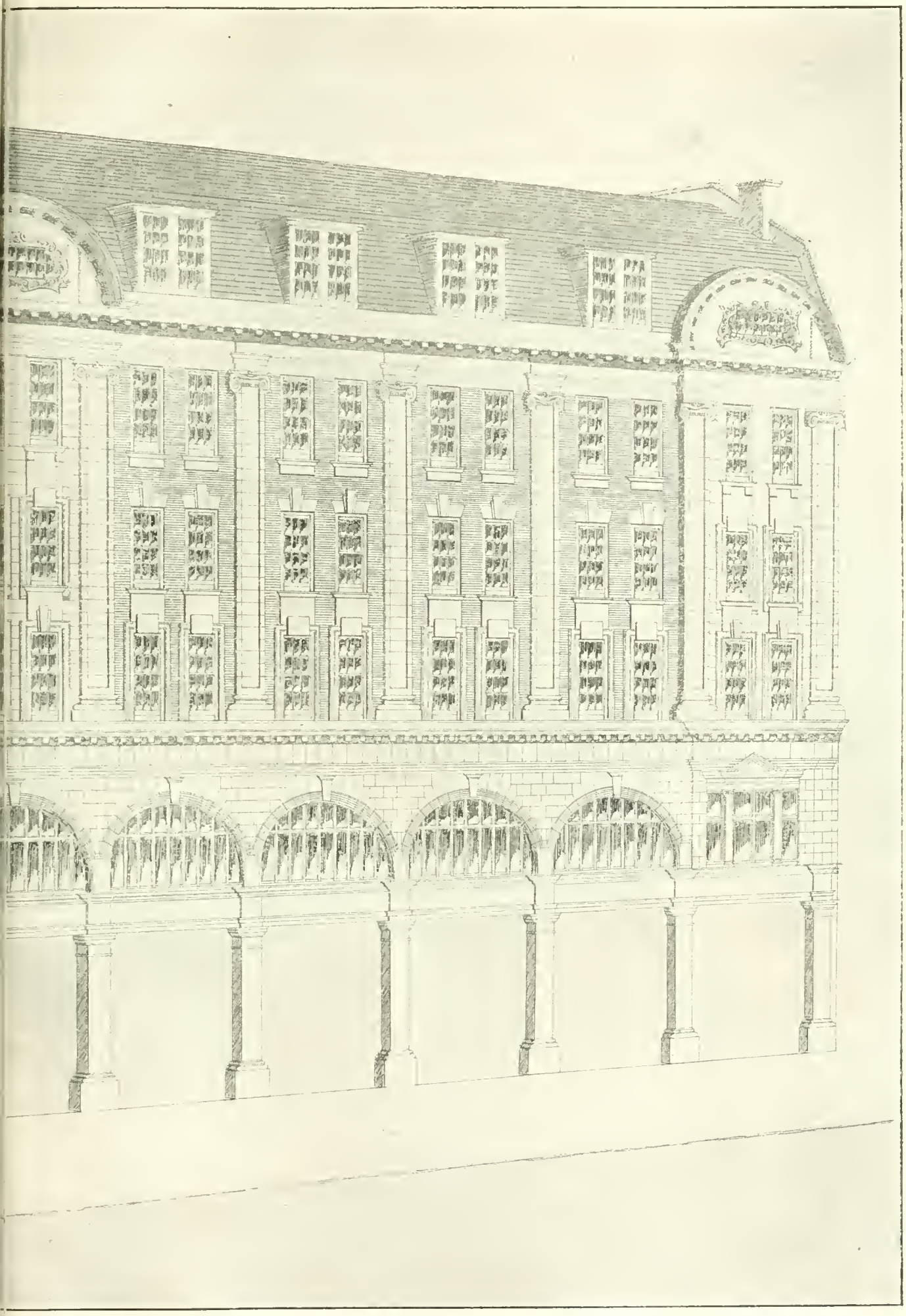


PHOTO-TINT by James Akerman, Queen Square, London, W.

NEW SCHOOLS AT DARTON, WEST RIDING, YORKS.

Messrs. CRAWSHAW and WILKINSON, Architects.



CLUB, CRANBOURN STREET, W.C.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

VOTING FOR MEMBERS OF COUNCIL.

[illegible] is the report of the scrutineers [illegible] election of the Council and standing [illegible] of the Institute for the ensuing [illegible] office. The names of those elected [illegible] in capitals below. Several [illegible] details of the [illegible] calculated [illegible] appear [illegible] to the [illegible]

Chairman of the Business Meeting, March 13, 1911.

The scrutineers appointed to count the votes for the annual election of the Council and standing committees beg to report that 767 envelopes were received, and the results are as follows:

President: Leonard Stokes (unopposed).

Past Presidents: Thomas Edward Collcutt, Ernest George (unopposed).

Vice-Presidents: Elected: Reginald Blomfield, 575; Ernest Newton, 575; E. Guy Dawber, 494; John W. Simpson, 394. [Not elected: Beresford Pite, 392; A. W. S. Cross, 390.] Ten invalid papers.

Honorary Secretary: Henry T. Hare (unopposed).

Paper Secretary of Allied Societies: H. C. Charlewood, Newcastle; S. D. Kitson, Leeds; Edgar Wood, Manchester; Jame Jerman, Devon; J. B. Mitchell-Withers, Sheffield; A. E. Murray, Ireland; W. F. Wilson, Dundee; C. L. Wilson, Cardiff; J. E. Wood, [illegible] (unopposed).

Representative of the Architectural Association: Gerald Horsley (unopposed).

Honorary Auditors: John Hudson, William Henry Hart (unopposed).

Members of Council.—Fellows.—Elected: J. A. Gotch, 570 votes; H. V. Lanchester, 473; E. L. Lutyens, 464; F. T. Hall, 462; J. S. Gibson, 461; H. Ricardo, 449; W. Flockhart, 432; W. Cave, 396; W. Brierley, 390; Sir A. B. Thomas, 372; G. Hubbard, [illegible] A. Keen, 362; Max Clarke, 328; G. H. F. Prynne, [illegible] W. C. Green, 316; P. S. Worthington, 313; W. Woodward, 307; T. W. Wimperis, 306. [Not elected: H. P. Burke Downing, 302 votes; W. Dunn, 302; H. H. Statham, 300; W. A. Forsyth, 295; M. B. Adams, [illegible] S. D. Adshead, 271; M. Mackenzie, 271; E. P. Warren, 264; C. H. B. Quennell, 244; A. S. Snell, 239; A. N. Paterson, 228; W. H. White, 209; S. P. Pick, [illegible] A. Thornely, [illegible]; B. F. Fletcher, 176; S. Perks, [illegible] P. Ogden, 142; J. B. Wilson, 138; T. Eccles, 108; [illegible] Neild, sc.; P. B. Tubbs, 71; L. J. Sedgrove, 70.] Twenty-three spoilt papers.

Associate Members of Council.—Elected: [illegible] S. K. Greenslade, 457 votes; A. N. Wilson, 453; H. I. Triggs, [illegible] W. T. Tapper, 404; S. Warwick, 344; H. W. Wells, 344. [Not elected: C. E. Hutchinson, 290 votes; G. A. T. Middleton, 286; K. Gammell, 215; A. C. Dickie, 208; E. V. Harris, 189; H. A. Saul, 130.] Ten spoilt papers.

Art Standing Committee.—Fellows.—Elected: Newton, 632 votes; Lutyens, 630; Eckards, 482; [illegible] S. 474; Cross, 461; Brierley, 451; Flockhart, 446; Brewer, 418; Forsyth, 407; Lucas, 401. [Not elected: Adshead, 370 votes; Wood, 360; Statham, [illegible] Caphin, [illegible] Kitson, 337; Bateman, 255; Reay, [illegible]

Allied Societies Standing Committee.—Fellows.—Elected: [illegible] Greenslade, 614 votes; Nood[illegible] Wa[illegible] [illegible] Price, 501; Tapper, 461; Warwick, [illegible] Jo[illegible] Newton, 441; Dawson, 400 votes; [illegible] Clark [illegible]

Art Standing Committee.—Fellows.—Elected: [illegible] Greenslade, 514; Water[illegible] Bu[illegible] Warren, 475; Prynne, [illegible] Nixon, 445; Sprocket, 438. [Not elected: [illegible] Lamb, 411; Lavinger, [illegible] [illegible] [illegible] Adshead, 370 votes; Statham, [illegible] Hunt, 357; Reay, [illegible]

Allied Societies Standing Committee.—Fellows.—Elected: [illegible] Greenslade, 634 votes; Nood[illegible] Wa[illegible] [illegible] Price, 501; Tapper, 461; Warwick, [illegible] Jo[illegible] Newton, 441; Dawson, 400 votes; [illegible] Clark [illegible]

Art Standing Committee.—Fellows.—Elected: [illegible] Greenslade, 514; Water[illegible] Bu[illegible] Warren, 475; Prynne, [illegible] Nixon, 445; Sprocket, 438. [Not elected: [illegible] Lamb, 411; Lavinger, [illegible] [illegible] [illegible] Adshead, 370 votes; Statham, [illegible] Hunt, 357; Reay, [illegible]

OBITUARY

The death has occurred at his residence at Rudyard, Staffs., of Mr. John T. Brealey, a well-known architect, who carried on business at Leek and Hanley. The deceased, who had been ill for some months, was about 50 years of age. Mr. Brealey was the architect of many of the public buildings in Leek, and had a considerable reputation in North Staffordshire.

The Rev. William John Loftie, M.A., F.S.A., the well-known historian and antiquary, died on Friday last at Sheffield terrace, Kensington, in his seventy-second year. He was an assistant chaplain at the Savoy Chapel from 1871 till 1895. Mr. Loftie was the author of a History of London in two volumes (1883), and of historical accounts and guide books of the Tower, Westminster Abbey, Windsor, the Inns of Court, and Whitehall.

Building Intelligence.

BERMUDA CATHEDRAL.—The consecration of the Bermuda Cathedral by the Bishop of Newfoundland and Bermuda, the Right Rev. Llewellen Jones, D.D., took place in May. On the morning of Sunday, January 27, 1884, Old Trinity Church was destroyed by fire. There was a proposal that Old Trinity Church be restored, but acting on the advice of the Bishop, it was decided to build an entirely new edifice. A design was secured from Mr. William Hay, of Edinburgh, who had prepared designs for the Newfoundland Cathedral, and the present structure is the outcome of his drawings. When the church was designed, it was not known that it was to be the cathedral of the diocese, and the arrangements for the eastern end were naturally not upon cathedral scale. When the work was nearing completion, Mr. Harold O. Tarbolton (who had succeeded to the practice of Messrs. Hay and Henderson) proposed a totally new treatment for this section of the church, the most important change suggested being the elongation of the choir by the laying of a rich, variegated marble floor from the sanctuary to the western arch of the tower, at an elevation of four steps above the nave. This proposal was adopted, and has been carried out with very great advantage to the interior. The permanent high altar will, it is hoped, be in position within the next year. A scheme for building vestries to the north of the cathedral was devised by Mr. Tarbolton during his recent visit to Bermuda, and has been favourably received by the building committee.

MANCHESTER.—The members of the Manchester Society of Architects recently paid a visit to the new premises in Mart-street of the Calico Printers' Association, which are in course of erection on the Oxford-street, on the site of St. James's Hall and Theatre, and were shown through the building by Mr. C. H. Clegg, of the firm of Messrs. Clegg and Son, Fryers, and Penman, the architects. It was explained that the work was begun in April of last year, and will be completed by September. About a thousand workmen are employed on it. The site covers an area of 6,454sq yd., and the frontage to Oxford-street is 306ft. 6in. The building will be eleven stories high, and when completed will be the largest commercial house in Manchester. As to the construction, the material consists of steel encased in concrete, and all the windows are steel casements. The floors are of hollow bricks on the Kleine system, and the staircases are of reinforced concrete with closed brickwork. There will be twelve shops in the front, and a portion basement a public safe deposit. At one end of the building arrangements have been made for a cafe with a billiard room, and a block towards the rear will be let off. Where the canal, which crosses under Oxford-street, comes down by the side of the Palace, part of the building is carried over the water by steel girders, with a span of 55ft., and to obtain the foundations for this part of the work excavations to the depth of 40ft. have had to be made in the solid rock. The arrangements of the Calico Printers' Association permit on the ground floor of facilities for the loading and unloading of goods which have hitherto been confined entirely to railway stations. By means of two electrically-driven cranes it will be possible to remove the entire load of a lurry at one operation. There are to be six goods hoists and three bale lifts, and the building will be further equipped with seventeen passenger lifts. The contractors are the Building Construction Company, Ltd., of London.

IMPROVEMENTS AT CONWAY CASTLE.—A special meeting of the Conway Town Council was held on Thursday week to consider the scheme for a new entrance to the castle, and to receive a deputation from the council of the Royal Cambrian Academy in regard thereto. The mayor (Mr. Henry Jones), as constable of the castle, occupied the chair. The scheme for the new entrance consists of a bridge over the Gyffin-road, giving access to the present pathway at a point above the present gateway. A temporary bridge has been built and covered with painted canvas to give an idea of the appearance of the structure when completed. The bridge would be reached from the roadway by the Guildhall steps. Mr. Clarence Whaite, the octogenarian president of the Royal Cambrian Academy, headed the deputation. They expressed their strong objection to the scheme, on the ground that the towers at the ends of it would be an incongruity. They were asked for their alternative suggestion, but said they were not prepared with any. The council finally decided to proceed at once with the removal of the mass of masonry and earthwork now forming the entrance gateway to the castle. This will effect a widening of the roadway at a very dangerous corner. The temporary bridge will be used for the present season, and all will be able to form a better judgment as to the appearance of the projected bridge.

Engineering Notes.

THE QUEBEC BRIDGE ACROSS THE ST. LAWRENCE.—The design on which the 8,650,000 dollars contract has recently been awarded to the St. Lawrence Bridge Company, of Montreal, for the fabrication and erection of the superstructure of the Quebec Bridge is for a very much heavier, stronger, and more costly structure than the original bridge design of the Board of Engineers, and than the designs submitted by other bidders. It restores the length of the main span to 1,800ft., increases the length of the suspended centre span to 640ft., involves the construction of an entirely new substructure, and the dead weight is considerably reduced by the use of nickel steel for all principal members between the main piers, while greater mass and counterweight in the anchor arm has been secured by the use of carbon steel there. Eyebars have been eliminated in favour of riveted tension members in the cantilever arm, but some of these have been provided with pin connections to facilitate erection. The arrangement of the web members in the cantilever and anchor trusses is entirely different from the contract design, or from that in any American bridge, and is considered statically determinate with a minimum of secondary stresses, and with no redundant members in the cantilever arms. The conspicuous omission of the members usually provided to connect the top chords of the centre spans and cantilever arms emphasises the structural independence of the stresses.

Mr. Thomas Reay, of South Shields, retired builder, left personalty amounting to £14,855.

A Local Government Board inquiry was held on Friday at the Institute, King's Heath, Birmingham, by Mr. M. K. North, M.Inst.C.E., inspector for the Board, into the application of the King's Norton and Northfield Urban District Council for sanction to borrow the further sum of £1,120 for the purposes of their refuse destructor at Lifford.

THE GEORGE HOTEL, OXFORD.—Messrs. HOMER and LUCAS, Architects.

THE GEORGE HOTEL, OXFORD.

The ground floor of this building is let to the National Provincial Bank of England, Ltd. The first, second, third, fourth, and fifth floors are to be let for a hotel. The whole of the front is built in Ancaster stone. The contractors are Messrs. T. H. Kingerlee and Sons, of 35, Queen-street, Oxford. The architects are Messrs. Homer and Lucas, 35, Bucklersbury, London, E.C.

The main drainage of Louth, Lincolnshire, is being reconstructed at an estimated cost of £20,540. Mr. Baldwin Latham is the engineer, and the contractors are Messrs. O. Wright and Co.

The Utah State Board of Architecture held its first meeting on May 24, and organised by electing W. E. Ware as president and W. H. Lepper as secretary and treasurer. The law recently passed by the State Legislature provides that all architects take out a license on or before June 20, 1911.

The Bishop of Exeter last week consecrated the Lady-chapel, built from plans by Mr. W. D. Caröe, F.R.I.B.A., of Westminster, of the new church which is being erected at Stoke Damerel, Devonport. The Lady-chapel is the first section erected of the new church, and with it are included two large vestries and a sacristy. This section has cost about £5,000.

The *Gazzetta Ufficiale* of June 8 contains a notifies that tenders will be opened on June 28 by the "Direction des Ports et Voies de Communication par Eau," Bucharest, for the construction of a third grain warehouse in the harbour of Constantza. The upset price is put at 1,700,000 lei (£68,000), and a deposit of 68,000 lei (£2,720) will be required to qualify any tender. Although this contract will in all probability be awarded to a Roumanian firm, nevertheless the carrying out of the works may involve the purchase of some materials out of Roumania.

The town council of Brixham discussed at their last meeting the infringement of the statute law and by-laws in the case of the conversion of premises at Horsepool-street not originally built as domestic buildings, and now in the occupation of Miss Unwin. The builders, Messrs. Couch and Matthews, appeared before the council to give an explanation of their action. It was resolved to request Miss Unwin to submit plans prepared by a competent architect showing the premises altered, in accordance with the by-laws, failing the submission of which within one month she be requested to vacate the premises.

PROFESSIONAL AND TRADE SOCIETIES.

GUILD OF ARCHITECTS' ASSISTANTS. — The Guild has made several suggestions, now under consideration by the Council of the Royal Institute of British Architects, having for their object the security of the assistant's position in the proposed Registration Bill. The following visits to works in progress have been arranged for this summer:—June 29, 6.30 p.m., Wesleyan Centenary Hall, Westminster, S.W. (by kind permission of Messrs. Lanchester and Rickards and Messrs. Dove Bros.); July 11, 6.30 p.m., British Museum Extension (Mr. J. J. Burnet, A.R.S.A.); July 27, at 6.30 p.m., Royal Academy of Music, Marylebone-road, N.W. (Sir Ernest George and Mr. Yates); August 8, 6.30 p.m., London Opera House, Kingsway (Mr. Bertie Crewe); August 31, 6.30 p.m., Victoria Palace, Victoria, S.W. (Messrs. Frank Matcham and Co.); September 12, 6.30 p.m., Law Courts Extension (Sir Henry Tanner); September 30, 3.30 p.m., St. Andrew's Hospital, Dollis Hill-lane, Cricklewood (Mr. R. L. Curtis); October 10, 6.30 p.m., New Polytechnic Building, Regent-street, W. (Mr. G. A. Mitchell, A.R.I.B.A.); October 26, 6.30 p.m., London County Hall, Westminster Bridge, S.W. (Mr. W. E. Riley, F.R.I.B.A.)

MANCHESTER SOCIETY OF ARCHITECTS.—The luxuriant and wooded country of North Cheshire is extraordinarily rich in domestic architecture of that prolific timber-building time, the 15th and 16th centuries, and has also some interesting examples of a vernacular of church-building all its own, of the same period. Fine as the half-timbered halls are, the later Georgian halls, of which there are not a few, vie with them in interest, and often surpass them in real architectural qualities. During two visits made last week by the Manchester Society of Architects, each type has, as it were, undergone review. On Tuesday, Wilmslow was visited. The church has a typical Cheshire tower, and the interior possesses a dignity which seems due largely to the simplicity of the stonework and to the ranges of square-headed windows, with their deep internal splays, as well as to the stateliness of the rood-screen by Bodley; this and the rich old roof contrast finely with the crude stonework. Hawthorns Hall, with its multitude of gables and its quaint octagonal turret on the roof, makes a striking group, and some good Georgian panelling and a fine staircase were found inside. On Saturday, Adlington Hall was visited. The older half-timbered portion, forming two sides of the main quadrangle, contains the great hall, with its splendid open-timber roof, its huge mullioned windows, and the beautiful 18th-century organ, upon which Handel performed. The organ-case and gallery is of exquisite workmanship and design. The later Georgian wing, a vast addition made in 1741, has all the breadth and symmetry of its period; but though the handling of the masses is clever, there is a touch of awkwardness that suggests an amateur rather than a master hand. But even the stilting of the columns of the great portico in a manner which ruins their proportions is to some extent compensated for by the beauty of the colouring, and the smaller stable building, as a piece of formal architectural composition, surpasses the more ambitious hall.

NORTHAMPTON ARCHITECTURAL EXCURSIONS.—The members of the Northampton Architectural Excursions Club visited Lowick, Lyvenden, and Brigstock last week, under the guidance of the Rev. R. W. Sergeantson, of Northampton, who read notes on the principal places of interest seen. Lowick Church dates mainly from the 14th and 15th centuries, and is famous for its lantern tower; its fine bench-ends; for its heraldic glass; and last, but not least, for its series of monuments. Of these the more important is the alabaster tomb of Ralph Greene and Katherine, his wife, who died in 1415. The husband is represented in full armour, and the wife, who wears a rich headdress, holds her husband's hand. The indenture for the making of this monument still exists. The "Kervers" (carvers) were to make the tomb "bien honestement et profitablement" of alabaster with suitable effigies. It was to cost £40, and to be finished by Easter, 1420. Next in date is the very fine altar tomb and brass to Henry Greene (died 1467), and Margaret his wife. He also is represented in full armour, over which he wears a tabard on which his coat of arms is displayed. In the same (south)

chapel is another magnificent monument to the memory of Edward Stafford, Earl of Wiltshire. From an historical point of view, however, perhaps the most interesting of all the many monuments is an insignificant little brass to the famous Lady Betty Germaine—the friend of Horace Walpole—whom he commends alike for her splendid china, and for her strawberry jam! The stained glass at Lowick is also a special feature of the church. The fine series of prophets and kings in the windows of the north aisle is specially noteworthy, and the coat of arms of the Draytons, De Veres, Greenes, and Sackvilles are everywhere in evidence. From Lowick a drive of some eight miles brought the party to Lyveden. "Lyveden New Building" was begun by Sir Thomas Tresham between 1590 and 1600, and in all probability was never finished. Sir Thomas, who was also the builder of the Triangular Lodge at Rushton, and the Market House at Rothwell, joined the Church of Rome in 1580. The plan of the building is a Greek cross, with a half-octagonal bay projecting from the end of each arm. Round the top of the house runs a series of texts in Latin. Below are sculptures in roundels, representing the emblems of our Lord's Passion and Crucifixion. It is certain that although the walls were completed, the building was never roofed; and it seems that the builder's son, instead of finishing the work, went back to the old site, and rebuilt the original house on a larger scale, his work being known by the curious misnomer as the "Old Build," though it is considerably later in date than the so called "New Building." Between the old and new buildings (which are about a mile apart) is a long raised terrace, now grass grown, with a high mound at either end, and a fishpond on the south side. The most interesting feature in the "Old Build" (which is of Jacobean date) is the handsome wooden staircase, planned on a very liberal scale. At the "New Build," although the windows have the usual Gothic mullions, and the doorways are treated with characteristic Elizabethan ornaments, the whole elevation displays an understanding of Classical details which is very rare in England at this period. From Lyveden the party drove to Brigstock, where the church was visited, with special attention to the interesting Late Saxon work in the building, and the circular western turret—only three other instances of which are known—viz., at Brixworth, Houghton-on-the Hill, and Broughton, Lincolnshire. From Brigstock the party drove or cycled to Thrapston station, calling in at Sudborough on the way. The church was begun to be rebuilt at the close of the 13th and was completed early in the 14th century. There is a fine monument to one of the De Veres in the chancel, and an interesting little brass to William West and his wife and family, A.D. 1390. One of the sons is dressed as a "marbler," and another as a priest. The latter is in full eucharistic vestments, with the exception of the chasuble—a curious and unusual omission.

In the Divorce Court, Mr. William Unwin, a builder and contractor, of Ecclesfield, near Sheffield, has sued for a divorce from Elizabeth Ellen Unwin, on the ground of her misconduct with Mr. James Williamson Skelley, a doctor, who had been in practice at Ecclesfield. The case was undefended, and a decree nisi was granted.

Sir William H. Marling, of Stanley Park, Stroud, has placed a memorial tablet immediately over the monument to the late Bishop Ellicott in the south transept of Gloucester Cathedral. The tablet is of bronze, framed in alabaster, to the design of Mr. F. W. Waller, the cathedral architect, and it has been executed by the Birmingrove Guild. At the head of the tablet is an open book, inscribed, "New Testament Revised Version, 1880."

The *Gazetta Ufficiale* of June 8 contains a notice issued by the Ministry of Public Works, to the effect that tenders will be opened on July 3 for the construction of a new Post Office Savings Bank at Rome. The upset price is put at 3,180,000 lire (£127,200). Although this contract will probably be awarded to an Italian firm, the carrying out of the work may involve the purchase of some materials out of Italy.

Correspondence.

GARDEN SUBURBS: A WARNING.

To the Editor of the BUILDING NEWS.

SIR,—As a member of the Garden Cities and Town-Planning Association, and a strong supporter of the town-planning movement, I should like to point out a great danger into which those may fall who are in other respects so ably contributing to the realisation in practice of Mr. Howard's ideals.

If we are not very careful, the rush of modern business—I mean the tendency of the modern man to rush a thing through—will take us by the scruff of the neck and dump us into the pit of disaster. We must exercise great caution in dealing with our land, lest the development of it result in a mere jumble of well-planned and well-built houses. A thoughtless and hurried mixture of units, however well designed in themselves, will only produce a feeling of restlessness, and destroy the dignity of the whole. Unless care and thought be given to the relation of each particular unit to the whole, the result will be a botch.

Let us work as business men; but let us not allow consideration, care, and the sense of fitness to lapse totally into oblivion.—I am, etc.,

O. NEWBOLD.

21, Great Peter-street, Westminster,
June 15.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. Leonard F. Smith, Westhall, Clarendon-road, Redhill.

QUESTIONS.

[13056.]—CONCRETE ROOFS.—Are these to be depended upon as being waterproof when ganged as 5 to 1, 5in. thick, and finished with 1in of floated cement and sand in equal parts, with a fall of 1in. in 5ft.? And is there any virtue in a patent composition supposed to waterproof the cement if mixed with same—believed to be in liquid form? I have heard that soft soap mixed with the cement and sand also accomplishes this. Can anyone corroborate and give information thereon? The cost of finishing with asphalt is too prohibitive.—Grateful.

REPLIES.

[13053.]—PARTY-WALL.—In the first place, is the wall in question built on the line of junction, or wholly on the adjoining owner's own land? These are points which should have been explained. If the wall is built on the line of junction, the half of it will be on "C. L.'s" land. Now, to have built a wall in such a position the adjoining owner must have served legal notice, with a description, etc., of the wall, and have made agreement with "C. L." as to the apportionment of the cost to be paid by both parties. Full details of such notices will be found in my reply to a similar question in the BUILDING NEWS about July, 1910. Having such an arrangement, "C. L." could have proceeded to build his house on to the party wall in the usual manner. I am taking this to be so, because "C. L." uses the word "party-wall," and a party-wall is defined as being "a wall forming part of a building, and . . . . constructed . . . . for separation of adjoining buildings belonging to different owners." Or, "a wall forming part of a building and standing to greater extent than the projections of the footings on land of different owners." But maybe the wall in question is not really a party-wall, but an "external wall," being built wholly on the adjoining owner's own land, with his footings projecting on to "C. L.'s" land "below the level of lowest floor." Now, to do this notices must have been served (Notice 3 in particular, issued by the R.I.B.A., or its equivalent), and a description given, and, therefore, "C. L.'s" surveyor or other representative should be aware of the conditions. He can, of course, erect his wall flat against the adjoining owner's wall, and the district surveyor may lawfully allow the new footings which would ordinarily come against the wall to be omitted. Once a wall is built in this position, care must be taken in the event of a desire to raise the wall. Here, again, notices must be served. There are several rights reserved for both parties. One right of "C. L." is "to cut away or take down such parts of any wall . . . of an adjoining owner as may be necessary in consequence of such wall . . . overhanging the ground of the building owner, in order to erect an upright wall against same, upon condition of making good damage," etc. Notice of this, or the exercise of any other right is necessary. To sum up, it amounts to this: If the wall is truly a party-wall, "C. L." should get his surveyor to hunt up the terms of the agreement as to the use and proportionate cost paid, or to be paid, for the wall, and he will then be free to build under the terms of such agreement. If the wall was built as a party-wall, without the consent of "C. L.," then I fear the adjoining owner is "in for a hot time," if "C. L." cares to take the matter up. But if the wall is not truly a party-wall, but an "external wall" on the adjoining owner's land, with footings projecting into "C. L.'s" land, then "C. L." can build against it. Be careful to give notice of intention, and then of description of the wall, and be careful also of ancient lights, etc.; and if in future you wish to raise the wall, seek advice from someone accustomed to party-wall matters, for under section 88, subsecs. 6 and 9 are very tricky legal points, constantly causing trouble.—Leonard F. Smith, Westhall, Clarendon-road, Redhill.

[13053.]—PARTY-WALLS.—Where owner proposes to exercise any of his rights, adjoining owner may, by notice given within one month of receiving notice, require building owner to build chimneys, coping, jambs, breasts, or flues, or such piers or recesses or other like works as may fairly be required for his convenience, and specified in notice, and, if necessary, accompanied by plans and drawings, and building owner must comply unless required work will be injurious to him, or cause unnecessary delay. Building owner cannot, without consent in writing of adjoining owner and occupiers, exercise his rights until after one month's notice in the case of party-fence-walls, or two months' in case of party-walls and party structures, stating the nature and particulars of the proposed work, and the time at which it is to be commenced. Building owner must, at his own expense, erect any hoarding, shoring, or temporary construction for the protection of the adjoining owners, and must not cause any unnecessary inconvenience to adjoining occupiers. Work must be begun within six months after notice, and prosecuted with diligence. Differences.—If either owner do not, within 14 days of notice, express consent, then he shall be considered as dissenting therefrom, and a difference be deemed to have arisen. In case of difference not specially provided for by Act, unless both parties concur in the appointment of one surveyor, each is to appoint a surveyor, and the two surveyors to appoint a third surveyor, and the three surveyors, or any two of them, to settle any matter arising from time to time during the continuance of any work to which the notice relates. Any award given to be conclusive, and not questioned in any Court except that either party may appeal to the County Court within 14 days from date of delivery of the award, and the County Court may, subject to conditions, rescind or modify it as it thinks just. If either party make default in appointing a surveyor for 10 days after notice to make such appointment, the party giving notice may make the appointment in the place of the party making default.—Frederick Worrall, 45, Queen-street, Wolverhampton.

[13053.]—PARTY-WALL.—Where an owner of land builds a terrace of houses, so that each house requires support from the houses on either side, and sells each house afterwards to a different owner, each of these new owners has, by presumption of law, an implied grant to support from the house adjoining; while, similarly, it is implied that the vendor has reserved a right to support in respect of any adjoining houses he may not have sold. Further security is frequently obtained in these cases by expressly reserving a right of support to the adjoining houses from the party-walls in each of the leases or deeds of conveyance. From the wording of the question it would appear that this case is rather different to the above, and that the wall in respect of which a right of support is required already belongs to the adjoining owner. If this is so, and the wall is entirely upon the adjoining owner's ground, the querist's client has no rights in respect of the wall, and should apply to the adjoining owner for permission to use the wall as a party-wall, and when an agreement is arrived at, the terms should be embodied in a deed, and executed by the parties. This is known as an express grant, and no difficulties can arise thereafter as to the rights of the parties in the wall. If, on the other hand, the wall in question is partly upon the land of each owner, the adjoining owner may have obtained permission, when the wall was built, to encroach on the next plot, and, if so, may have agreed with the other owner at the same time that the wall should be a party-wall; but, if not, or in the absence of writing to support this, a grant should be applied for, as in the last case, and once having the matter in writing, no further disputes should arise. When it is agreed that the wall shall be a party-wall, the interested parties bear the cost of maintenance in equal moieties.—Edward Appleton, 30, Malkinson-road, Wandsworth Common, S.W.

[13053.]—PARTY-WALL.—The question raised by "C. L." will be dealt with in the conveyance of the land, which should state the exact rights of each party, whilst the plan in or attached to the conveyance will indicate in figures the correct boundaries, and at any subsequent change in ownership the rights of the adjoining owners would be

embodied in the conditions of purchase. I would refer "C. L." to the London Building Act, 1894, Part VIII., Sections Nos. 87—101, which deals fully with the questions raised, taking in detail:—(a) Rights of owners of adjoining lands respecting erection of walls on line of junction; (b) rights of building owner; (c) rights of adjoining owner; (d) rules as to exercise of rights by building and adjoining owners, etc., including the settlement of difference between the owners. Security to be given. "C. L." had better peruse these sections, as no doubt they would have a bearing upon his case. He should, however, visit the solicitor for the vendors, to see the original conditions as to buildings to be erected, and also inspect the conveyance of his client's land.—K. H. Read, Lecturer on Building Construction, Gloucester Technical schools.

[13053.]—PARTY-WALL.—In this township, where all the land is freehold (leases being granted for a term of 999 years at a yearly ground rent of so much per yard), provision is made in the agreement between lessor and lessee for the division-wall between two properties being a party-wall, and as such, each adjoining owner must pay half the cost of same as measured up by the surveyor, and priced according to schedule. In the case of terrace houses, built in line front and back, and of the same height, we get the simplest case, payment being made as aforesaid, and no agreement between the two parties is necessary. Now take the case where one party wishes to build, say, a workshop, on the division fence-wall. Before doing so, an agreement must be drawn up between the two parties, stating that the adjoining owner will allow the building owner free access to his land, so as to enable the latter to effect any repairs, pointing, or painting, &c., which may be necessary from time to time to his property. The adjoining owner, of course, only pays for the wall beneath the workshop as a boundary fence-wall, both as to height and thickness, except in the case where he decides to use same, when he pays proportionately. A clause might be inserted in agreement stating that payment for use of wall above boundary fence wall height will be made by building owner to adjoining owner at some agreed upon time after completion of the said work (say, one month). A solicitor would draw up the agreement between the two parties, after you had explained to him the points to be embodied in same. From the few details given by "C. L." it is impossible to advise exactly as to whether an agreement is necessary; but after carefully reading any agreements which may be in existence relating to the client's plot of land, as to any reference to party-walls, and perusing the above, he should be able to decide his mode of procedure so as to safeguard his client's rights in the wall.—T. W. Thorpe, 5, Woodville-terrace, Lytham.

[13055.]—GAS FOR USE IN LABORATORIES.—Acetylene gas is the one which has been most used for laboratories situated as mentioned by "Brush," and as instanced at the Government College at Khartoum, Egypt, where I understand it has given considerable satisfaction. The gas is made from selected carbide of calcium, which is manufactured by a fusion of calcium and carbon (usually in the forms of quicklime and coke), in a specially-constructed electrical furnace, the formula being CaC_2, and although not absolutely pure, has reached the high percentage of 99.9. On the addition of water to the carbide, a double decomposition takes place, the oxygen of the water combining with the calcium, forming lime, whilst the hydrogen unites with the carbon of the carbide to form acetylene. The lime then takes up another molecule of water, forming slack lime, or calcic hydrate, as a residue, and of which the bulk exceeds slightly the original amount of carbide. The advantages claimed for acetylene gas are:—(a) The gas consumes less oxygen per candle-power than any other; (b) add only about one-sixth the amount of carbonic acid to the atmosphere; (c) no poisonous characteristics. It emits a light fifteen times more powerful than coal-gas light, when proper burners are used; (e) clearer than coal, petrol, or air gas, and practically odourless. Installations of any size are now obtainable in which the pressure is automatic, and thus perfect combustion is insured. Condensation in the mains is rare, as the gas enters the pipes in a dry and cool state. The best form of generator is one in which the water rises underneath the carbide, gradually submerging the entire charge, and regulated automatically. The house for the generator must be outside the main building, as required by the insurance companies, likewise the store for the carbide, which is contained in airtight drums. Very little attention is needed beyond the charging of the generator, and I am sure that "Brush" will find this answer his purpose, if installed by a reliable maker.—B. Farmer, Siddington, Cirencester.

[13055.]—GAS FOR USE IN LABORATORIES.—As you can obtain the electric current, by all means do so, and use Tantalum lamps. It is in every way superior to, and safer and cheaper than, acetylene. As an architect, I should never think of using acetylene gas in any building unless my client insisted.—Kappa.

The corporation of Riga is about to build a new town-hall, and calls for plans from architects the world over, offering premiums for the best plans of £600, £400, and £200. The new building is to cost £100,000.

Mr. H. Percy Monckton, F.R.I.B.A., F.S.I., the chairman of the County Purposes Committee of the City of London Corporation, who lately carried through the day census, has been elected a Fellow of the Royal Statistical Society.

The new temporary Church of St. Paul, Hinckley, was dedicated last week. It has been designed by Mr. E. de W. Holding, of Northampton, and will seat 300. It is built of local bricks and blue-slated roof, and is situated in the north-eastern suburb on the Leicester road. The cost has been about £800.

STATUES, MEMORIALS, &c.

THE OLD BRIG OF AYR.—Two bronze panels have been placed in the east parapet wall of the Auld Brig of Ayr above the second arch. One of the panels has been erected by the preservation committee, and is from a design by Mr. Robert A. Bryden. The inscription, surmounted on either side by a laurel wreath, is: "In admiration of Robert Burns and his immortal poem, 'The Brigs of Ayr,' this brig was during 1907-10 restored by subscriptions received from all parts of the world.—R. A. Oswald, chairman of the preservation committee." The other panel has been erected by the town council of Ayr. The right side of the panel has a portrait of Burns, and underneath the Ayr Burgh coat of arms. The inscription is: "The Auld Brig of Ayr. Erected in the thirteenth century. Preservation work, 1907-10. Reopened by Lord Rosebery, July 29, 1910.—James S. Hunter, Provost of the Burgh of Ayr."

PARLIAMENTARY NOTES.

THE RECOMMITTED ST. PAUL'S BRIDGE BILL.—Mr. Morrell's instruction to the committee on this measure has been passed in an amended form. As altered, it instructs the committee not to agree to any scheme for the construction of the proposed new bridge, "including the approaches thereto," until they are satisfied that such scheme, in respect both of architectural design and convenience of traffic, "is the best one adapted to the public needs, and best suited to the character of the site." No objection was taken to the proposal in this form, and Mr. A. C. Morton announced that the City Corporation undertook to employ an independent architect to advise them.

THE COPYRIGHT BILL.—The Standing Committee of the House of Commons on the Copyright Bill, on resuming on Thursday, with Mr. Griffith Boscawen in the chair, took up clause 8, which provides for the exemption of an innocent infringer from liability to pay damages. An official explanatory memorandum stated that the clause mitigates the stringency of the existing law, ignorance of the existence of copyright being in most cases no defence at present.—Mr. Toulmmin moved the omission of the sub-section, which provides that if sufficient particulars were before the date of the infringement entered in a register established under the Act, the defendant shall be deemed to have had reasonable means of making himself aware that copyright subsisted in the work. He contended that registration should be compulsory, or else there should be some notification on the work that copyright was claimed; otherwise it ought not to count against the defendant. This was a matter of daily difficulty with journalists, who received photographs from persons who were presumed to own them, and discovered afterwards that the photographs were copyright. What would suit journalists would be that they should be deemed to have had notice if the word "copyright" appeared on the actual photograph.—Mr. Buxton stated that the Government could not accept any proposal for compulsory registration, and, so far as newspapers were concerned, he did not think that there was any difficulty or real hardship. He asked the committee not to accept an amendment which would practically introduce compulsory registration. After some adverse criticism of the sub-section, Mr. Buxton offered no objection to the amendment, reserving the right on report, however, to introduce words to protect the innocent infringer. The amendment was then agreed to, and the clause as amended was added to the Bill. On clause 17, Sir W. Anson secured for the great University libraries the continuation of their existing privileges in regard to the delivery, on written demand, of a book within twelve months after publication, instead of three months, as the Bill proposed. Mr. Buxton said there was no objection to the twelve months, and the publishers saw no difficulty in the matter.—Mr. Harwood moved to extend the privileges enjoyed by the older Universities to the National Library of Wales, Aberystwith.—Mr. Buxton accepted the amendment, which was agreed to.

GREATER LONDON RAILWAY.—The Select Committee of the House of Commons which had been considering the Greater London Railway Bill for seventeen days sanctioned on Friday the portion of the proposed line from Northolt to Victoria and Albert Docks, but disallowed other portions. Sir J. Compton-Rickett, the chairman, said the Committee were not satisfied with the promoters' case in regard to the cost of constructing the line, or with regard to the anticipations of income. They could not believe the trade to and from the docks would continue to go down the Thames. They did not think it desirable that a large amount of trade should be carted through the congested streets of London to outside destinations, and considered that some such line should be constructed. The case of Tilbury did not appeal to the Committee so strongly as the case of the Victoria and Albert Docks. The Tilbury connection was not perfect, and for that connection a new Bill would be required. The dock enlargements were to begin at the Victoria and Albert, not the Tilbury, Docks. The Committee therefore disallowed the section of the line between Ilford and Tilbury. At the other end of the proposed line the Committee considered that Feltham was not a good place for a congeries of railways to the south, and that in the trade anticipated the promoters would be disappointed. The Committee therefore disallowed the portion of the line between Feltham and Northolt. They considered that the line should be made within a reasonable time. There should be a limitation for substantial construction to the satisfaction of the Board of Trade in three years, and two-thirds of the capital should be raised in two years.

WATER SUPPLY AND SANITARY MATTERS.

LANGHOLM BURGH WATERWORKS.—The Langholm Town Council instructed Mr. Harry W. Taylor, A.M.I.C.E. (Messrs. Taylor, Wallin, and Taylor), Cathedral-buildings, Newcastle-on-Tyne, at the beginning of the year to examine and report upon their existing water-supply, with a view to its augmentation. The scheme recommended is to tap additional springs in the Terrona Valley and construct a new service reservoir of 250,000 gallons' capacity, with a new belt system of distributing mains in the town. At the last meeting of the town council this scheme was approved, and instructions given for the necessary application to be made to the Local Government Board to borrow £5,800 for the execution of the works.

NAFFERTON.—Important works of water-supply for the village of Nafferton are being carried out at a cost of £4,100, for the Driffield Rural District Council. The works, which are designed to supply a population of 1,200 at the rate of twenty gallons a day, comprise a well and borehole, pumping machinery, a concrete reservoir, and the laying of cast-iron mains. The well and borehole have been sunk in the chalk of the Nafferton wold, about two miles north of the railway station. The well has a diameter of 6ft., and is sunk to a depth of 216ft., while the borehole, which has been driven to a further depth of 50ft., is 10in. in diameter for the first 25ft., and 8in. in diameter for the remainder. The machinery, to be in duplicate, will include a wind-engine and an 8H.P. oil engine, each driving a set of treble-barrel deep-well pumps. The wind-engine will be 40ft. in diameter, mounted on a 40ft. steel trellis tower. The reservoir will have a top-water level of 253ft. O.D., and will be constructed in concrete. As there will be a head of 218ft. on the mains in some parts, a reducing-valve will be installed, so as to bring the pressure down to a maximum of 160ft. at the lowest part of the town. The engineers for the work are Messrs. Fairbank and Son, of York, and the contractors are Messrs. J. T. Hymas, of Burton Leonard, and Messrs. Ward and Tetley, of Bradford.

At a meeting of the court of governors of the Sheffield University, on Friday, Sir Charles Eliot, vice-chancellor, explained that the department of architecture had so far progressed that it was desirable to institute a diploma. It was decided that a diploma be awarded according to regulations.

The Swansea borough surveyor has prepared a report on the general planning of the borough, and he makes several drastic suggestions for the development and remodelling of the town. He thinks a new civic centre should be found, and he suggests that it should be removed from the docks to the area between St. Helens-road and Mansel-street, about Christina-street.

The committee in charge of the Linlithgow Memorial Statue visited Linlithgow on Friday, with the object of inspecting several sites which had been offered them for the erection of the statue. The committee were accompanied by Sir George Frampton, R.A., the sculptor. The committee finally fixed upon a site in the Cross-square, on the east side of the Cross Well.

A public inquiry was held in Edinburgh on the 15th inst., concerning the fire disaster that occurred at the Empire Palace Theatre on May 9. The jury returned a verdict of "Death from suffocation," and attached no blame to anyone. They added a rider suggesting that the city authorities should exercise more scrupulous care in future with regard to theatre construction, and carry out more frequent examinations of the electric lights and hydrants.

LEGAL INTELLIGENCE.

[illegible] GOULDING, Builder trading [illegible] Frankin as Goulding and [illegible] with George Franklin, now [illegible] Hundred Bonsey. An appli[illegible] Judge Gye [illegible] at the [illegible] Court [illegible] Tuesday week [illegible] the above [illegible] Goulding [illegible] Office at [illegible] reported [illegible] £[illegible] [illegible] £23 11s. 9d. The [illegible] under [illegible] Bonsey in [illegible] which [illegible] upon it £965 13s. 10d. [illegible] H. T. [illegible] executors, [illegible] they were [illegible] pay [illegible] and [illegible] costs [illegible] the benefit [illegible] costs [illegible] which [illegible] decided [illegible] Smith [illegible] the Court [illegible] by March, 1905, [illegible] was [illegible] to the late George Franklin and his brother W. R. Franklin and [illegible] These persons entered into [illegible] The business [illegible] were [illegible] by George Franklin and during the [illegible] of the partnership sums amounting to £60,000 were passed through the firm's banking [illegible] which the business done [illegible] £1,000. The debtor used to pro[illegible] George Franklin with a number of blank [illegible] which Franklin used for his own pur[illegible] instead of for the firm. This was known [illegible] debtor, who, though he at times [illegible] with George Franklin, allowed the [illegible] continue. Out of one contract for £[illegible] obtained in January, 1909, George [illegible] appropriated nearly £1,000, which [illegible] about the failure of the firm. The Official Receiver in bankruptcy reported that the assets [illegible] equal to 10s. in the pound, the debtor [illegible] duty of [illegible] capable neglect of his busi[illegible] mainly in allowing George Franklin [illegible] to the business and diverting the partnership money to his own purposes, and the previous failure of the debtor to meet his creditors. Mr. White, for the debtor, urged that Goulding was only one of many who had been defrauded by Franklin, that the system of signing blank cheques only showed such confidence as should exist between partners, and that the previous failure was attributable to the fact that the value of the father's assets had been overstated at the time of his death.—His Honour considered the debtor's conduct very reprehensible. He could not do less than suspend the discharge for four years.

REPAIRS UNDER THE LONDON BUILDING ACT.—Before Alderman Sir Charles Wakefield at the Guildhall Police-court, on Monday, the National Provincial Bank of England, Ltd., appeared to a summons issued by Mr. John Todd, district surveyor, charging them with having, as builders or owners of No. 15, Bishopsgate, on May 26, begun to execute certain works upon that building without having given him notice as required by section 145 of the London Building Acts, 1894. It was stated that the work in connection with which these proceedings were taken was the reconstruction of a roof over some water-tanks. In his opinion this reconstruction was not in the nature of a repair [illegible] 209), and he was therefore entitled to notice. This was examined by Mr. Stuart Bevan, who appeared for the defendant, Mr. Todd admitted that there was only one tank, and that it had been there since the erection of the building in 1860. The woodwork, having become rotten, had been renewed. Practically that was all that was done. Like other old buildings in London, the edifice was [illegible] accordance with the 1894 Building Act. Moreover, a structural alteration was [illegible] he ought to be served with notice in order that he might ascertain whether the proposed work was in order. He had to see that new rafters were composed of [illegible] materials. This roof had been [illegible] new timbers used, and the old [illegible] Sir C. Wakefield dismissed the summons, but added that he should not [illegible]

WILLIAM WHITELEY LTD. SETTLEMENT OF ACTION AS TO BUILDINGS.—In the Chancery Division on Thursday, 15th, Mr. Justice Sargant duly had on his list for trial the action of Goldsmith v. William Whiteley, Ltd. [illegible] contract [illegible] an [illegible] [illegible] [illegible]

in grass pending future developments of traffic."

At a meeting of Haddingtonshire Road Board, held on Friday in Haddington, the roads development scheme for the county was further discussed. The scheme is of an extensive character, and will entail, it is estimated, an expenditure of between £14,000 and £15,000. The general idea is to improve the main road route through the county via Tranent, Haddington, and Dunbar. This will include important alterations at East Linton Bridge, where the dangerous curves now existing will be greatly improved, and also the widening of the side road from Beltonford to Broxbourn, the eastern outlet of which will be greatly amplified by the acquisition of Broxbourn toll-house. The work will be begun during the current year, when it is anticipated the expenditure in the eastern district will amount to fully £3,200, and in the western district to nearly £800. It was remitted to a joint committee of both districts to negotiate with proprietors as to acquisition of land. The scheme also includes improvement of the coast route.

The Manchester Corporation at its last meeting received a report from Mr. Alderman Wilson, the chairman of the improvement committee, on the negotiations which have been going on for a considerable period between the committee and the directors of the Royal Exchange with regard to the suggested extension of that building. Mr. Wilson said they had not been able to agree upon a scheme, and he could not allow that the failure was in any degree due to the action of the representatives of the corporation. The directors of the Exchange had proposed to extend their present building by absorbing Bank-street and a portion of Half Moon-street. The improvement committee desired them to take possession of all the area of land and buildings now bounded by Bank-street, St. Ann's-square, Cross-street, and St. Ann street. When this proposal was first mentioned the directors suggested that the corporation should contribute £150,000 towards the cost of such an improvement. The committee did not agree with this, but offered to sell what land belonged to the corporation at half its original value and take from the directors of the Exchange, at cost price, such land as was required for widening St. Ann-street and Cross-street. The council, after discussion, agreed with the view of the improvement committee.

The physical structure of all wood—and oak is no exception, although it is less susceptible to swelling and shrinking than any other variety—is such, says a writer in the *American Carpenter*, that water applied to it, no matter how well the surface is filled and covered, tends to swell the fibre, which in time shrinks, leaving slight cracks between the strips of flooring. Hence water, either hot or cold, should never be applied to an unfinished or finished floor. The surface may safely be wiped with a cloth dampened in tepid water to remove the dirt and dust; but the dampness should be immediately taken up with a dry cloth. The author, in the care of his own oak flooring, has for years successfully employed equal parts of sweet oil, turpentine, and vinegar, well mixed, and rubbed on the floor with waste, or a cotton or woollen rag. The philosophy of this treatment is that there is acid enough in the vinegar to cut the dirt and grime that works into the finish from the shoes; the sweet oil produces a lustre, and the turpentine promptly dries the moisture. The occasional use of a floor-brush alone or with a piece of Brussels carpet placed beneath it will assist in keeping the finish of an oak floor in good condition. The above-named mixture need not be applied oftener than a month to insure a floor-finish that will approximate the sheen of a piano. Should the finish become worn in spots from hard usage, a little of this mixture will renew the polish quickly. Once a year it is well to use a good floor-wax, and rub it into the floor.

The annual meeting of Messrs. R. Waygood and Co., Ltd., was held on Friday last. The chairman, Mr. H. C. Walker, said the sales for last year were considerably in excess of those of any previous year. The amount of work in hand augurs well for the coming year. The balance-sheet showed on the credit side—profit on trading, £66,260 0s. 5d.; and dividends on investments, £2,208 9s. 1d. On the other side—management expenses, £44,805 12s.; and depreciation of plant, fixtures, and properties, £2,948 13s. 2d. A balance is thus carried down of £20,714 4s. 4d., against £20,575 13s. 10d. To this balance transfer fees add £16, and the balance from last year, £2,665 5s. 6d., making a total of £23,395 9s. 10d. to be dealt with. From this had to be deducted directors' fees, £2,800; dividend on the preference shares, £8,100; and amount added to reserve account according to article 132, £1,000; leaving a balance of £11,495 9s. 10d. Out of this an interim dividend on the ordinary shares has been paid at the rate of 5 per cent. per annum, leaving a net balance of £8,120 9s. 10d. available for dividend. A further dividend has now been declared at the rate of 7 per cent. per annum for the six months ended on March 31, making, with the interim dividend already paid, 6 per cent. for the year on the ordinary shares. This absorbs £4,725, and leaves £3,395 9s. 10d. to be carried forward to next year's account. King George has graciously conferred upon the company the honour of the appointment of lift makers to his Majesty. The directors have felt for some time that they would like to add to the strength of the board by inviting on it two gentlemen who for a good many years have been helping to make a success of the business—viz., Mr. Harmsworth and Mr. H. Cecil Walker, the chairman's son. Both have been with the company for a good many years—in fact, for 28 and 18 respectively. Mr. Harmsworth has taken an active part in the management, and Mr. H. C. Walker has been associated with the practical, and particularly the electrical, portion.

The statistics of the production of stone in the United States in 1909, compiled by Ernest F. Burchard, of the United States Geological Survey, show an increase in the value of the output of limestone of 4,388,399dol. over the figures for 1908, the production for 1909 being 32,070,401dol. In addition, a large quantity of stone was burned into lime in 1909, valued at 13,805,405dol. The principal States that produced limestone in 1909 were Pennsylvania, 5,073,825dol.; Illinois, 4,234,927dol.; Ohio, 4,020,046dol.; Indiana, 3,749,239dol.; New York, 2,622,353dol.; Missouri, 2,111,283 dol.; Wisconsin, 1,047,044. No other State produced limestone to the value of 1,000,000 dollars.

The New England States continue to produce more granite than any other area of equal size in the country, although as individual States Wisconsin and California are heavy producers. According to figures compiled by Ernest F. Burchard, of the United States Geological Survey, New England produced granite in 1909 to the value of 9,674,715dol., as compared with 19,581,597 dol. for the whole United States. Of all the States Vermont led in 1909, with a production of 2,811,744dol.; Massachusetts was second, with 2,164,619dol.; and Maine was third, with 1,939,524dol.

The "House and Home Exhibition" at the Whitechapel Art Gallery has been enriched by the addition of an inlaid marquetry eight-day clock which has been placed in the bay representing the homes of the William and Mary and Queen Anne period. It was lent by the Dean and Chapter of St. Paul's, and dates from 1698. It was only recently that the exquisite inlay on the case was discovered. When the clock, which has always stood in the St. Paul's vestry, was being repaired, the clockmaker detected a faint gleam of yellow below the black paint on the case. He at once removed a portion of the paint, and revealed an excellent specimen of rich inlaid work. The Cathedral accounts from October, 1697, to September, 1698, contain the following entry, which evidently refers to this clock: "Ffor a pendulum clock for the south-east vestrey that goes 8 dayes in a wallnut tree case, £14." The clock is doubtless the work of Langley Bradley, who made the celebrated St. Paul's clock.

A large shed is being constructed for Messrs. Vickers, Ltd., on the marshes at Long Reach, Dartford, and it is understood that a large area of marshland in the neighbourhood suitable for the trial of air-craft has been acquired by the Admiralty. It is assumed that the shed and the land, which is secluded, flat, and free from trees and buildings, are to be used in connection with the naval airship.

MEETINGS FOR THE ENSUING WEEK.

THURSDAY.—Architects' Assistants' Guild. Visit to Wesleyan Centenary Hall, Westminster. 6.30. p.m.

TRADE NOTES.

The Victoria College extensions, Jersey, are being supplied with Shorland's warm-air ventilating patent Manchester grates by Messrs. E. H. Shorland and Brother, Ltd., of Failsworth, Manchester.

Under the direction of Mr. Thomas Owen, architect, Tydweiliog, the "Boyle" system of ventilation (natural), embracing Boyle's latest patent "air-pump" ventilators and air inlets, has been applied to the Calvinistic Chapel, Tydweiliog.

CHIPS.

A new park, presented to the town of Bilston, near Wolverhampton, by Lady Hickman and the members of her family, as a memorial of the late Sir Alfred Hickman, was formally opened on Saturday.

The parish church of Swardeston, Norfolk, has been reopened after restoration, including new roof over the nave. The outlay has been £600, and the contractors were Messrs. Davy Brothers, of Swardeston.

The Mersey Docks and Harbour Board have adopted a recommendation of the works committee to carry out repairs to the bridge across the Wallasey Dock passage, and to the bridges across the Alfred Inner Entrances, Birkenhead, at an estimated cost of £4,350.

A new arc lamp giving a white light has been shown before the French Academy of Sciences by M. E. Roux. According to the *Electrical Review*, the electrodes are tungsten for the positive and mercury for the negative; the arc burns in an atmosphere of inert gas, or in vacuo, with a length of about 5mm. The lamp consumes 0.45 watt per candle-power, with a potential difference of 13 volts.

The work of restoring Sledmere House, near Malton, the home of Sir Tatton Sykes, which suffered from a disastrous fire on May 23, has been begun. The mansion is to be rebuilt on the same lines as the destroyed building. Workmen are clearing away the débris within the walls, but it will be some time before actual building can be commenced. The pictures still lie in the church, and a notice on the door announces that it is closed for the present.

The Bradford Town Hall Extension Sub-committee recommend the corporation to proceed with the scheme for linking-up the new and old town hall at a cost of £6,500. The new scheme is solely for internal alterations, neither the tower nor the present entrance being interfered with. The stairway at present leading to the old council chamber will be replaced by a new stairway passing through the old council chamber to the extension.

The new public schools built for the Northumberland County Council at Morpeth were opened on the 15th inst. by Sir Francis Blake, chairman of the education committee. The schools provide accommodation for 520 mixed scholars, and a cookery school for eighteen. The approximate cost is £7,343, exclusive of the furnishings, or £13 17s. 6d. per place. Mr. J. Topham Forrest was the architect, and Messrs. Robson and Waddle were the contractors.

At the Desert mill of the Tonopah Mining Company, a lathe is used for cutting zinc shavings, the unusual feature of which is that shavings are cut simultaneously on each side of the mandrel. The two cutting tools are fed against the zinc by a screw feed. The screw feeds, one for each of the cutting tools, are operated by pawls, driven by eccentrics that engage ratchet-wheels on the screw-feed axles. In this manner the high speed of the driving shaft is stepped down. The screws make 3.5 revolutions per minute, and are cut with threads so spaced that a forward travel of 0.58in. per minute is secured.

LATEST PRICES.

IRON.

Steel Joists, Belgian and German (ex steamer, London) Per ton	£5	12	6	to	£5	17	6
Steel Joists, English	6	10	0	..	6	16	0
Wrought-Iron Girder Plates	7	0	0	..	7	6	0
Steel Girder Plates	7	2	6	..	8	2	6
Bar Iron, good Staffs	8	0	0		8	10	0
Do., Lowmoor, Flat, Round, or Square	0	0			20	0	0
Do., Welsh	5	0			17	0	
Boiler Plates, Iron—							
South Staffs	8	0	0		8	16	0
Best Snedshall	9	0	0		9	10	0

Angles 10s., Tees 20s. per ton extra.

Builders' Hoop Iron, for bonding, &c., £8 16s. to £9.

Builders' Hoop Iron, galvanised, £14 to £15 10s. per ton

Galvanised Corrugated Sheet Iron—

	No. 18 to 20.			No. 22 to 24.		
6ft. to 8ft. long, inclusive gauge	Per ton. £13	0	0	Per ton. £13	10	0
Best ditto	13	0	0	14	0	0

Wire Nails (Points de Paris)—

	7	8	9	10	11	12	13	14	15	B.W.G.
	8/3	8/6	9/3	9/9	10/3	11/-	11/9	12/6	13/6	per cwt.

	Per ton.				Per ton.		
Cast-Iron Columns	£6	10	0	to	£8	10	0
Cast-Iron Stanchions	6	10	0	..	8	10	0
Rolled-Iron Fencing Wire	8	6	0	..	8	10	0
Rolled-Steel Fencing Wire	6	6	0	..	6	10	0
,, ,, ,, Galvanised	7	15	0	..	8	5	0
Cast-Iron Sash Weights	5	0	0		5	5	0
Cut Floor Brads	9	16	0				
Corrugated Iron, 24 gauge	16	0	0				
Galvanised Wire Strand, 7 ply, 14 B.W.G.	14	5	0	,,			

B.B. Drawn Telegraph Wire, Galvanised—

0 to 8	9	10	11	12	B.W.G.
£10 5 0	£10 10 0	£10 15 0	£11 0 0	£11 10 0	per ton.

Cast-Iron Socket Pipes—

3in. diameter	£6	2	6	to	£6	7	0
4in. to 6in.	6	0	0	..	6	5	0
7in. to 24in. (all sizes)	5	7	6	,,	6	0	0

[Coated with composition, 5s. 0d. per ton extra; turned and bored joints, 5s. 0d. per ton extra.]

Pig Iron—	Per ton.
Cold Blast, Lilleshall	110s. 0d. to 117s. 6d.
Hot Blast, ditto	70s. 0d. ,, 75s. 0d.

Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.) :—

Gas-Tubes	75	p.c.
Water-Tubes	72½	,,
Steam-Tubes	67½	,,
Galvanised Gas-Tubes	65	,,
Galvanised Water-Tubes	62½	,,
Galvanised Steam-Tubes	57½	,,

OTHER METALS.

Spelter, Silesian Per ton	£24	7	6	to	£24	10	0
Lead Water Pipe, Town	17	2	6	..			
,, ,, ,, Country	17	17	6	..			
Lead Barrel Pipe, Town	18	2	6	..			
,, ,, ,, Country	18	17	6	..			
Lead Pipe, Tinned inside, Town	19	2	6	..			
,, ,, ,, ,, Country	19	17	6	..			
Lead Pipe, Tinned inside and outside Town	21	12	6	..			
,, ,, ,, ,, Country	22	7	6	..			
Composition Gas-Pipe, Town	20	2	6	..			
,, ,, ,, Country	20	17	6	..			
Lead Soil-pipe (upto 4½in.) Town	20	2	6	..			
,, ,, ,, Country	20	17	6	..			
Over 4½in. £1 per ton extra.]							
Lead Shot, in 28lb. bags	24	15	0	..			
Copper Sheets, sheathing & rods	70	0	0	..	70	10	0
Copper, British Cake and Ingot	50	0	0	..	50	10	0
Tin, Straits	228	0	0	..	229	0	0
Do., English Ingots	200	0	0	..	200	10	0
Do., Australian	207	0	0	..	208	0	0
Do., Bars	201	0	0	..	201	10	0
Pig Lead, in 1cwt. pigs	14	10	0	..			
Sheet Lead, Town	16	12	6	..			
,, ,, Country	17	7	6	..			
Genuine White Lead	21	0	0	..			
Refined Red Lead	19	0	0	..			
Sheet Zinc	32	5	0	..			
Old Lead, against account	12	7	6	..			
Tin per cwt.	11	10	0	..			
Cut Nails (per cwt. basis, ordinary brand)	0	10	8	..			

TIMBER.

CONSTRUCTIONAL.

Per St. Petersburg Standard (100—12ft. by 11in. by 1½in.)

Yellow Pine Deals, Quebec, 1st quality	£34	0	0	to	£42	0	0
,, ,, ,, 2nd ,,	24	0	0	..	26	0	0
,, ,, ,, 3rd ,,	15	10	0	..	18	0	0
Spruce Deals: St. Johns	8	0	0	..	11	0	0
,, ,, Miramichi	7	6	0	..	8	10	0
,, Boards: Swag	7	0	0	..	8	0	0
Red Deals: Archangel 1st quality	20	10	0	..	21	10	0
,, ,, ,, 2nd ,,	15	0	0	..	17	0	0
,, ,, ,, 3rd ,,	11	0	0	..	12	0	0
,, ,, St. Petersburg—							
,, ,, 1st quality	13	0	0	..	17	0	0
,, ,, 2nd ,,	13	0	0	..	14	10	0
,, ,, Wyburg & Ulleaborg	10	0	0	..	12	0	0
,, ,, Gefle, Gothenburg, and Stockholm	10	0	0	..	17	0	0
White Deals: Crown	10	0	0	..	12	0	0
,, ,, Seconds	9	10	0	..	10	0	0
Flooring: White and Planed—							
1st and 2nd quality mixed	9	0	0	..	9	6	0
1st, 2nd, and 3rd quality mixed	8	5	0	..	8	10	0
Red Planed, 1st quality	11	5	0	..	11	10	0
Batch Pine: Prime Deals and Boards	17	0	0	..	20	0	0
Lignum Vitæ	5	10	0	..	12	0	0

Per foot super, as 1in.

Yellow Pine Logs (waney board)	0	2	9	..	0	4	3
Pitch Pine Logs	0	1	6	..	0	1	10
Birch: Quebec Logs	0	2	0	..	0	2	6
Oak: Austrian Wainscot	0	7	0	..	0	8	0
Mahogany Gaboon	0	6	1½	..	0	6	2½

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (50c.ft.)	£20	0	0	to	£21	10	0
,, Java ,, ,,	15	0	0	,,	18	0	0
	Per cubic foot.						
Oak Planks: U.S.A., imported	0	1	9	to	0	2	6
,, Boards ,, ,, Prm.	0	2	4	..	0	2	9
,, ,, ,, ,, Mdm.	0	1	10	..	0	2	2
Sequoia (Californian Redwood)	0	3	0	,,	0	3	6
Birch: Quebec logs	0	1	8	..	0	2	2
,, ,, sawn planks	0	1	0	..	0	1	2
Oak: Austrian Wainscot	0	7	0	..	0	8	0
Walnut: Prime boards & planks	0	5	0	..	0	6	0
,, Mdm. ,, ,,	0	3	4	..	0	3	6
Greenheart: Hewn logs	0	3	6	..	0	4	6
Cedar: Cigar box	0	3	6	..	0	4	6
Satin Walnut: Imp. sawn boards, prime	0	2	3		0	2	6
Orham: Imp. sawn boards, prime	0	1	10	..	0	2	2
Mahogany: St. Domingo, Cuba, and Honduras	Per foot of 1in. 0	0	5½	to	0	0	6
,, African, Assinee, &c.	0	0	1½	..	0	0	9
,, Lagos and Benin	0	0	3½	..	0	0	4½
,, Sekondi and Cape Lopez	0	0	2½	..	0	0	3½
,, Gaboon	0	0	1½	..	0	0	0
Satinwood: West Indian	0	0	10	..	0	2	2
Rosewood Per ton	7	0	0	..	12	0	0
Lignum Vitæ ,,	4	0	0	..	11	10	6

STONE.*

Red Mansfield, in blocks per foot cube				..	£0	2	4
Darley Dale, ditto				..	0	2	3
Red Corsehill, ditto				..	0	2	2
Closeburn Red Freestone, ditto				..	0	2	0
Ancaster, ditto				..	0	1	10
Greenshill, ditto				..	0	1	10
Chilmark, ditto (in truck at Nine Elms)				..	0	1	0
Beer, ditto				..	0	1	6
Hard York, ditto				..	0	2	10
Ditto ditto 6in. sawn both sides, landings, random sizes per foot sup.					0	2	8
Ditto ditto 3in. slab sawn two sides, random sizes				..	0	1	3

* All F.O.R. London.

Bath Stone, delivered on rail at quarry stations per foot cube					£0	1	0
Delivered on road waggons, Paddington Depot				..	0	1	6½
Ditto ditto, Nine Elms Depot				..	0	1	8½
Beer Stone, delivered on rad at Seaton Station				..	0	1	0
Ditto, delivered at Nine Elms Station				..	0	1	6

Portland Stone, in random blocks of 20ft. average :—

	Brown Whit Bed.				White Base Bed.		
Delivered to railway depot at the quarry per foot cube	£0	1	5½	..	£0	1	7½
Delivered on road waggons at Paddington Depot ..	..	0	2	1	..	0	2	2½
Ditto, Nine Elms Depot ..							
Ditto, Pimlico Wharf							

SLATES.

	In.	In.	£	s.	d.		
Blue Portmadoc	20 × 10	..	12	12	8	per 1000 of 1200 at r.stn.	
,, ,,	16 × 8	..	6	12	6	,,	,,
Blue Bangor	20 × 10	..	13	2	6	,,	,,
,, ,,	20 × 12	..	13	17	8	,,	,,
First quality	20 × 10	..	13	0	0	,,	,,
,, ,,	20 × 12	..	13	16	0	,,	,,
,, ,,	16 × 8	..	7	5	0	,,	,,
Eureka unfading green			£	s.	d.		
	20 × 10	..	15	17	6	,,	,,
,, ,,	20 × 12	..	18	7	8	,,	,,
,, ,,	18 × 10	..	13	5	0	,,	,,
,, ,,	16 × 8	..	10	6	0	,,	,,
Permanent green	20 × 10	..	11	12	6	,,	,,
,, ,,	18 × 10	..	9	12	6	,,	,,
,, ,,	18 × 8	..	6	12	6	,,	,,

BRICKS.

(All prices net.)

Hard Stocks	£1	6	6	per 1,000 alongside, in river
Rough Stocks and Grizzles	1	6	0	,, ,, ,,
Picked Stocks for Facings	2	10	0	,, delivered at railway station.
Flettons	1	6	0	,, ,, ,,
Pressed Wire Cuts	1	16	0	,, ,, ,,
Red Wire Cuts	1	14	0	,, ,, ,,
Best Fareham Red	3	12	0	,, ,, ,,
Best Red Pressed Ruabon Facing	5	0	0	,, ,, ,,
Best Blue Pressed Staffordshire	3	15	0	,, ,, ,,
Ditto Bullnose	4	0	0	,, ,, ,,
Best Stourbridge Fire Bricks	3	14	0	,, ,, ,,
2¾" Best Red Accrington Plastic Facing Bricks	4	10	6	Net, delivered in full truck loads in London.

	Per 1,000		
3¾" Accrington Best Red Plastic Facing Bricks	£2	10	0
3¾" Ditto Second Best Plastic ditto	2	2	6
Ditto Ordinary Second Bricks	1	11	3
Ditto Plastic Engineering Bricks	1	17	6
Sewer Arch Brick, not more than 3¾" at thickest part	2	0	0
3¾" Chimney Bricks fit for outside work	2	6	0
3¾" Ditto Ditto through and through	2	0	0
3¾" Bended, Ovolo and Bevel Jambs Octagons; 2¼ and ½ radius Bullnoses. Stock patterns	3	7	6
Accrington Air Bricks, 9" × 2 course deep, each	0	0	6
Ditto Ditto 9" × 1 course, each	0	0	3

Accrington Camber Arches —

3 course deep, 4in. soffit, per foot opening					0	1	3
4 ditto 4½ ditto ditto ditto					0	1	8
5 ditto 4½ ditto ditto ditto					0	2	1
6 ditto 4½ ditto ditto ditto					0	2	
3 ditto 9 ditto ditto ditto					0	2	1
4 ditto 9 ditto ditto ditto					0	2	11
5 ditto 9 ditto ditto ditto					0	3	9
6 ditto 9 ditto ditto ditto					0	4	6

Net, free on rail or free on boat at works.

GLAZED BRICKS.*

HALF GLAZES. (PER 1,000.)

White, Ivory, and Salt Glazed. Best.	Seconds.	Buff and Cream.	Best. Other Colours.	Second Colours.
Stretchers—				
£10 17 6	£9 7 6	£12 7 6	£18 7 6	£10 17 6
Headers—				
10 7 6	8 17 6	11 17 6	15 17 6	10 7 6
Quoins, Bullnose, and 4½in. Flats—				
13 17 6	12 17 6	18 7 6	19 17 6	14 7 6
Double Stretchers—				
16 7 6	14 17 6	18 7 6	22 17 6	16 7 6
Double Headers				
13 7 6	11 17 6	16 7 6	19 17 6	13 7 6
One side and two ends, square—				
17 7 6	15 17 6	20 7 6	24 17 6	17 7 6
Two sides and one end, square				
18 7 6	16 17 6	21 7 6	25 7 8	18 7 6
Splays and Squints—				
15 17 6	14 7 6	20 7 6	23 7 6	15 17 6
Plinth and Hollow Bricks. Stretchers and Headers—				
5d. each	4d. each	6d. each	6d. each	5d. each
Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres—				
6d. each	4d. each	8d. each	6d. each	5d. each
Rounded Internal Angles—				
4d. each	3d. each	6d. each	5d. each	4d. each

MOULDED BRICKS.

Stretchers and Headers				
S1. each	S1. each	S1. each	S1. each	S1. each
Internal and External Angles				
1 2 each	1 2 each	1 2 each	1 2 each	1 2 each
Cill Bullnose, Stretchers and Headers—				
5d. each	4d. each	6d. each	6d. each	5d. each

	Per 1,000
Majolica or Soft Glazed Stretchers and Headers	£21 17 6
,, ,, ,, Quoins and Bullnose	25 17 6

Compass bricks, circular and arch bricks of single radius £3 per 1,000 over above list for their respective kinds and colours } Not exceeding 9in. × 4½in. × 2½in.

Camber arch brick, any kind or colour, 1s. 2d. each

Stretchers cut for Closers and Nicked Double Headers, £1 per 1,000 extra.

* These prices are carriage paid in full truck loads to London stations.

	s.	d.	
Thames and Pit Sand	7	0	per yard, delivered.
Thames Ballast	6	6	,, ,,
Best Portland Cement	28	0	per ton, ,,
Best Ground Blue Lias Lime	19	0	,, ,,

Exclusive of charge for sacks.

Grey Stone Lime	11s. 6d. per yard, delivered
Stourbridge Fireclay in sacks 27s. 0d.	per ton at rly. stn.

TILES.

	s.	d.	
Plain red roofing tiles	42	0	per 1000 at rly. str.
Hip and Valley tiles	3	7	per doz. ,, ,,
Broseley tiles	50	0	per 1000 ,, ,,
Ornamental tiles	52	6	,, ,, ,,
Hip and Valley tiles	4	0	per doz. ,, ,,
Ruabon red, brown, or brindled do. (Edwards)	67	6	per 1000 ,, ,,
Ornamental do.	60	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	0	,, ,, ,,
Selected "Perfecta" roofing tiles:—Plain tiles (Peake's)	48	0	per 1000 ,, ,,
Ornamental do.	48	6	,, ,, ,,
Hip tiles	3	10½	per doz. ,, ,,
Valley tiles	3	4½	,, ,, ,,
"Rosemary" brand plain tiles	48	0	per 1000 ,, ,,
Ornamental tiles	60	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	8	,, ,, ,,
Staffordshire (Hanley) Reds or Brindled tiles	42	8	per 1000 ,, ,,
Hand-made sand-faced	45	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	6	,, ,, ,,
"Hartshill" brand plain tiles, sand-faced	50	0	per 1000 ,, ,,
Pressed	47	6	,, ,, ,,
Ornamental do.	60	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	8	,, ,, ,,

OILS.

Rapeseed, English pale, per tun	£26	15	0	to	£29	5	0
Do., brown	,,	...	26	15	0	,,	27	5	0
Cottonseed, refined	,,	...	29	0	0	,,	30	0	0
Olive, Spanish	,,	...	39	10	0	,,	40	0	0
Seal, pale	,,	...	21	0	0	,,	21	10	0
Cocoanut, Cochin	,,	...	46	0	0	,,	46	10	0
Do., Ceylon	,,	...	42	10	0	,,	43	0	0
Do., Mauritius	,,	...	42	10	0	,,	43	0	0
Palm, Lagos	,,	...	32	5	0	,,	33	5	0
Do., Nut Kernel	,,	...	36	0	0	,,	35	10	0
Oleine	,,	...	17	5	0	,,	19	6	0
Sperm	,,	...	30	0	0	,,	31	0	0
Lubricating U.S. per gal.			0	7	0	,,	0	8	0
Petroleum, refined	,,		0	0	8½	,,	0	0	6½
Tar, Stockholm per barrel			1	6	0	,,	1	10	6
Do., Archangel	,,		0	10	6	,,	1	0	0
Linseed Od per gal.			0	3	9	,,		—	
Baltic Oil	,,		0	4	0	,,		—	
Turpentine	,,		0	3	11½	,,		—	
Putty (Genuine Linseed Oil) per cwt.			0	11	0	,,		—	
,, Pure Linseed Oil, "Stority" Brand	,,		0	10	0	,,		—	

GLASS (IN CRATES).

	15oz.	21oz.	26oz.	32oz.
English Sheet Glass:				
Fourths	1¾d.	2¾d.	3¾d.	4¾d.
Thirds	2¼d.	3¼d.	4d.	5d.
Flinted Sheet	2¾d.	3¾d.	6d.	6¾d.
Hartley's English Rolled Plate:	⅛in.	3/16in.	¼in.	
	2¼d.	2¾d.	3¼d.	

Figured Rolled and Repoussine :	White. Tinted.
	3½d. ...

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THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House, Strand, W.C.

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OUR ILLUSTRATIONS.

The Royal Insurance Company's New Offices, Lombard-street, E.C. Messrs. Gordon and Gunton, Architects. Exterior and Interior Views.

Church of St. Lawrence Jewry, Gresham-street, E.C.: Organ Case and West End. Drawn by Mr. F. Dowdeswell.

Selected Design, Royal Infirmary, Bradford: Mr. Wm. A. Pite, F.R.I.B.A., Architect.

Some Jacobean Furniture at the South Kensington Museum.

Amoire Presented to the King and Queen.

The Old Architecture of London: Sword-rest, All Hallows, Barking; Entrance Doorway, Friends' House, Croydon; The George Inn, Southwark.

THE RIGHT TO SUPPORT OF LAND.

By right here we mean natural right, as distinguished from that legal right which may be acquired in various ways, and which then becomes, and is known as, an easement. This natural right belongs to the owner of land. Every man having land adjoining, or over, the land of another has a natural right to require that other to continue the support afforded to him by the soil of his land. It is obvious that the existence of this right is essential to the possession and enjoyment of land as property. Without it a neighbouring owner could, by excavation on his own ground from the top, take away that lateral support which is necessary, so that the land would collapse or crumble by erosion, as it does upon our coast, to the gradual diminution of its area. So in the same way, unless there was a right to the support of the soil beneath it, the surface would fall in if that soil could be removed by the possessors of mines below without any liability to provide for its support. But this natural right to the support of land from other adjacent or subjacent land only extends to such as is necessary to keep it from falling in or away. It does not, of itself, include a right to the support of buildings also, which is a separate matter, and must be acquired as an easement. And yet this natural right of support may be of great practical importance to the owner of the land, for it continues as a distinct right, even after buildings have been erected. There have been cases in which reliance had to be placed upon this natural right to support of the land, in order to save the buildings thereon; for as to these, where no easement has been acquired, the owner has to fall back upon the obligation of adjoining owners not to remove the lateral support in such a way as to make his land sink of itself, and as it would have done had no buildings been erected. A case of this kind may at any time be repeated, so that points which may seem to some rather theoretical are found to be of vital interest, and are fully explained in Mr. Goddard's well-known textbook on the Law of Easements, the leading authority, of which a new edition has recently been issued.*

It has been decided that there is no natural right to the support of land by underground water. This is an important principle, which is, however, in its application, subject to certain modifications. If, for example, the support is afforded not by underground water alone, but by wet sand or running silt, a landowner will be liable if, by excavating in his own land, he causes the silt to percolate from under his neighbour's land, and thus withdraws the support. In cases of this kind, it is clear that the facts would have to be ascertained, for it has been decided that the mere withdrawal of the water, which supported the surface, by an excavation in an adjoining plot, which caused that water to drain away, would not entitle the owner to recover damages. The difference arises where the water is so mixed with sand or soil as to form part of the land itself; and this distinction may often be of much importance. If we express this natural right to support of land in a negative way, it can be stated as imposing an obligation upon adjacent and subjacent owners not to interfere with the ordinary enjoyment of the land by its owner in its natural condition. Subject to this right of support, every owner of land is entitled to excavate it to the fullest extent, so long as no disturbance takes place in the land adjoining. But when it is clear that the lateral support of land is being imperilled, the owner is not bound to wait until all the harm is done, and then claim damages, for he can apply to the Court, and upon proof of his right, and its infringement, obtain an injunction against any further excavation, as well as damages for loss already incurred.

The owner of land cannot increase his natural right to support from adjacent land to the extent of the weight of buildings he may erect thereon. From this, it follows that if an adjoining owner excavates upon his plot, and so causes the land to sink, he will not be liable if this falling in is brought about by the added weight of the buildings, as he would be if it can be shown that this weight made no difference. In other words, the natural right of support to land does not include buildings, so that to get a separate right for their support there must be some evidence of the acquisition of an easement of that kind. Thus where a landowner removes his own subsoil, and so makes the surface less stable, he cannot claim a greater lateral support from his neighbour's land than would naturally be given, simply because by his own act he requires more; for the adjoining owner still remains entitled to excavate upon his own land, subject, of course, to the natural right of support accruing to the owner of the land in its natural condition. But an easement of support may be acquired by grant express or implied, which would give him a legal claim to such support under the changed circumstances. The drainage of wet and spongy land often raises questions when it is found that, as a result, there is a subsidence upon land adjoining, with probably a settlement of buildings. It is a clear rule of law that an owner has a right to drain his own land, even if by so doing he draws off the water which was, in fact, the support of his neighbour's property. If, however, he draws sand away with the water, it would become a question of fact as to whether the withdrawal was not that of soil rather than water, so that there might be an infringement of the natural right to support, with consequent legal liability.

Another curious position arises where surface water upon land is, in fact, supported by underground water. In this case, it appears that if the surface water is in a defined and definite stream, the owner of that land has a right to the continued support of the underground water upon which his surface depends. Questions of this kind have arisen about canals and water companies, and are of much practical moment. The general principle of the cases is that the right of a landowner to collect underground water from the soil adjoining must be treated as subordinate to the right which other persons have in surface streams. So where a local board drained away the underground water beneath a canal, which caused the bed of the stream to sink to a lower level, and thus reduce the supply, they were held liable. There are many other points which can be raised as to drainage of land which injures a well sunk upon an adjoining property, or which reduces the water in an adjacent reservoir. But these would require the full consideration not only of the legal principles involved, but also of very complex states of facts, and cannot here be gone into, being often more allied to matters affecting natural rights in water itself rather than in land.

As to the extent of the natural right of support to land, it is laid down as a principle that this is absolute and unlimited. From this it follows that, if the means of that support are removed, whereby the surface of the land is made to sink, the person removing the same is legally liable in damages. This general rule applies to both adjacent and subjacent support, and it has even been enforced where the owner of minerals has used all possible care in excavating according to the custom of the country in which the mines are situated. Sometimes it happens that the soil is of such a nature as to make it impossible to excavate minerals without causing a subsidence of

* A Treatise on the Law of Easements. 7th Edition. By the Author and N. L. Goddard. Stevens and Sons, Ltd., Chancery-lane. Price 25s.

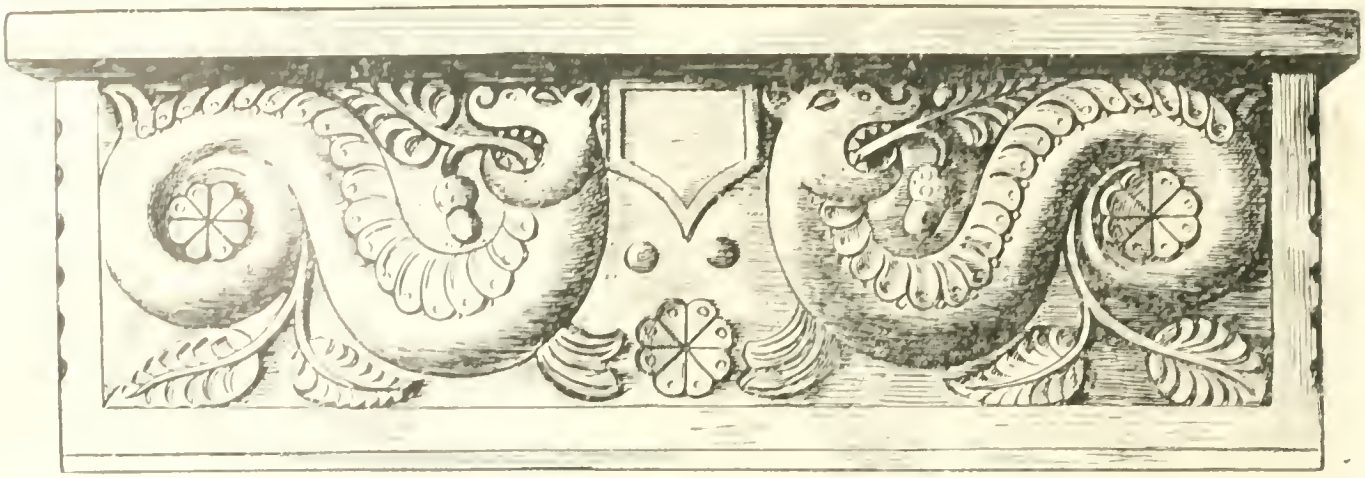
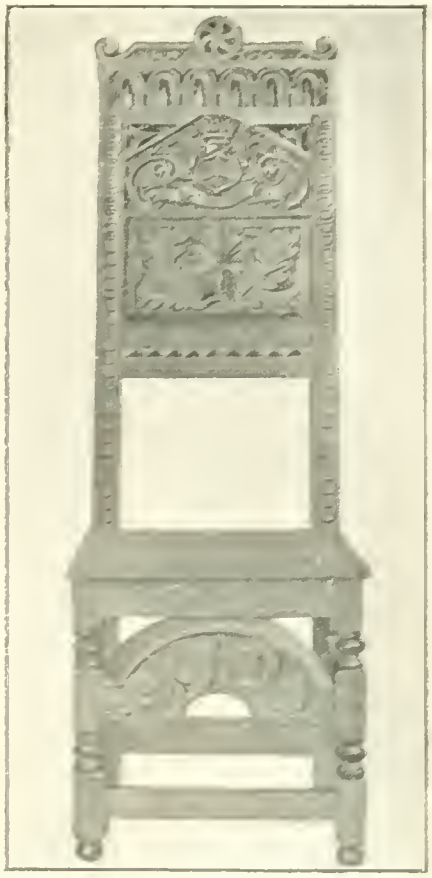
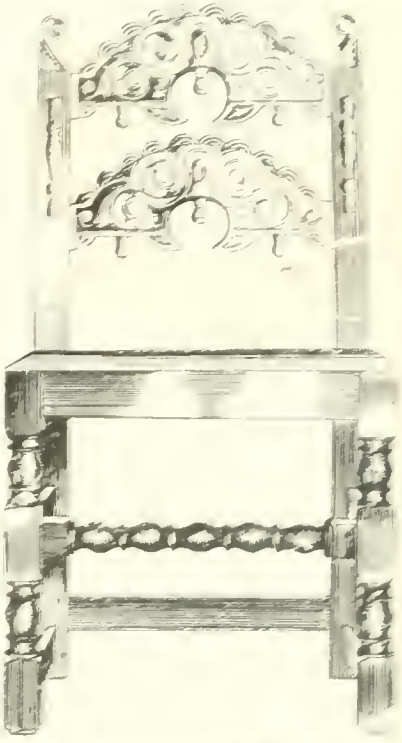


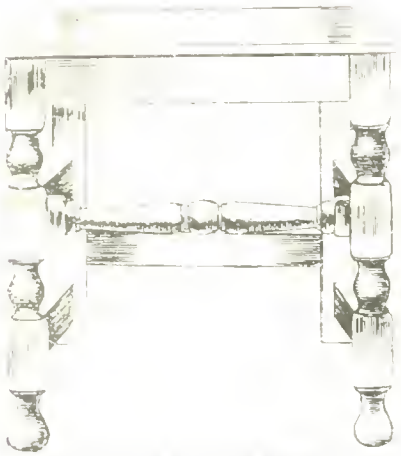
FIG. 1.—Bible Box, with Grotesque Monsters.

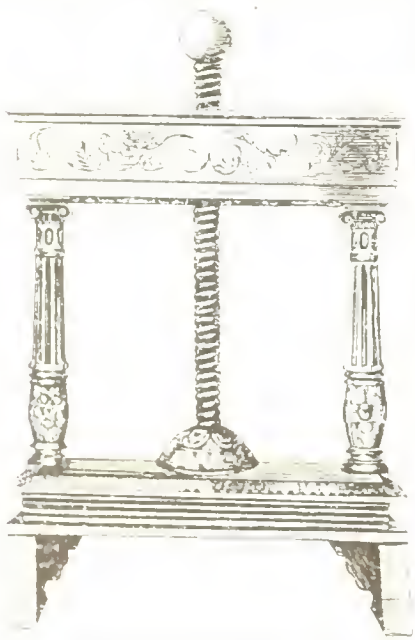
FIG. 2.—Chest. Late 17th Century.

Fig. 2.—Oak Cupboard.—17th Century.









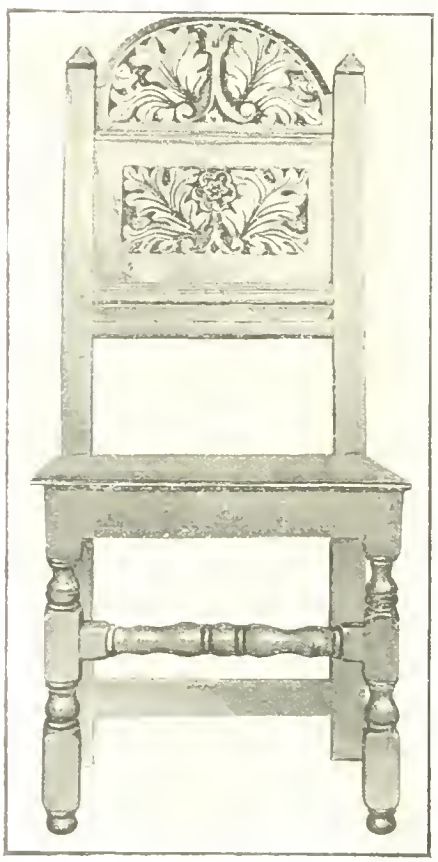


FIG. 7.—Oak Chair.—Made in Lancaster.

are numerous examples extant with merely these elements varied in arrangement.

At this period the applied split baluster ornament became very popular, and may be seen in example Fig. 5 on the upright of the back. This became, like the scrolled finial a feature. It consisted merely of a turned ornament sawn in half and we find this method of enrichment on many other articles besid s chairs, the colour of the wood of the spindle being often in direct contrast with the piece it decorated.

The Derbyshire pattern includes three small arches at the back, supported by barley twist spindles, the rails being also enriched with incised work. The design of this chair Fig. 6 is on this principle, but it is of later date than the usual Derbyshire pattern chairs, this being contemporary with the tall walnut chairs of Charles II's reign. But the same plan has been followed with considerable success, although the details, the incurving C scrolls in particular, show a slight transition in style. The oak panel-back chair illustrated in Fig. 7 would probably be a late one, and was made in Lancashire. It is 3ft. 8in. in height and includes a carved panel and lunette. Note the very similar treatment of the lunette with the previous example.

The Lincoln press illustrated in Fig. 8 is

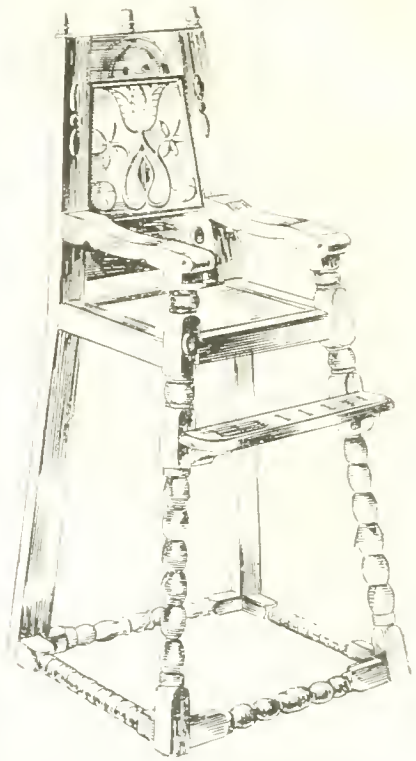


FIG. 9.—Child's Chair.—About 1670.

a remarkable instance of the infinite care which was bestowed at the time even upon the less important articles of use.

Two interesting articles of furniture connected with 17th-century children are shown in Figs. 9 and 10. The first of these is some years after the Restoration, about 1670, probably the knobbed legs and sunken seat corresponding with the ordinary chairs of this time. The cradle is later still; but the Jacobean influence is still very apparent. The cradle is strongly made in oak, and probably has served for many generations of babies. The posts terminate in knobbed finials,

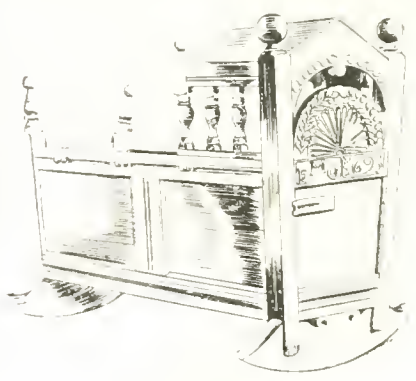


FIG. 10.—Oak Cradle.—Dated 1693.

while underneath the carved lunette at the back are the letters F.M.G. and the date 1693.

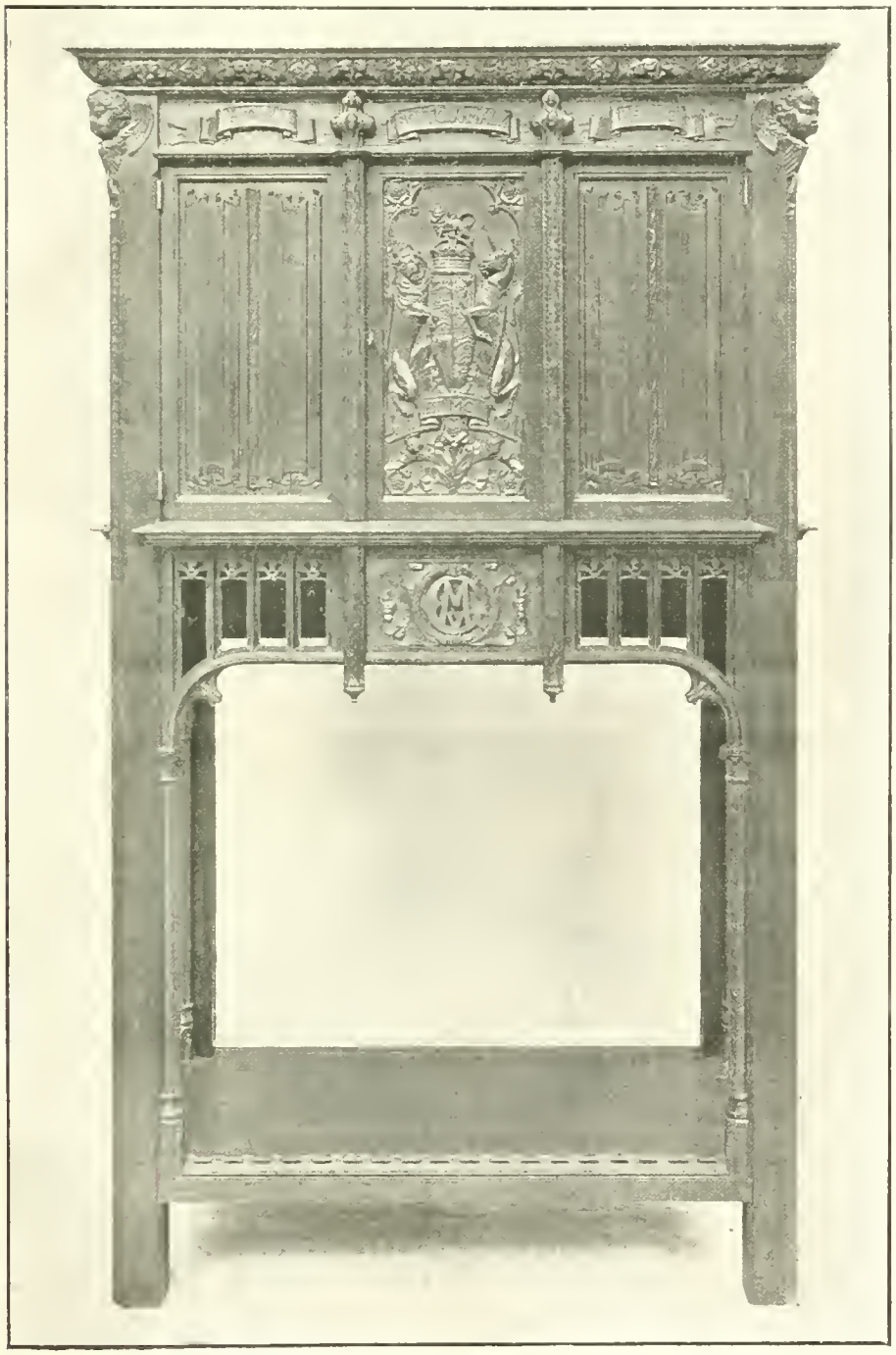
G. F. RHEAD.

At Vancouver, B.C., all the affiliated trades connected with the Building Trades Council have threatened to go out on strike unless the Master Builders' Association meets the demands of the carpenters who are asking 4.50dol. for an eight-hour day. Four thousand workmen are said to be associated with the Building Trades Council. Contractors state that at present they can get all the men they need.

ARMOIRE PRESENTED TO THE KING AND QUEEN.

This cabinet, or armoire, has been presented to their Majesties on the occasion of their Coronation by the staff and students of the School of Art Wood Carving, South Kensington.

The armoire was designed by the head master, and carved by the students of the school. The wood used is French walnut, and the design is carried out on the lines of the Transitional Gothic of the "François Premier" period. The details are modern, but treated somewhat severely, in accordance with the style. The cabinet stands 4ft. 6in. high, and is 2ft. 9in. wide, the upper portion forming a cupboard, with an opening of 2ft. by 1ft. 4½in. by 1ft. 7½in. high. Beneath the centre of the cupboard is a drawer 8in. by 5in. by 15in. deep. The Royal monogram is introduced in the carved panel on the front of this drawer. The door which forms the centre panel is richly carved with the Royal Arms, the Rose, the Thistle, and the Shamrock. On either side, and at the sides of the cupboard, are six panels ornamented with the linenfold pattern, with a very delicate line of carving down the centre of each. The three front panels are separated by small columns richly tooled and finished off with finials and pendants. The cupboard rests on three arches and bands of pierced tracery. These arches are supported by small shafts with caps and bases; they are octagonal in section, and covered with delicately tooled ornament. The whole is surmounted by a cornice consisting of a convex moulding pierced and carved with roses and foliage, and a frieze on which is carved an inscribed Garter. At the two angles are winged cherubs' heads carved out of the angle-posts.



ARMOIRE PRESENTED TO THE KING AND QUEEN.

The School of Wood-Carving came into existence in 1878, under circumstances familiar to our readers. It has abundantly justified its existence. The secret of its success is the singleness of its aim and the cultured enthusiasm of an expert committee, combined with the immediate proximity of the schools to the National Collections of examples, both of Applied Art and Natural History.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The presentation of the Royal Gold Medal for 1911, and the handing over to the library of the original interleaved copy of the "Parentalia," drew to the closing sessional meeting of the Institute on Monday a crowded assembly of members and distinguished visitors, including many ladies. The President, Mr. Leonard Stokes, occupied the chair, and in his opening remarks expressed the pleasure that all felt in the distinction of knighthood that had just been conferred by his Majesty on two recent Royal Gold Medallists their friend, Sir Ernest George, who so recently retired from the presidential chair, and Sir Arthur Evans, the distinguished archæologist. He was sure that all would wish that congratulatory letters should be sent to each of their friends and colleagues a suggestion received with hearty applause.

A number of newly elected members were formally submitted by the President, Miss Hobson, a Lady Licentiate, receiving a specially cordial greeting and much applause.

THE ROYAL GOLD MEDAL.

General disappointment was evident when the President announced with deep regret that he had received a letter from Dr. Wilhelm Dorpfeld, to whom the Royal Gold Medal for the promotion of Architecture, conferred by the King, was to have been presented that very evening, that he was unable to attend to receive that distinction. Dr. Dorpfeld, whose letter, written from Berlin, was read by the Secretary, explained that he was suffering from a return of the illness which prostrated him last winter, and that his medical attendant had ordered him to leave for Carlsbad without delay. The work he had carried out had been executed on the lines laid down by his first principal, the late Mr. F. C. Penrose, the Nestor of Greek archæology, and he hoped in any further investigations which he might be spared to undertake, to carry them out on the principles laid down by Penrose. Continuing, the President observed that the German Ambassador had been good enough to depute Count Heinrich Bentinck, an attaché of the Embassy, to receive the medal, which should be forwarded to Dr. Dorpfeld. He would call upon Professor Beresford Pite to read a resume he had kindly prepared, recalling to members the great work which Dr. Dorpfeld had done in the cause of Greek archæology, and which had led the Council to recommend his name to the King as a fitting recipient for this high honour.

In the course of his paper, Professor Beresford Pite mentioned that Dr. Wilhelm Dorpfeld, architect, Doctor of Philosophy and of Laws, was born at Barma on December 26, 1853, was educated at the gymnasia of Barma and at the Technical High School in Berlin. At the age of twenty-four he was appointed architect to the German Institute of Archæology at Athens, and thence to the excavations at Olympia. Since then, for well-nigh forty years, his life-work had concentrated itself upon Grecian life and architecture. His enthusiastic zeal, strengthened by a profound scholarship, had developed and advanced the scientific excavation of ancient sites, and the elucidation by classification of the constantly-accumulating discoveries had made him not only a great discoverer, but an inspiring teacher; while his boldness and certainty of vision in re-creating the hitherto almost unrevealed world of pre-Hellenic thought expressed in historical facts, constituted a forcible claim for his recognition as a great imaginative constructor. For this work as a discoverer, as an elucidator, and as a reconstructor of the foundations upon which the glories of Greek architecture were achieved, British architects to-day offered again their recognition and applause to their German confrère, the great successor of Schliemann, upon whom the Royal Gold Medal for Architecture was conferred twenty-six years ago. Dr. Dorpfeld's work might be broadly described as that of manifesting to the world for the first time the true import of the almost magical discovery of his friend and master, that true amateur of Greek archæology, Heinrich Schliemann. The

who were farther off, the hidden mysteries of the Acropolis rock had become still more vitally interesting and suggestive to us. The Erechtheum was a problem not yet solved, but Dorpfeld's pregnant suggestion that the Porch of the Maidens and the Northern Portico might be the designed counterpart incomplete elevations was proved by piers, and architecturally sponsored and since he indicated how the Greek temples were attended by such hindrances and political and civic troubles as of late years have provoked Parliamentary inquiry, he touched a note which proved that he was not only an archæologist, but a seer. Dorpfeld's courageous optimism, in spite of the obstructive presence of those six lovely maidens that the ancient Athena Temple, with its Periclean treasury, was not removed, but maintained after the Persian wars, alongside the first Parthenon, if not two of the second, was another vivid instance of the unextinguishable interest of the aspect of the Acropolis at its splendid acme. Dorpfeld's Athenian work included the proposition which Penrose's excavations afterwards justified, that the temple of Jupiter Olympius was octastyle, and had a large practical development in excavations on an extensive scale between the N.W. foot of the Acropolis and the Pnyx, tracing the ancient water-supply and laying bare a thickly built over quarter of the city. His remarkable work on the Greek Theatre should be mentioned, and his interesting discovery that the original stage was in the ground level. In conclusion Professor Pite said: Upon the Roll of those honoured by the Royal Gold Medal is found the first in 1848 the great name of Cockerell, great as architect, explorer and archæologist, followed by Cahill in 1849 of Roman fame, Donaldson in 1851, Hittorf of Sicilian fame in 1855; Penrose, alike architect and Grecian archæologist, in 1865; Texier, the Byzantine companion of our late colleague Pullan in 1867; Layard, of Nineveh, in 1868; Lepsius, for Egyptian research, in the following year; and the Marquis de Vogüe, great for his stimulating Syrian work in 1879, alas! only lately gone from us; Penrose himself in 1883; Dörpfeld's companion and leader, Schliemann, in 1889; Lanciani of Rome, in 1900; Choisy in 1904 and Evans in 1909 all archæologists great in word and deed to whom by favour of King George V. is added to the name of Wilhelm Dörpfeld, with the sincere gratitude of his English confrères for the architectural stimulus that his discoveries have afforded, and for the brilliant expositions by which his genius has made the hidden embodiments of ancient intellect retell the story of their birth for our instruction.

The President then handed the case containing the Royal Gold Medal to Count Bentinck, explaining that in the presentation the Royal Institute of British Architects was only the medium and agent of his Most Gracious Majesty the King. He desired the Count to convey to Dr. Dörpfeld with the medal the expression of their sincere sorrow at his illness and of their best wishes for his speedy recovery.

Count Bentinck said he should have great pleasure in forwarding to Professor Dörpfeld the medal presented by King George, and in the meantime thanked the Institute for having recommended him for so high a distinction.

THE INTERLEAVED ILLUSTRATED COPY OF WREN'S "PARENTALIA" WITH MANUSCRIPT ADDITIONS.

[illegible] Wren [illegible] R.I.B.A., Hon. [illegible] exhibited a volume to [illegible] body of subscribers [illegible] Sir [illegible] Wren, [illegible] 1723. His son, [illegible] somewhat [illegible] "Parentalia." [illegible] Wren, [illegible] Wren, Dean [illegible] the architect [illegible] called a [illegible] supply the [illegible] [illegible] [illegible]

the scale had added some buildings which it is reasonable to assume had their influence on his work, and others which in turn were the result, more or less, of his influence. In the library of Shirburn Castle there is a copy of Wotton's "Elements of Architecture," first edition, 1624, annotated by the hand of Sir Christopher himself. By the courtesy of the Earl of Macclesfield the lecturer was able to show some photographs of the more interesting pages. Mr. Weaver also showed an interesting little book in his own possession—a copy of the third edition of Elyot's "Governour," published in 1546, and bearing on the title-page the autographs not only of Sir Christopher Wren, but of his father, Dean Wren. Another exhibit was a photograph and two drawings, lent by Mr. J. W. Dinwiddy, of the Manor-house, Crooms Hill, Blackheath. This is not generally accepted as being the work of Wren; but the deeds show, said the lecturer, that it was built in 1697, and this coincides exactly with the time when Wren was building at Greenwich and Morden College. Moreover, the treatment of the panelling is very distinctly in the Wren manner. Sir James Robinson, for whom the house was built, was acting as a Crown officer in this district at the same time as Wren, and would be in intimate touch with him. He also exhibited, by the courtesy of the Bath Stone Firms, Ltd., the originals of some warrants and correspondence of Wren, in connection with the obtaining of the Portland stone for the building of St. Paul's Cathedral. In conclusion, he mentioned that he had been informed that there is a lady living, named Mrs. Howe, who claims to be descended from Wren in the direct line. This cannot be established, but she appears to be descended from a Thomas Wren, of Ware, Hertfordshire, who had a certain reputation as an architectural sculptor and as a modeller of plaster ceilings.

In proposing a vote of thanks to Mr. Weaver, Mr. H. H. Statham quoted Professor Lethaby's remark that the peculiar merit of Wren was that he knew exactly what could be done with the Renaissance detail they all had at hand. Wren had a faculty for putting together with discrimination the elements of building which already existed. Objection might be made to some of his details, such as the swags of foliage and fruit; but Wren's was not the day of full-sized details, and it was probable that a good deal of freedom was left to the carvers. Wren taught us architectural design, the expression of idea in plan and section, as shown in the greatest diversity in his numerous London churches. Each church was separately and diversely conceived in plan, in section, and in detail. Furthermore, he possessed the unique quality which was ironically called common-sense, and thought out in advance all the minutiæ of each building problem and the use and purpose of any edifice he set himself to design.

Mr. Paul Waterhouse, in seconding the motion, remarked that Wren was one of the small group of men who seemed capable of doing anything to which they set their hand; he was an all-round man, possessing a wide grasp of theory and practical knowledge, and withal in personal characteristics the meekest and humblest of men. It had been said that architects might be classified as ants, mere collectors; spiders, non-producers; and bees, who were both collectors and producers, and Wren certainly belonged to the last category. In conclusion, he would thank Mr. Weaver not only for his successful efforts in securing this invaluable copy of the "Parentalia" for the Institute library, but for his interesting paper, which so clearly and sympathetically set forth the worth of the treasure he had preserved to them, and also for the magnificent gems of illustrations of Wren's work hung on the walls of the meeting room.

The vote of thanks was carried by acclamation.

The President reminded the members of the annual dinner, to be held at Fishmongers' Hall on Tuesday in next week, and announced that the Council had decided to extend the present session until October 31, as some important business matters still remained to be dealt with.

ECCLESIASTICAL EXHIBITION AT STOKE NEWINGTON.

In connection with the 58th anniversary of the consecration of St. Matthias', Stoke Newington, an exhibition has been held of the vestments, plate, etc., belonging to that church. The display was admirably arranged by the sacristan and servers in one of the schoolrooms—the room, in fact, in which, from 1849 to 1853 the services of the then newly-formed district parish of St. Matthias were held while the present church, a noble example of Mr. Butterfield's early style, was in course of erection. St. Matthias being one of the earliest churches in which an advanced ritual was adopted, the accumulation of vestments, plate, etc., has been very considerable, and visitors had an opportunity of inspecting the suits of vestments first used in 1865, as well as those which have been presented within recent years. The needlework on many of these chasubles, dalmatics, tunicles, and copes is of great beauty and refinement, much of it being from the needles of the ladies of St. Matthias; in particular we observed that of a mitre, kept for the use of a bishop when he visits the church. Among the earliest contributions of altar-plate, we noticed the flagon used for the first time at the opening of the school-church on All Saints' Day, 1849, and the cross which was placed upon the altar of the present church shortly after its consecration in 1853. The latter, designed by Mr. Butterfield on a model approved by the Ecclesiological Society, is of singularly beautiful outline, the stems being crocketed, and the quatrefoils terminating them relieved with the symbols of the Evangelists. About twelve years ago this cross was encircled with precious stones, through the munificence of a member of the congregation, and is now displayed on Sundays and festivals upon the altar of the side-chapel, a cross of larger dimensions, but of equally beautiful outline, having been provided for the high altar early in the seventies. Besides these, there were many other interesting objects, such as altar frontals, palls, corporals, chalice veils, all exhibiting much delicacy of workmanship; processional crosses, banners, thuribles, illuminated altar-books, etc.

On a side table Mr T Francis Bumpus, the vicar's warden (author of several books on ecclesiastical architecture), had arranged a collection of books and pictures, and other objects of ecclesiological interest, including numerous photographs of cathedrals and churches in England, France, Germany, Italy, and Scandinavia; Wild's series of drawings of French and English Cathedrals (1825-1835); Mr. Butterfield's original sketch for S. Matthias' Church, made in 1850; and a fine series of photographs illustrating Mediæval instrumenta in North-West Germany. Other interesting items were Merbecke's Book of Common Prayer, noted, and Dyce's Book of Common Prayer in black-letter, also partly noted. This is one of Pickering's early publications, and now extremely scarce.

There was also shown a complete set of the St. Matthias choir-lists from 1853 to 1866, written weekly by the late Mr. Spenser Nottingham, precentor, between the years above named. For the precision and care with which these weekly lists were written, they must be regarded as perfect models. These interesting documents were carefully preserved by Mr. Nottingham after his retirement from the work at St. Matthias, and, after causing them to be handsomely and substantially bound, his widow has generously given them to be preserved among the archives of St. Matthias.

A large number of persons visited the exhibition while it remained open, the clergy, Mr. Francis Bumpus, and other officials being in readiness to explain the various objects of interest to the company, and also to attend them to the church, whose fine proportions elicited much admiration.

Mr. H. H. Scott, borough surveyor, has been appointed surveyor to the Hove Borough Education Committee, at an additional salary of £30 per annum.

THE MATERIALS USED IN PAINT MANUFACTURE.*

By G. B. HECKEL.

During recent years we have become somewhat familiar with the term "Scientifically Prepared Paint," and have heard or read some controversy over the propriety of the term. I hope to show before I finish that the term is justified, and that prepared paint is not only a product of science and civilisation, but that it is also a result of progress and evolution, as much as any other modern product. An English writer has said of paint making, that it was first an art, then a trick, but that now it has become a science. I have here a relic of the earliest known American paint makers—probably the same people who built the mysterious mounds of the Mississippi Valley. It has an axe or hatchet of hematite, and if properly crushed and ground, would make a good grade of iron oxide. It was found in a tunnel uncovered at Lesley, Missouri, by modern miners, who are still taking oxide from the same vein. Iron oxide was one of the pigments known to the aboriginal. He reduced the native hematite to powder, mixed it with oil, grease, mucilage, or gums, and applied it as a heraldic decoration to his face or wigwam, or used it in the crude decoration of his household utensils. The history of all races in the use of paint is practically the same. The first pigments used are the natural earth colours, or simple vegetable dyes. They are devoted to personal decoration—commonly heraldic—and later their use is extended to other decorative purposes. It is only in a higher stage of development and civilisation that the protective value of paint is recognised. This evolution is the natural accompaniment of change from the nomadic state, where dwellings are temporary, to the fixed life of civilised society. Let us consider a typical high-grade paint formula. It contains the following ingredients:—

ANALYSIS OF PEA GREEN.
(United States Standard Measure.)

	Per cent.
Pigment by weight	48.00
Thinner by weight	52.00
	100.00
Thinner is composed of:—	
Linseed oil	85.00
Asphaltum spirits	3.00
Turpentine	1.00
China wood oil	2.00
Japan dryer	9.00
	100.00
Composition of pigment:—	
Hydrocarbonate of lead	15.00
Basic sulphate (white-lead)	22.00
Zinc oxide	11.00
Silicate of magnesia (asbestine)	3.00
Calcium carbonate	2.00
Barium sulphate (blanc fixe)	10.00
Silicate of alumina	3.00
Lead chromate	2.30
Ferro-ferri cyanide of iron	.70
	100.00
Colouring is composed of:—	
Pure chrome green	100.00
Composition of Japan dryer:—	
Kauri gum	1.67
Lead oxide	8.15
Black oxide of manganese	2.00
Linseed oil	26.14
Turpentine	61.44
	100.00

Besides these ingredients that are mentioned on the label, we may also notice that the container is made of tin plate; that the can is soldered; that the labels are printed with two colours of printing ink on white paper, and pasted on the can. Finally, we may recall that such cans are packed with sawdust in wooden boxes nailed together with steel wire nails. Keeping in view the finished can and its contents, I think you will catch my drift, when I say that all science and all civilisation have gone to the making of the can of paint bearing this label, and that without science and civilisation it would be unthinkable. Let us consider briefly the ingredients, one by one. The first is linseed-oil, a product of the flax plant, Linum usitatissimum. The flax plant was not first cultivated by man for the seed or its oil. Its earliest use was for the making of linen cloth. The great masters of early European art knew nothing of linseed-oil, and the best

* Presented at a meeting of the Section of Physics and Chemistry of the Franklin Institute.

process [illegible] temperature [illegible] experience the oil was treated [illegible] result that the [illegible] the Lestie While the use [illegible] subject of experiment, [illegible] in important place [illegible] industry, and is made [illegible] paint industry It [illegible] certain desirable solidity to [illegible] film and is especially valuable [illegible] resinates are present in the [illegible] The two volatile ingredients [illegible] are asphaltum spirits and [illegible] Asphaltum spirits is one [illegible] higher products of petroleums having an asphaltum base It corresponds to the benzine which is produced from petroleums [illegible] paraffin base The chemistry of these hydrocarbons, while interesting, plays no part in the chemical structure of the paint film, since their office is purely mechanical, and they all disappear completely in the drying of the paint As is well known, the petroleums found in some localities yield on distillation at high temperatures, residues containing paraffin, while similar oils from other localities yield asphaltums as residues The best known petroleums of the latter class are those produced in Texas, California, and the Island of Borneo Petroleums are distilled by fractionating, the products passing over at the lower temperatures being classified progressively as petroleum ethers, naphthas, and gasolenes and benzines At still higher temperatures the illuminating oils pass over, followed by the lubricating oils Asphaltum spirit is the benzine of the asphaltum petroleums It boils at a higher temperature than the corresponding paraffin product, has a higher specific gravity, and is, on many accounts, far preferable as a volatile ingredient of paints I personally believe that the formula before us is mechanically improved by the presence of this material, and I am convinced that it is in no way injured by it Turpentine is the essential oil of certain pines, principally Pinus Australis, growing over large areas of our Southern States It is distilled in a current of live steam from the sap of this tree, the residue being rosin The industry, owing to the character of the labour available in the pine districts, is crude and wasteful, both to the timber involved and to the product, though more conservative methods are coming into use through the efforts of the United States Department of Agriculture The negro workman in a turpentine orchard cuts a so-called "box" on one side of the tree, in which the sap collects, and from which it is from time to time dipped and carried to the still As the flow of sap decreases, the bark is removed, and the wood scarified higher and higher above the "box" In the larger trees several boxes are cut at different points on the circumference, weakening and in time killing the tree The crude sap or gum is charged into a still with water, and on heating, the volatile turpentine passes with the steam to the worm condenser The turpentine is decanted from the condensed steam on which it floats Turpentine in paint probably acts in two ways: first as a volatile thinner, of which the effect is purely mechanical; and secondly, as a conveyer of oxygen perhaps catalytically At any rate it was the conclusion of a French technical commission who investigated the subject, that turpentine hastens the drying of paint to an extent not accounted for by [illegible] The principal turpentine [illegible] of to-day are located in Florida, [illegible] Georgia, and Louisiana, the immense forests that formerly covered vast [illegible] North and South Carolina and northern Georgia having been largely destroyed by the wasteful methods in vogue Another item of waste that has appeared in the market during comparatively recent [illegible] is "gum thus" or wood turpentine, [illegible] produced by various methods [illegible] from pine wood wastes When [illegible] process [illegible] there appears to [illegible] from those of [illegible] Japan dried [illegible] the linoleates of [illegible] with a small percentage [illegible] Kauri gum Paints prepared [illegible] the proper percentages of [illegible] manganese and of lead adding [illegible] a certain quantity [illegible] Kauri gum, and reducing the product while warm with turpentine benzine [illegible] of both The lead compound used in driers is red lead, and the manganese compound is the black oxide, which the reducing agent is turpentine and [illegible] asphaltum spirit The [illegible] red lead leads us at once to the mining regions of the West, where [illegible] smelter is fed [illegible] produced from practically pure ores, while in others it must be separated from its commingled silver, zinc etc For the manufacture of the so-called Dutch process white lead, it is necessary to have the metal free from silver, manganese and iron; but for the manufacture of the ordinary oxides purity is not so important The metallic lead comes from the smelter in the form of pigs which are melted in a low flat oven in which the lead spreads out in a thin layer, and is mechanically worked so as to expose constantly fresh surfaces to the action of the air The product is the monoxide of lead—massicot This oxide is ground with water to remove metallic particles which are returned to the furnace while the oxides are collected in settling tanks If the temperature in the furnace rises too high it becomes litharge crystalline lead monoxide—which cannot be further oxidised The amorphous monoxide being further treated in the same or a similar oven at a low red heat with free access of air and constant stirring, gradually takes up more oxygen, and is converted into red lead—a combination of the monoxide and the dioxide in the proportion of about two parts of the former to one of the latter The product is usually stated as having the formula Pb_3O_4, but red lead is, as noted, a mixture of oxides rather than a definite chemical compound The black oxide of manganese, known to mineralogists as pyrolusite, is a natural product, of which the principal sources of supply are in the Caucasus Mountains, in the Hartz Mountains, and elsewhere Chemically it is the dioxide of the metal manganese. The miners are the wild mountaineers of Eastern Europe, and the mineral, before it reaches America, passes through Southern Russia, the Black Sea, the Dardanelles, the Mediterranean, and so across the Atlantic. For the use of the varnish and drier manufacturer, it is subjected to mechanical purification These two metallic oxides readily replace the glycerin in linseed oil at moderate temperatures, forming oleates and linoleates, while the glycerin is decomposed and driven off The addition of a resin—in this case Kauri gum—at a moderately high temperature also probably induces the formation of resin acid compounds of the metals The driers made with lead and with manganese have sharply distinguished properties, of which advantage is taken by the well-informed manufacturer, who knows that certain proportions of the two yield better average results than either alone He also carefully calculates the percentage of the metal in the drier to the oil to be oxidised Kauri gum, besides helping the quality of the japan, has also been shown by experience to serve a useful purpose in paints containing high percentages of zinc oxide It is found only in New Zealand, where ancient forests of the tree which produced it, the Dammara Australis, and other varieties of Dammara, have been buried for ages in the earth It is mined systematically by trenching, and is cleaned, sorted, and classified by hand We have now briefly covered the liquid portion of our formula, and in the course of our survey have gone to North Dakota for flaxseed, to Florida for turpentine, to Texas for benzine, to China for wood oil, to Colorado and Montana for lead, to the Caucasus for manganese, and to New Zealand for Kauri gum Even at this point we may begin to see that for this ordi-

nary can of mixed paint the manufacturer has been under the necessity of calling upon many industries, several races, and different quarters of the globe. It is no less so with the remaining items of our formula, and the Dutch process white-lead. Lead hydrocarbonate is the first named of the solid ingredients. In this case it happens to be Dutch process white lead. Lead hydrocarbonate, or basic lead carbonate, is a molecular combination of the hydroxide and the carbonate of lead in about the proportion of two parts of the latter to one of the former, though these proportions are only approximated in actual practice. The accepted formula, however, is $2PbCO_3$, PbH_2O_2. Of the three processes used to any extent for the manufacture of this product, two employ acetic acid in an intermediary step of the chain of reactions, while the third dispenses with it. The old Dutch process, so called—though it has undergone great improvement in English and American practice—starts with desilverised lead pigs, known in the trade as "soft lead." These are melted, and the molten lead is distributed on shallow moulds on an endless chain belt. The moulds give the metal the form of a flat circular grating or buckle about $\frac{1}{16}$in. thick by 5in. in diameter. These buckles are packed into earthenware pots, having at their bottoms shallow wells containing each about half a pint of vinegar or dilute acetic acid. These pots are arranged in tiers between layers of spent tan bark, where they are allowed to remain undisturbed for about 130 days. By the fermentation of the tan bark heat is generated, and carbonic acid liberated. The heat vaporises the acetic acid, which attacks the lead, coating the buckles with basic lead acetate. This in turn is attacked by the carbonic acid, producing the basic carbonate, and liberating neutral lead acetate, which attacks the metallic lead beneath, producing again the basic acetate. The process thus continues progressively until most of the buckle has been altered to the basic carbonate. The buckles being removed from the pots are subjected to a mechanical treatment, which separates the corroded from the uncorroded portions. The white-lead being ground, washed, floated, and dried, enters commerce as dry white-lead. The special characteristics of corroded white-lead are its excellent working properties and low oil-consumption, giving a high degree of opacity or colour-body in the finished paint. The second process, commonly known as the "quick process," also starts with desilverised pig lead. This is melted and finely comminuted in a steam blast, and the granulated product is charged into large, slowly-revolving wooden drums, where, after being moistened with dilute acetic acid, it is subjected for some hours to the action of purified carbonic acid gas from burning coke. The slow revolution of the drums insures the exposure of the entire mass to the action of the gas. The chain of chemical processes involved is probably identical with those described for the old Dutch process. The mechanical treatment of the crude corroded product is essentially the same. The finished product is more uniform in the size of particle than Dutch process lead, and finer in texture. This involves a larger oil-consumption, and a consequent decrease in opacity or colour body of the completed paint. The third process, known as the mild process, because of the fact that acetic acid is not used, is applicable to pig lead of any description. In this process, also, the metallic lead is finely comminuted in a steam-blast. In both this and the preceding process there is a preliminary surface hydration produced by the action of the water vapour on the lead particles. The finer particles are charged into revolving drums containing water, and there subjected to the action of air under low pressure for several hours. The lead is thereby converted into the basic hydroxide. This hydroxide is then subjected in similar drums to the action of purified carbonic acid gas for the requisite time, until the conversion to the basic carbonate has been carried to the proper point. The product is extremely white, uniform, and pure, requiring only floating and drying to fit it for use. The second pigment of our formula is basic lead sulphate or sublimed white-lead. As indicated by its title, this is a sublimation product, and is produced directly from the native ores of Missouri—lead sulphide—by oxidation at a high temperature in a current of air. The comminuted ore is charged in a special furnace with coal or other fuel, and is subjected to a hot air blast. The sulphide takes up oxygen, volatilises, and is carried through a series of cooling flues to fabric bags, in which it is collected. This is the process in outline, though not in detail. The reaction involved is simple: the lead sulphide, PbS, takes up four equivalents of oxygen from the air, being converted into lead sulphate, $PbSO_4$. At the same time it is also claimed, with much probability, that there is formed a certain proportion of the basic lead sulphate, $Pb_3S_2O_8$. At any rate, analysis always yields an excess of oxygen, which is usually calculated to lead oxide, the percentage of which ranges from fourteen to twenty. The product, furthermore, always contains a small percentage (five to six) of zinc oxide, which comes from the zinc sulphide associated with the ores used. It may be said in passing that lead sulphate, chemically produced, is a very unsatisfactory pigment, exhibiting none of the characteristics of sublimed white-lead. The latter, on the other hand, is extremely useful, and in certain combinations has come to be regarded as almost indispensable. The particles of this pigment are extremely fine and uniform, approaching the particles of zinc oxide in this respect. As a pigment, it stands between corroded white-lead and zinc oxide in most of its characteristics. Paints made with it chalk more freely than paints made with the former; but, on the other hand, they retain their colour better, and do not "check" so freely. Proper combination with zinc oxide restrains the characteristic chalking, while the hardening peculiar to zinc is in turn restrained. Our third pigment is zinc oxide. Zinc is peculiar in that it is the only metal in common use produced by distillation. It is volatile at an easily-attainable temperature, and advantage is taken of this fact in recovering the metal from its ores. The hot metallic vapour is also readily oxidisable, and if exposed to the air, will take fire, burning with a green flame to zinc oxide. The oxide is produced by two different processes. One, known as the French process, taking advantage of the fact just mentioned, volatilises the metal in a current of air, and collects the resultant oxide in closed chambers. In the other process, known as the American process, the oxide is produced directly from the ores. On the nature of the ore used depend the individual characteristics of the resultant oxide. In this process the comminuted ores are mixed with powdered anthracite and charged into closed furnaces having perforated grate bars. Combustion is started in the anthracite, and a blast of air is forced through the perforations in the grate. The heat smelts the ore and volatilises the zinc, and the metallic vapours promptly combine with the oxygen of the blast, producing zinc oxide. This oxide is carried through a series of cooling flues, and collected in fabric bags. The particular oxide used in this formula is made from New Jersey ore, and on that account is of some interest. This ore is unique in that it occurs in commercially-available quantities nowhere else in the world. It is known as Franklinite, and consists of the oxides of zinc, manganese, and iron in molecular proportions, crystallising as a true mineral. It is closely associated in the vein with other compounds of zinc—the anhydrous silicate, the oxide, etc. A peculiarity of the product is that the oxide recovered is practically free from impurities, averaging over 99 per cent. pure oxide. The oxides produced from other available ores usually contain from 5 to 15 per cent. of lead sulphate, due to the presence of lead sulphide in the vein. The characteristics of zinc oxide are too well known to require extended comment. It is the finest and whitest of all white pigments, is chemically quite stable, the only chemical changes possible in practice being to the sulphide or to the carbonate, which are also white. It is bulky, and hence carries a high percentage of oil in the finished paint; and, finally, when properly used, is very durable. One is fairly safe in saying that if oxide of zinc had not been introduced as a pigment there would have been no prepared paint. It was produced as a commercially-available pigment, in answer to a demand that had been voiced in Europe from the closing years of the 18th century to the time of its introduction about the middle of the 19th. This demand for a non poisonous white pigment finally received a satisfactory response from a contracting painter of Paris, Le Claire, who was also celebrated as a philanthropist, and is known to this day as "the father of profit-sharing." Practically every great chemist of Europe, from Lavoisier to Faraday, had his try at the problem. Our next pigment is the silicate of magnesium, in the form of asbestine. This product comes principally from Canada. Its usefulness in the paint formula depends entirely upon its physical form, which is acicular or rod-like. Its office in the paint film has been compared to that of the hair in plaster or the rods in reinforced concrete. It is without special value either for opacity or protection, but aids in holding the materials in supension, and very probably also in resisting stresses in the dried paint film. Our fifth solid ingredient is calcium carbonate—in this case a natural product from Missouri—a dolomitic crystalline rock, finely ground for the purpose. Calcium carbonate, as used in paint manufacture, comes to us in two forms. Whiting, Paris-white, etc., are the pulverised and floated chalk supplied principally by the chalk cliffs around Dover, England, the calcareous skeletons of innumerable diatoms that once populated the waters of an ocean covering that portion of the earth, ages before the advent of man; while the product used in this formula is from a similar geological source, but in succeeding epochs subjected to heat and pressure, which gave it a crystalline structure. As a rule, manufacturers, in selecting from these two forms, are governed by the conditions; if the remaining inert pigments are crystalline, Paris-white is selected; if not, then the so-called mineral primer is preferred. Either will neutralise any free acid in the paint; but the mineral primer will, in addition, give the "tooth" which is thought desirable in the manual work of painting. The only other crystalline pigment in our formula is the asbestine, so mineral primer rather than a form of chalk has been selected for this formula. Barium sulphate is the next on our list, and is used in the form of the chemical precipitate—blanc fixe. Personally, I should have preferred the natural crystalline form—barytes, in this case—but that is a matter of detail. The sulphate of barium in the form of barytes is a naturally crystalline product, which retains its crystalline form, no matter how finely comminuted. It is found associated with lead, zinc, and other ores in most mineral regions. That used in the United States, however, comes principally from Missouri and the Alleghenies in Central Virginia, Missouri furnishing the larger proportion. There its production is in the hands of farmers, who collect and cart it to the railroads in the fall and winter, to be manufactured into pigment at St. Louis and neighbouring points. In the Allegheny regions the mineral is produced by mining. Blanc fixe is produced by transforming the natural product into a soluble compound and precipitating it from dilute solution with sulphuric acid or a soluble sulphate. The product is chemically identical with barytes, but physically very different, being very finely divided and amorphous. Silicate of alumina is the next ingredient of our white base. Technically, it is a washed and floated China clay, naturally produced by the disintegration of certain feldspars, the soluble potash salts having been washed away. The percentage here used is small, but it has a physical influence on the suspension of the other pigments, in the brushing qualities of the paint and on the quality of the paint film. The remaining ingredients of our formula are the colours

TOWN PLANNING REGULATIONS.

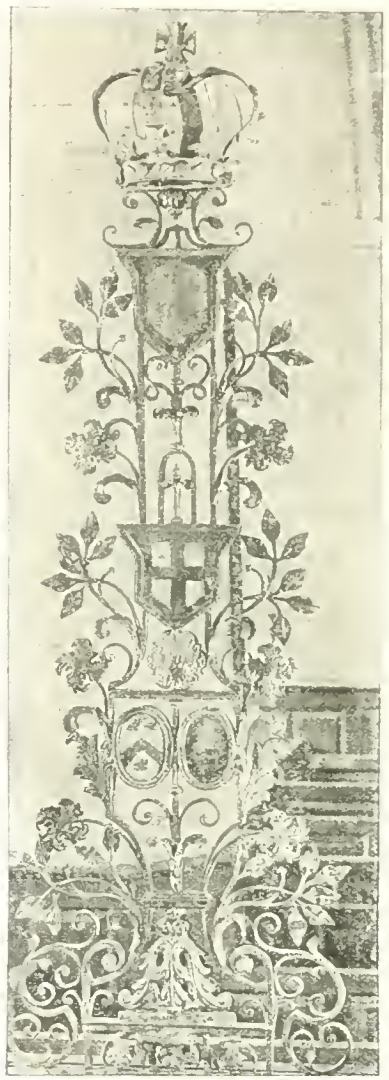
Regulations have been issued by the Local Government Board for the information of local authorities as to procedure in town-planning schemes. The regulations are in two parts. Part I. regulates the procedure anterior to, and for the purpose of, applications to the Board for authority to prepare or adopt a scheme; and Part II. regulates the procedure to, during, on, and after the preparation or adoption and before the approval of the scheme, and (2) after the approval of the scheme, all as prescribed in the fifth schedule of the Act. The full development of the details of a scheme might, the Board consider, be reserved until after the preliminary stage, as prescribed in Part I., is passed, whether the proposed scheme be prepared by the local authority themselves or by any landowners with a view to its adoption by the local authority. If it is thought that at any stage prior to the submission of a scheme for their approval the assistance or advice of any of the Board's officials might tend to facilitate agreements with owners concerned or to save labour or expense, the Board will be quite ready to arrange for such assistance or advice being given. Amongst other details relating to the formulating of schemes, the local authorities are directed to consider objections made to them by owners of land included in the scheme or which is in the neighbourhood and may be affected, or by other local authorities interested. The local authorities are also directed, by conferences with objectors, and by any other means available to secure their co-operation in promoting the scheme. They have also to arrange for a meeting being held at which all such parties shall be entitled to attend or be represented, for the purpose of considering the proposed scheme. Amongst the information to be given in presenting an application is that as to monuments, or "ancient monuments," within the meaning of the Ancient Monuments Protection Acts, and any objects of historical interest or natural beauty situate within the area included in the scheme, and as to the manner in which they would be affected.

THE OLD ARCHITECTURE OF LONDON.

A handy guidebook has just been issued, under the title of "A History of Architecture in London," by Mr. Walter H. Godfrey, who was associated with the London Survey Committee. The scheme is to illustrate by existing examples as far as possible the development of the art of building design from the Middle Ages to the second half of the 18th century, though the title-page suggests an earlier termination, notwithstanding the date of some of the samples shown.

The occasional visitor will find the work of very great assistance. Others who flatter themselves on their intimate acquaintance with London will experience some agreeable surprises on looking through its unpretentious pages. The itinerary adopted is very well arranged, and by the aid of Mr. Godfrey's notes, reading between the lines, everybody's store of knowledge may be increased.

Owing to our ever increasing commercial development and the consequent erection of numberless modern buildings in the Metropolis, a considerable proportion of the remains of older London are half concealed, or entirely obscured, and therefore need looking up. To expect to such an interesting enterprise a mere easy and systematic fashion, Mr. Godfrey has added to the volume a series of three folding maps, set out to the ample scale of 6 in. to the mile, depicting the heart of London as it stood by the exigencies of the sites chiefly along the Middlesex side of the Thames. A numerical index of the buildings mentioned is given, and the numbers are clearly indicated on the charts, their sequence being set out so as to avoid covering the same ground twice. This is an enormous help to the pedestrian, and specially so in a crowded and tiring town like the Metropolis. There are likewise four smaller maps devoted to the environs of London, including the S.W. district as far as Hampton Court; the northern suburbs up to the Alexandra Palace and "East End" at Finchley; the Eastern division down to Eltham or to Dulwich, and as far as Barking in a northerly direction; while Croydon and the district south of the Crystal Palace furnish another sheet, also drawn to the scale of 6in. to the mile, and extending to Hayes on the east and Streatham Common in the west. The same method of numbering

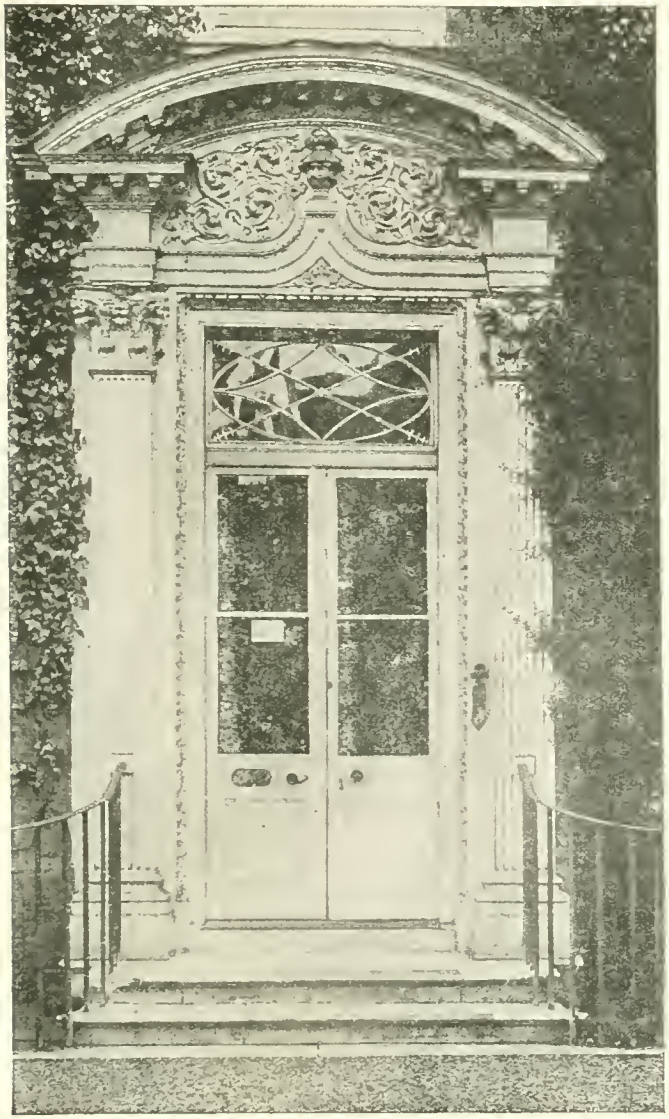


Sword rest, All Hallows, Barking.
(From "A History of Architecture in London.")

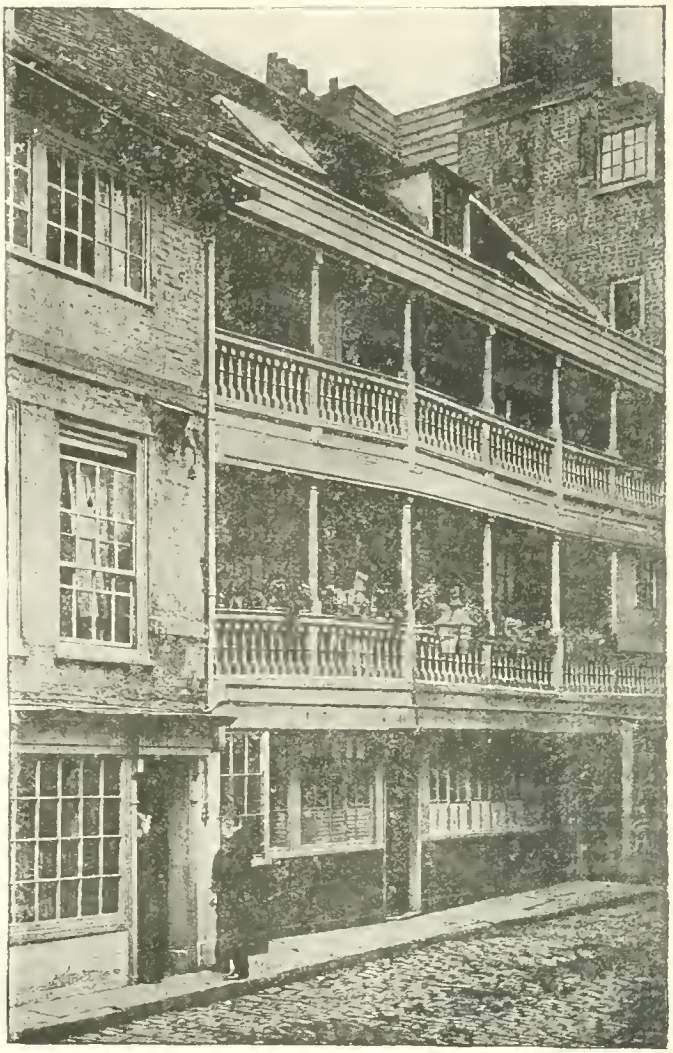
obtains in these lesser sized maps, copied as they are from the Ordnance Survey.

The foreword, contributed by Dr. Philip Norman, commends Mr. Godfrey's enterprise, and he expresses pleasure at being permitted to introduce so excellent a volume. The book begins with a retrospective sketch of European architecture, the treasures of the British Museum and the Victoria and Albert Museum in this connection being referred to, so that by a little previous study and reading on the part of the visitor, he may graduate for his survey and understand details more intimately. The descriptive glossary of terms used for the essentials of "the Mistress Art" is sufficient, too, for its purpose. St. John's Chapel, in the Tower of London, and St. Bartholomew the Great, Smithfield, come first, and then, in rotation, the Knight Templars' Church, with its well known round nave of 1185, in the Temple. This is well illustrated and described, while the tiny, but almost perfect, Norman church of East Ham, with its apsidal sanctuary, is not overlooked; neither Waltham Abbey nor St. Alban's is passed over. Southwark Cathedral, Lambeth

"A History of Architecture in London. By WALTER H. GODFREY, Architect, with a Preface by PHILIP NORMAN, F.D., F.S.A. 1 vol., octavo, gilt. 240 illustrations. 5s. 6d. net. London: B. T. Batsford. 1911.



ENTRANCE DOORWAY, FRIENDS' HOUSE, CROYDON.



THE GEORGE INN, SOUTHWARK.

(From "A History of Architecture in London.")

Palace Chapel, and, of course, Westminster Abbey together fill several pages. Eltham Palace and Barking Parish Church and Abbey, St. Dunstan's, Stepney, and the vaulted undercroft of the Guildhall are done justice to, and so are the roofs of Westminster Hall and Crosby Hall—now at Chelsea. Lincoln's Inn, Eastbury Manor, and Hampton Court are included in the Tudor period, and the incoming of the Early Renaissance is shown forecasted by Wolsey's Arms in terracotta, Hampton Court, and two capitals are given from Chelsea Old Church. Of course, also, Henry VII.'s tomb at Westminster Abbey is described. The Middle Temple Hall; Whitgift Hospital, Croydon; Holland House, Kensington; Brooke House, Hackney; Staple Inn; Gray's Inn Old Hall; the Charterhouse; Canonbury Tower; 17, Fleet-street; the Jerusalem Chamber, and Norfolk College, Greenwich, occur for notice as having followed on between 1558 and 1625. And then the Mid-17th-Century work seen at Eltham Lodge; Lindsay House, Lincoln's Inn; York Water Gate; St. Helen's, Bishopsgate, doorway; Ashburham House, Westminster; Cromwell House, Highgate; St. Katherine Cree and the "George Inn," Southwark. To go through Wren's period of the Later Renaissance would far exceed our space here; but Mr. Godfrey has carefully gathered together a lot of examples and illustrated many typical or important ones, all of about this date. He parts company with his reader at the close of the times of Queen Anne and the Georges, not forgetting the style of the brothers Adam of the Adelphi. We give a doorway from the Friends' House, Croydon, distinctly typical of this refined Classic, which was thoroughly English in its manner. The sword-rest from All Hallows Church, Barking, is a fine specimen of 18th-Century smith's craft, and at St. Olave's Church, Hart-street, there is another similar one. Enough, however, has been said to indicate to our readers what an architectural compendium Mr. Godfrey has compiled; and, in ending his task with knowledge and skill, he has not forgotten the Admiralty; Boodle's Club; Lansdowne House, Queen Anne's Gate, Westminster; the Adelphi; Lincoln's Inn Fields, and other spots where good instances are to be seen, and also the older houses in Red Lion-square, W.C.; Smith-square, S.W.; Stepney Green; and Chiswick. The frontispiece is a fine collotype plate of Westminster Hall.

CHIPS.

Mr. F. Carlidge, who two months ago resigned his position as surveyor to the Knaresborough Urban District Council, and emigrated to Canada, has been appointed sanitary engineer by the city council of Moose Jaw, Saskatchewan.

Mr. W. J. Merrett, assistant surveyor to the Dorking Rural District Council, has been appointed assistant county surveyor for No. 2 district by the Cornwall County Council, at a salary of £150, rising by annual increments of £5 to £175 per annum.

At the Dean of Guild Court at Dalkeith on Monday, Messrs. Sydney Mitchell and Wilson, architects, Edinburgh, submitted plans for new premises for the Commercial Bank of Scotland, Ltd., on site opposite Dalkeith Railway Station, where at present the buildings are dilapidated. The new bank premises will cost over £2,000. The plans were passed.

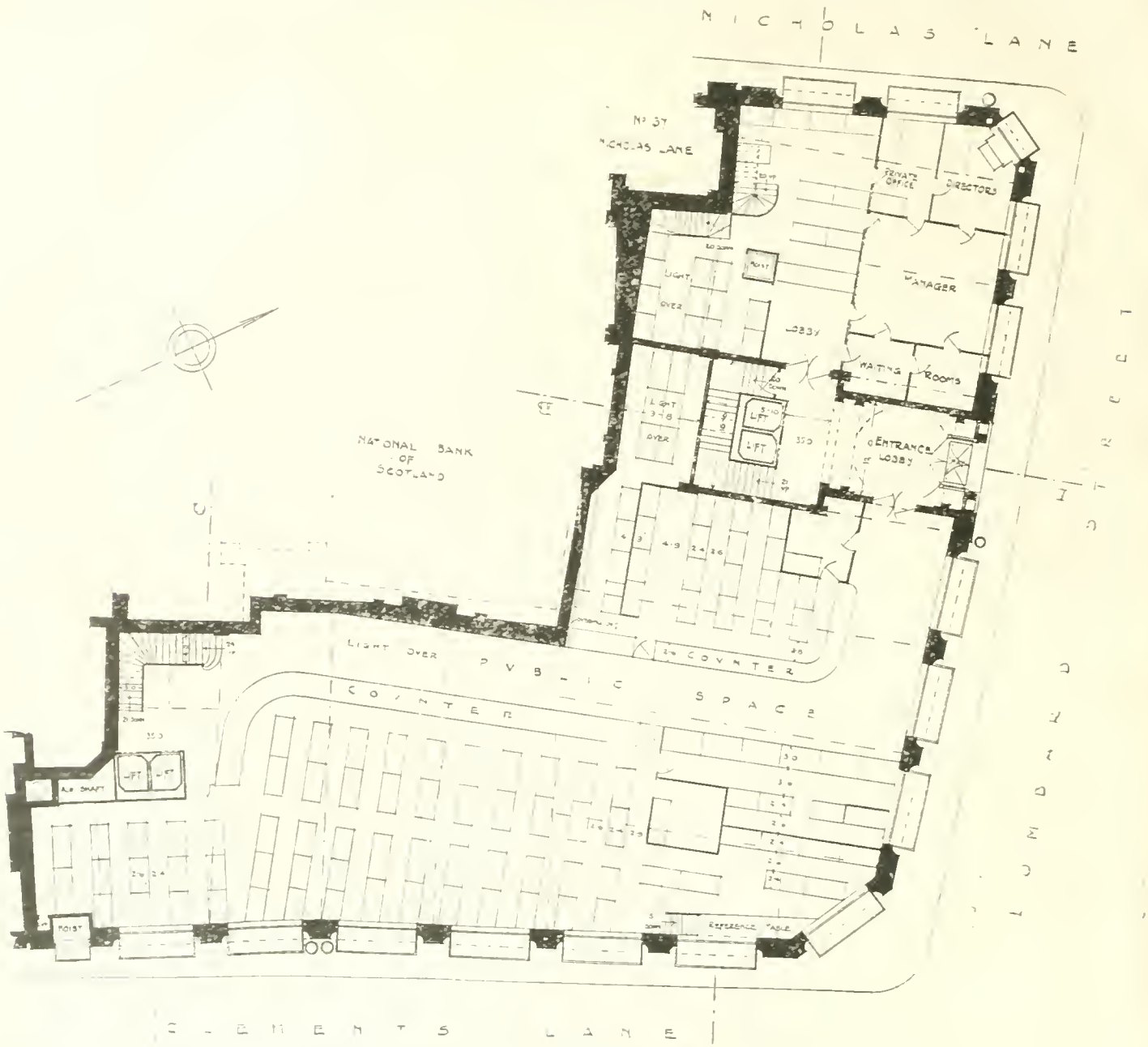
The Swansea Harbour Trustees have decided to offer the position of assistant engineer to Mr. Burke, who was formerly on the staff of the Trust, at a commencing salary of £350, rising to £400 per annum.

The city council of Bradford have voted Mr. F. E. P. Edwards, F.R.I.B.A., formerly of Bradford, and now city architect of Sheffield, an honorarium of one hundred guineas for acting as consulting architects for the extensions of the town-hall.

The new Ursuline Convent on Nantwich-road, Crewe, was opened on Wednesday week. The building is of Flemish design, and is part of a scheme entailing an expenditure of about £10,000. The present buildings have cost about £6,000 to erect. Mr. H. T. Sandy, of Stafford and Birmingham, is the architect. The convent has accommodation for fifty nuns and 150 scholars.

A new post-office in Wheelgate, Malton, was opened for business last week. It is three stories in height, the frontage, as far up as the ground floor, being faced with stone, the remainder being of Scarborough red bricks. The floors and roof are of terro-concrete. The work has been carried out under the supervision of Mr. G. P. Parsons, clerk of works, the contractor being Mr. Robert Neale, Manchester, and the architect Mr. C. P. Wilkinson, of H.M. Office of Works.

The Government of India have sanctioned the construction of a new Anglican church for the use of the troops at Lucknow at an estimated cost of £8,400. The church is designed to contain 1,017 seats, and will consist of a nave 35ft. by 108ft., with north and south aisles, north and south transepts, and sanctuary. There will be a square tower 73ft. high, with a pyramidical roof, at the west end. The design has been prepared by Mr. J. Begg, F.R.I.B.A., consulting architect to the Government of India.



THE ROYAL INSURANCE COMPANY'S NEW OFFICES, LOMBARD STREET, E.C.

THE ROYAL INSURANCE COMPANY'S NEW OFFICES, LOMBARD STREET E.C.

In our issue of January 12, 1866, we illustrated the then recently erected premises for the Royal Insurance Company, from the designs of Messrs. John Belcher and Son, the [illegible] former offices. We took [illegible] that "the Royal [illegible] almost all the [illegible] Royal figure [illegible] as ours were [illegible] at a glance from

	L.	T. ta.	Total f. - 1885.
	£.	£.	£.
1	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	2[illegible]3	27,[illegible]
[illegible]	[illegible]	[illegible]	1,287,[illegible]
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[illegible] R[illegible] the [illegible] a premium [illegible] a year without [illegible] amalgamation the [illegible] ness of any other insurance company. The Royal has imposing offices in almost every country in the world, and it is little wonder that its head London office has again become too small for it. Early historical records of Lombard street show that the recent London offices of the Royal, 27 and 28, Lombard street were formerly known by the signs of the "Queen's Head" and the "Artichoke" respectively. The Royal was established in Liverpool in 1845, with a capital of £2,000,000, in 100,000 shares of £20 each. The first fire policy was issued to Mr T. B. Horsfall for £3,000 on the contents of his residence, and the first life policy to Mr Percy M. Dove, the first manager of the company. The company was a success from the first, and its progress was rapid. A London office was opened in Lombard street in 1840; but before this agents had been appointed in Calcutta and Brazil, and Demerara, Manila, Singapore, and New Brunswick. Then in 1847, the operations of the company were extended to Chili and Peru; in 1848, Barbados, Gothenburg, and Stockholm were gathered in; the next year, 1849, St. John, Newfoundland, was looked after; and in the next three years the company fixed itself firmly at Montreal, Sydney, Melbourne, and elsewhere. The Royal has taken over many companies, of which the Queen Insurance Company, Liverpool, was the most important. The Kent Fire and United Kent Life Offices were also a notable transfer, and the acquisition of the Northern Accident Insurance Company in 1907 marked the beginning of a great accident branch. The extension of greatest interest and of most recent occurrence was, however, perhaps the taking over in 1909 of the British and Foreign Marine Insurance Company. The Royal now, with its great funds and connections of unparalleled strength, transacts every branch of insurance business, and is a great power in each. Under the guidance of this able management, the newer departments—the accident and marine—may be expected to rival the fire branch in importance before very long. The present secretary in London is Mr. Robert M'Connell, formerly the branch manager in Manchester. The assistant secretaries are Mr. Harry Tripe, who entered the London office in 1885, and Mr. Norman McLaren, who was appointed in 1908 after nearly twenty years' service with the company. Mr. C. H. Parker, formerly London secretary of the Northern Accident Insurance Company, is assistant secretary of the accident department, and Mr. C. J. Thornton, the agency manager, is the secretary's executive officer in the life department. The architects of the new offices now being erected, and of which we give two interesting illustrations to-day, are Messrs. Gordon and Gunton, Finsbury House, E.C.

CURRENTE CALAMO.

It seems to be Mr. Lloyd George's forte to persuade each section of the hostile critics of his Insurance Bill that all they want is in it—or shall be. Dealing on Tuesday with the two municipal bodies he had more deserved success than he seems likely to achieve with regard to the doctors. He promised to limit the twelvemonth immunity from distraint on defaulting tenants given by Clause 51 to cases where a doctor certifies that ejectment would imperil life. That is reasonable, and will, at any rate, protect property owners against malingerers.

The second point made clear was that the proposal that the county or county borough councils may make good from the rates the deficiency in the finances of local health committees is not the imposition of a liability, but the grant of a power which can be voluntarily exercised. Rate aid can be refused altogether or given only on conditions chosen by the councils. Here, again, the critics were satisfied. The two bodies who composed the deputation had rather different proposals with regard to the local health committees, though both equally objected to the creation of new authorities to deal with Public Health. Mr. Lloyd George promised that amendments should be introduced limiting the activities of these new committees to a survey of public health based on the data derived from their ordinary work as insurance authorities. He further agreed that any criticism they had to offer should be sent to the councils as well as to the Insurance Commissioners.

The one criticism to which the Chancellor of the Exchequer refused to defer was that of Clause 46, which allows local health committees and approved societies to demand an inquiry into the conduct of sanitary authorities. Here we are with him. The fear that any aggrieved society may obtain an inquiry, and, if negligence can be proved, may recover the cost of excessive sickness from the defaulting local authority, will certainly supply a much-needed stimulus to efficiency. County councils, not being sanitary authorities, are often powerless to coerce the minor councils within their own area. The threat of setting this new machinery in motion may supply an effective weapon, though perhaps it is arguable that so indirect a method is cumbersome, and that the county council itself should be given greater powers of control and coercion. If, however, the concession promised on Tuesday, that the interference of local health committees should be limited to a use of their own experience, is a genuine one, then this power of indictment becomes less objectionable.

The Conference of the Civil Engineers on education and training, this week, has been interesting, if rather desultory. On the whole, our engineering brethren rather had the start of us in this matter, but have, perhaps, hardly kept it. Before the last fifteen years, so some of the ablest engineering journals assured its readers three weeks ago, not an architect knew anything about construction. We have all been trying to learn a little since—among other things, that clumsiness of construction is not always strength. Any other useful knowledge we are acquiring is in no small measure due to the excellent start made by the Architectural Association School, on lines which may be worth study by the engineers, and which we hope will continue to broaden and develop till we get at least some such real training as French and German architects receive.

Some day—may it be soon—we shall doubtless be helped by the better organisation of the secondary schools, which chiefly receive boys who become architects and engineers. As Professor Silvanus P. Thompson asked in his able introductory note to the discussion on General Education on Wednesday, "Is there in all London, nay in England, a single school which has a definite educational aim towards which it focusses the training for as many as 50 per cent. of its scholars?" We doubt it. Generally schoolmasters concentrate their energies on the preparation of a few scholarship candidates, and the rest are left to do as they please. That is why we are beaten by foreigners. Well might Professor Silvanus P. Thompson

> "Contrast this state of things with that which exists in the secondary schools all over Central Europe. Austria, Prussia, Bavaria, Switzerland, and even Denmark are vastly ahead of us here. In all German secondary schools, whether of the Gymnasium, the Real-Gymnasium, or the Ober-realschule type, there is a perfectly definite goal before every boy in the school. Before he reaches the Ober-prima, or topmost class, he will have to pass the "Einjahrige" examination, or pass out disgraced; and it is his ambition and that of his master that he shall pass not only this, but also the Abiturient or Maturity Examination some three years later. If he passes the Abiturient examination of his school—an examination held in his school by co-operation of his teachers with the Government commissioner who comes to conduct it—the way is open for him to any University and to any professional career. If the German boy fails to pass the Maturity Examination of his school he is marked as unfit for professional life. The Universities are closed to him. The Church is closed to him. The higher Civil Service is closed to him. He cannot become barrister, solicitor, physician, surgeon, veterinary surgeon, architect, engineer, surveyor, patent-agent, or accountant."

Here we are fast barring the gates of the professions to the unfit, but doing precious little to make our youths competent. The Head Master of Westminster, who opened the discussion on Wednesday, still puts his faith to Latin and "a literary education," and talked sympathetically of the value of the culture which enabled the lonely engineer in a far country and a cruel climate to be happy with a good book, and so be saved from a hundred base temptations. That is all very pretty, but hardly to the point!

Some of the most practical contributions to the second day's discussion are embodied in the remarks of Mr. J. W. Horner, B.Sc., A.I.C.E. As he pointed out, the Imperial College of Science and Technology has now been in existence for some years, and has nearly completed its equipment in all departments of science, and will soon be in a position to produce students of the very highest standard of college training, for whom the very best facilities for workshop training must be found. Why should united action not be possible between the Imperial College of Science and the Polytechnics? Why should not a central committee be formed with its headquarters at the College of Science, composed of the heads of engineering departments of these unconnected colleges, and representatives from the London managers of engineering employers and manufacturers to work on lines already suggested in the case of the provinces? Such a committee would be in a position to insure that all the most suitable students in London would obtain their practical experience.

The third and final report of the Royal Commission on Coast Erosion and Afforestation, which was issued on Monday, while reassuring as regards losses and gains—some 6,640 acres only during the last 35 years, as against 48,000 acres—is not encouraging to those who would utilise unemployed labour in reclamation. The Commissioners "found it difficult to draw any definite conclusion" from the contradictory evidence offered them. We are rather inclined to think the Commissioners were unable to appreciate the difference in value of evidence prompted by varying conditions. What we all hoped to have learned was when and where reclamation by means of unskilled labour might at least be achieved without loss. All we are told is that "there are areas in the United Kingdom, and especially in Ireland, which might be profitably reclaimed."

They think that it would be of advantage if the Board of Trade were made the controlling body to initiate schemes of reclamation, where the value of the reclaimed lands would sooner or later be likely to cover the cost of reclamation with interest and possible profit, or where the expenditure on reclamation, though not entirely covered by the value of the reclaimed lands, would nevertheless be beneficial by providing for the maintenance of the otherwise unemployed more economically and efficiently than do the ordinary methods of assistance or relief. Finally, the Commission recommend that the making of grants from public funds in aid of sea defence should not be encouraged, on the ground that sea defence is not a national service. That, we think, is short-sighted. In many instances the effect of sea incursions is far more than local, and we hold that in such cases sea defence is a matter of national service and national concern.

One is rather puzzled to make out whether it was a case of "proffered service always stinks" with the offer of Sir W. B. Richmond, Professor Lantery, Mr. Frank Brangwyn, and Mr. Gerald Moira, who wrote to the Westminster City Council last February offering to design and supervise a decorative scheme for the Coronation procession route, or whether the council thought they could use these artists' ideas, as far as seemed good to them, without giving them any credit for it? Anyhow few people will have been surprised at the protest which has appeared in some of the daily papers. It seems the council had neither the courtesy to accept nor reject the offer generously made to it. The artists were told various schemes had been suggested, that between £1,000 and £5,000 was to be spent, no large arches or columns would be considered, and that they might submit their design and send an estimate of the cost per mile.

This Sir W. B. Richmond and his colleagues did, associating therewith an estimate at £4,120 by Mr. Paul Turpin, who offered to do the work at cost price. They assured the council, moreover, that £3,000 was assured from private sources, which it might spend additionally in making the scheme worthy of the occasion. The council had not the grace to acknowledge the financial offer. It allocated part of the design to Piccadilly, spending, however, only £650 thereon, and the result has been that Sir W. B. Richmond and his colleagues quite unnaturally decline to accept any responsibility for the result. It

COMPETITIONS.

[illegible]

NOTTINGHAM [illegible] Mr. W. D. Caröe [illegible] Church, North Wollaton [illegible] First Scheme A, Messrs. Stevenson and Gregory, Bromley House, Nottingham; second, Mr. F. E. Litterick, of Lowdham, Notts; third (Scheme B), Messrs. Sutton and Gregory. The committee have appointed Messrs. Sutton and Gregory, the architects to carry out the work in accordance with the assessor's award. The [illegible] and six hundred and sixty-six, and the cost of the building, exclusive of fittings, as estimated at £6,000. Messrs. Sutton and Gregory's "A" plan, placed first, provides for a church consisting of nave, north and south aisles, north and south transepts, chancel, choir vestry, organ chamber over the choir vestry, and a morning chapel, there being [illegible] entrances on the north and south [illegible].

SALFORD [illegible] the award in the competition for the proposed new [illegible] Mr. A. Prestwich, of Manchester, to [illegible] in accordance with Mr. Darbyshire, to whom [illegible] under a great disadvantage for the [illegible] in which he placed his [illegible] and [illegible] It is unfortunate that [illegible] otherwise [illegible] have [illegible] the premiums in the following order, viz.:—The first premium to the author of design No. 9, the second to No. 6, A., the third to No. 8, and the fourth to No. 11, Alfred W. S. Cross, M.A.Cantab., Vice President R.I.B.A. The names of the authors, respectively, are: (1) Mr. Henry Lord, F.R.I.B.A., 32, Deansgate, Manchester; (2) Messrs. Hoyland and Preston; (3) Mr. J. B. Broadbent, 15, Cooper street, Manchester; (4) Mr. J. Holt, A.R.I.B.A., 61, A[illegible] square, Manchester. The estimated cost is £12,000, exclusive of site and [illegible].

STOCKPORT. The designs for Stockport Police Courts Buildings, which will occupy a site in Wellington street, are due on July 29. The contest is limited to local architects, together with the following architects chosen from those who submitted their names: Henry T. Hare; Edwin Cooper; Will and Anderson, Mountford and Clapham; S. B. Russell, of London; Eveard, Son, and Pick, Leicester; J. P. Osborne, Birmingham; Appleyard and Quiggin, Liverpool; H. Beswick, Chester; Clegg and Smith, Blackburn; T. Kershaw, Hull; W. and J. R. Milburn, Sunderland; Woodhouse, Corbett, and Dean, Potts, Pott, Son, and Hennings and G. H. W. Highby, Manchester (the last named jointly with Alfred Cox, of London; Perkins and Bulmer, Leeds; Stones, Stones, and Atkinson, Blackburn.

URUGUAY. H.M. Vice Consul at Montevideo (Mr. H. Hall Hall) reports that a Bill has been presented by the Uruguayan Executive to the General Assembly by which the building of the Government Palace recently inaugurated will be suspended, and the executive authorised to open an international competition for the execution of a scheme for erecting sites for public buildings, squares, etc., and a further competition for designs for a new Government Palace, the site of which shall have a minimum area of 40,000 square metres (about 48,000 sq. yd.). For the purpose of prizes and for expenses connected with these competitions a sum of 60,000 dol. (about £12,800) is to be appropriated. The executive asks for preferential treatment to be given to this Bill, and it is therefore, likely, says H.M. Vice Consul, that it will become law without much delay. Full particulars regarding the competition will then be issued.

The partnerships hitherto subsisting between H. Whiteman and H. A. Dix, Coventry, architects, under the style of Whiteman and Co., and between H. A. Dix and H. Whiteman, contractors, Coventry, under the style of H. A. Dix and Co., have been dissolved.

The governors of the West Cornwall Infirmary, Penzance, have received from Mr. R. F. Bolitho the gift of a cheque for £1,500, to be devoted towards the endowment of a bed, to be named "The Oliver Caldwell bed," in memory of the architect of the hospital.

The urban district council of Oundle have appointed Mr. G. V. Chilvers, of Stratford-on-Avon, as surveyor and sanitary inspector. The council have received a letter from the Local Government Board sanctioning a loan of £500 for the purchase of the old town hall, to be used as a council chamber and offices.

The scaffolding has just been removed from the extensions of two colleges facing the High street, Oxford, the new buildings for Oriel designed by Mr. Basil Champneys, R.A. Renaissance in character and those for Brasenose, completing the work begun for that college twenty years ago by Mr. T. G. Jackson, R.A.

Messrs. Batchelor and Hicks, of Merton square, Dublin, in conjunction with Messrs. R. J. Buchanan and Co., Cast-street, London, have prepared plans for the renovation of St. Columb's Cathedral, Londonderry. The work of the interior consists of stripping the [illegible] to be carried out in copper [illegible] £1,000.

The [illegible] stone was recently laid in connection with the proposed new Wesleyan Sunday-school at Studley Brook, Audley, Staffs, which will take first week. The scheme also includes improvements to the church and a new [illegible]. The architect is Mr. A. Cotton, [illegible] the Audley Urban District Council [illegible] under Mr. J. T. Phipps, of Alsagers Bank.

Building Intelligence.

BASSETT, SOUTHAMPTON.—A new district church in the parish of North Stoneham has just been consecrated by Dr. Talbot, Bishop of Winchester. It was decided in 1896 to proceed with the building of the new church in two sections, according to the plans of Mr. E. Prideaux Warren, F.S.A., F.R.I.B.A., of Bedford-square, W.C., the work of the first portion being given to Messrs. Holloway Bros., also of London. On September 29, 1897, the foundation-stone of the new church, dedicated to St. Michael and All Angels, was laid, and the first section was completed in the summer of 1898. The second portion, which seats 200 people, has now been completed, and is free from debt.

GATESHEAD. On Monday the mayoress opened a new infants' school, which has been erected in Brighton avenue, Gateshead. The walls are of brickwork, with red pressed brick facings and terracotta dressings. The class rooms are grouped round a central hall, with wing corridors, from which the teachers' rooms and cloak rooms are entered. The building has been carried out from the designs of Mr. F. W. Purser, M.S.A., West street, Gateshead; and the contractors were Messrs. Raven and Hitcham, of Gateshead; the terracotta has been supplied by the Leeds Fireclay Co., Ltd. The clerk of works was Mr. W. Flynn.

KEMSING. The Bishop of Rochester has dedicated, in the church of St. Mary the Virgin, Kemsing, Kent, two stained glass windows and a brass in memory of the late Rev. Thomas Cooke, of Seratt, for nineteen years vicar of the parish. The west window is a representation of the Annunciation. The window in the north aisle has for its subject St. Thomas of Canterbury and Richard Bishop of Chichester. The brass, which is set on the floor of the chancel, is a full-length figure of the late vicar in eucharistic vestments. All these memorials are from the designs of Mr. J. N. Comper, the architect, who designed the east and north-east windows and the decoration of the chancel.

NORTHREPPS. The Bishop of Norwich visited Northrepps on the 18th inst., to consecrate an addition to the churchyard, and at the same time to reopen the church after restoration. The walls have been repaired and restuccoed, the weak places strengthened, the fractures made good, the windows re-glazed, the roofs repaired, and new lead gutters substituted for the old defective ones. During the progress of the work two 13th-century lancet windows that had been built up were opened out, and the stonework restored. There were also found indications that there were originally three lancet windows in the east end of the chancel before the present large window was inserted. A small terracotta aumbrey was also uncovered in the chancel, and near the north-east window in the north aisle a shallow niche. The restoration also brought to light that originally the aisle walls were about 6ft. lower, and the clerestory walls 3ft. lower than at present, and that they had been covered by a very steep pitched roof, of which the brieces were found. Messrs. Lacey and Upcher, of Norwich, were the architects. The work was carried out by Mr. Herbert Bullen, of Cromer.

The death is announced from Hanover, in his fifty-eighth year, of the historical painter, Professor Hermann Schaper, who carved the glass mosaics and other decorations in the cathedral at Aix-la-Chapelle.

The old town-hall at Hull is to be demolished and rebuilt at a cost of £27,521, so as to make the building harmonise with the rest of the municipal offices and law-courts recently erected. The cost of the whole scheme will be about £130,000.

A marble tablet, inscribed as follows, has been fixed over a cot which has recently been endowed at the Evelina Hospital for Children in Southwark Bridge-road: "In affectionate remembrance of John Howard Colls this cot has been endowed by his friends, 1911."

Our Illustrations.

ROYAL INSURANCE COMPANY'S NEW OFFICES, LOMBARD-STREET, E.C.

(For description and plan see p. 910.)

ST. LAWRENCE JEWRY, GRESHAM-STREET, E.C.

We commence a series of measured drawings of this church to-day, and shall follow on with the complete plans and elevations. The following description has been sent us by Mr. Dowdeswell, the author of these excellent studies: — St. Lawrence Jewry, Gresham-street, is one of the many City churches which were rebuilt soon after the Great Fire in 1666, under the superintendence of Sir Christopher Wren. The former church, which dated back before the Norman Conquest, was dedicated to St. Lawrence, a Spanish saint who was tortured to death under Valerian. The present structure is built of stone, with a lead-covered roof and spire. The constructional timbers throughout are of oak. The plan is peculiar in having only one aisle, which is on the north side. The interior has been cleverly laid out to cope with the difficulties arising from the irregularity of the site. A gallery formerly existed over the aisle, as indicated on the plan. This was removed, and many alterations made in 1867. The organ, which has a beautiful screen, richly carved in dark oak by Grinling Gibbons, was built by the famous Renatus Harris in 1684. It originally occupied a position between the first pillar on the north side and the west wall of the church. In the vestry room the walls are panelled from floor to ceiling in dark oak, and decorated with festoons of flowers and fruit carved by Grinling Gibbons. The ceiling exhibits consummate skill in workmanship and design, beside which the work is well arranged to fit into the awkward shape of the room. There is a painting in the centre space representing the glorification of St. Lawrence by Sir James Thornhill.

F. DOWDESWELL.

THE NEW INFIRMARY AT BRADFORD.

As we announced last week, the first prize in the competition for plans for the new Bradford Infirmary was awarded to Mr. William A. Pite, of London, and to-day we are able to give some illustrations and details of this new institution. It is to be erected on the site which the board of management have purchased at Daisy Hill. This cost £17,000, covers twenty-three acres, and extends 415 yards along Duckworth lane, 425 along Smith-lane, and is about 200 yards wide at its narrowest point. The architect by whom it has been designed has had much experience in similar work, his latest being King's College Hospital, London, and Bradford is to have the advantage of his ripe knowledge in this branch of architecture. The new infirmary will accommodate 382 beds, and provision is made for extension to 500 beds, whilst the whole of the administration department is arranged on the basis of accommodation for 500. The premises are of two stories, save the nurses' home, which is of three stories. The block nearest to Toller-lane, which is the main artery leading from the city, is devoted to out-patients, an accident and minor emergencies department, whilst there are also two wards for noisy cases which it might not be desirable to take into the other wards immediately. There is here a waiting-hall, capable of accommodating 400 persons, whilst there is another waiting-hall in front of the dispensary. The idea of the architect has been to work on a central and radiating principle, with the object of securing good organisation in relation to the curing of the sick, and economy in expenditure. This is admirably obtained by running a corridor from one end of the institution to the other, from which the various blocks branch on the north and south. This corridor provides direct wheeled access from the most westerly pavilion to the out-patient main entrance at the opposite end, without recourse to stairs or lifts, so far as the ground floor is concerned. This is accomplished by lowering the natural surface at Pavilion No. 7 by about 5ft., and giving the main corridor a fall of 1 in 40. Each of these blocks contains twenty-two beds in the main ward, and two beds in each of two special wards for particular cases, making twenty-six in all. There is a sun balcony at the southern end of each ward, and there are also sanitary spurs to each ward. Including the out-patients' and casualties department, this main corridor is some 700ft. in length. After passing through the out patients' department the first two blocks are devoted to medical cases and children. Then comes the administrative block, with a hall at the main entrance on the south, facing Duckworth-lane. On the right of the hall there is a library 40ft. by 20ft. On the left are the porter's room and accommodation for the matron. There are also rooms for the clerks, cashier, the secretary superintendent, a room for the honorary staff, a board room 30ft. by 20ft., and a committee room 16ft. by 15ft. Before reaching the main corridor there is also a chapel capable of seating 120 persons, and also a resident doctors' dining room 25ft. by 22ft. 9in. On the second floor of the administrative block the front portion is given over to the ten resident medical officers' bedrooms and sitting rooms. There is also on this floor a suite of rooms for the matron. On the north side of the main corridor the ground floor is devoted to the kitchen, 50ft. by 25ft., a scullery 25ft. by 14ft., and in providing a dining room for the kitchen staff, and other accommodation for this department. Over the kitchen, on the second floor of the administrative block, and north of the main corridor, is a dining room for the nurses 63ft. by 26ft., nurses' lecture room, a room for the nurses, and a room for the maidservants and laundry staff. On the eastern side of the administrative block is a servants' home, with accommodation for sixty, and on the western side a home for the nurses, with accommodation for 120. Access to this is gained through a covered winter garden running from the administrative block. It is intended that all dining shall be done in the administrative block, the nurses and servants' homes being used for sleeping purposes.

Proceeding again along the main corridor there are, on the south and west sides of the administrative block, four surgical blocks, containing in all eight surgical wards, whilst on the north of the corridor there are four operating theatres and a maternity block, containing ten beds for difficult cases.

On the north side of the out-patients' department are a laundry, boiler-house, and workshops, as well as a pathological block, with a mortuary chapel, whilst on the west of the boiler-house is an isolation block to accommodate eight patients.

At the end of each of the wards for patients there are escape stairs running from the sun balcony, whilst all pipes and cables in connection with the institution will run in a duct under the main corridor. There is to be no unnecessary expenditure on ornamentation. The whole scheme is severely utilitarian, this being in accord with the desires of the board of management. Forty-four plans were submitted in the competition, and the first prize won by Mr. Pite, is £150. The second was awarded to Mr. Fred E. Halford and Mr. A. F. Cutler, of London, £100; and the third to Mr. Arthur Marshall, Mr. P. D. Prior, and Mr. W. Anger Smith, of Nottingham, £50.

The committee having the scheme in hand at first asked for from £150,000 to £200,000; but up to the present they have secured only £80,000. For some time the subscription-list has not been pressed under the notice of the public, it being considered advisable to fix on definite plans before making a further appeal. That step having been taken, it is expected that ere long the public will again be asked to assist in providing an infirmary worthy such an important industrial centre.

At Malvern a new hospital has been erected from designs by Mr. William Henman, F.R.I.B.A., of Brimingham.

The new Pyrenean electric railway between Mont Louis, in France, and Puigcerda, in Spain, the highest point of which is 5,420ft., was opened for public traffic on Wednesday.

PROFESSIONAL AND TRADE SOCIETIES.

LONDON ASSOCIATION OF MASTER DECORATORS.—The third annual general meeting of the London Association of Master Decorators was held at the Holborn Restaurant on Monday, June 12, 1911, at 6 o'clock p.m., and there was a considerable attendance of members present. The retiring president, Mr. H. A. Campbell, gave a résumé of the year's work of the association, and dealt at considerable length with the Workmen's Compensation Act. Mr. Jno. Anderson was elected president in place of Mr. H. A. Campbell, retiring, and Mr. F. Dakin was elected vice-president in place of Mr. Jno. Anderson. Mr. J. J. Honeychurch was re-elected treasurer, and the following gentlemen were elected to fill the vacancies arising on the general committee: —J. Milton, W. E. Vare, J. G. Hall, Wm. Norton, G. S. Hearn, Herbert Hanks, J. S. Mellis.

CHIPS.

The Trustee (Bodies Corporate) Bill and the National Gallery and St. James's Park Bill passed through committee of the House of Lords on Wednesday.

A receiving order has been made in the case of Robert Frederick Brown, described in the order as Robert F. Brown, Wash-lane, Clacton-on-Sea, Essex, and late King William-street, London, architect.

The parish church of Holy Trinity, East Peckham, Kent, was reopened after restoration on Sunday. The builder was Mr. W. Middleton, of Peckham Bush, and the works have included the repair of the roof and the paving of the sanctuary and chancel with tiles.

Among the silver medals awarded by the council of the Royal Society of Arts for papers read during the past session were those to Mr. Reginald A. Smith, B.A., F.S.A., for "Roman London", Mr. Frank M. Andrews, "Architecture in America", and Mr. Robert Fellowes Chisholm, F.R.I.B.A., F.S.A., "The Taj Mahal."

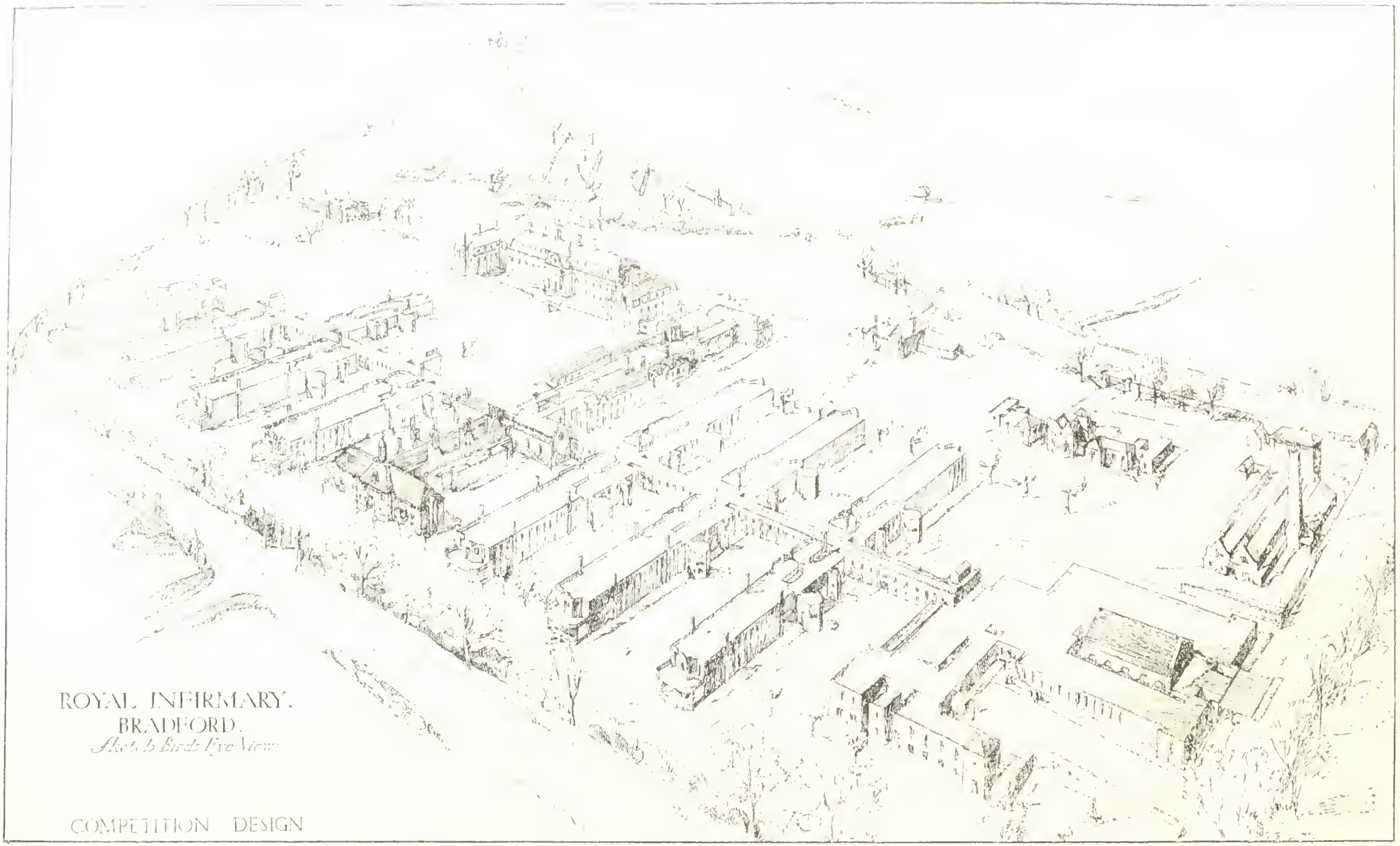
The Chester City Council decided on Tuesday to call in an expert to advise them with regard to a scheme for utilising the water power of the Dee at the Dee Mills for the generation of electricity. Under the scheme it is proposed to install three water turbines, at a cost of £10,000, and it is hoped by the use of natural powers to realise a profit of over £3,000 per annum on the city's electrical undertaking.

The urban district council of Chester-le-Street have instructed Messrs. D. Balfour and Son, of London and Newcastle-on-Tyne, to prepare a scheme of main sewerage for Pelton and Newfield in their district which has to be conveyed by outfall sewers to the existing sewage farm at Chester-le-Street, and also to prepare a scheme for dealing there in an efficient manner with the whole of the sewage of their district.

The sixteenth annual convention of the Incorporated Municipal Electrical Association opened at the Royal Pavilion, Brighton, on Tuesday. The president, Mr. J. Christie, engineer to the Brighton electricity undertaking, in his address referred to the growth of the association since they last met at Brighton fifteen years ago. Then the gathering numbered 114, compared with 406 now. The capital invested in machinery and plant under their control, apart from tramway and company undertakings, had increased to 41 millions.

The memorials to Hugh de Boves and Hugh Cook Faringdon, the first and last Abbots who ruled over Reading Abbey, which are being presented as a Coronation gift to Reading by Dr. J. B. Hurry, will be unveiled on Monday week, July 10, by Sir William Osler, Regius Professor of Medicine in the University of Oxford. The memorials will be placed in the Chapter House of Reading Abbey, one on either side of the spot where formerly sat the Lord Abbot when presiding over his monastic brethren at the daily Chapter.

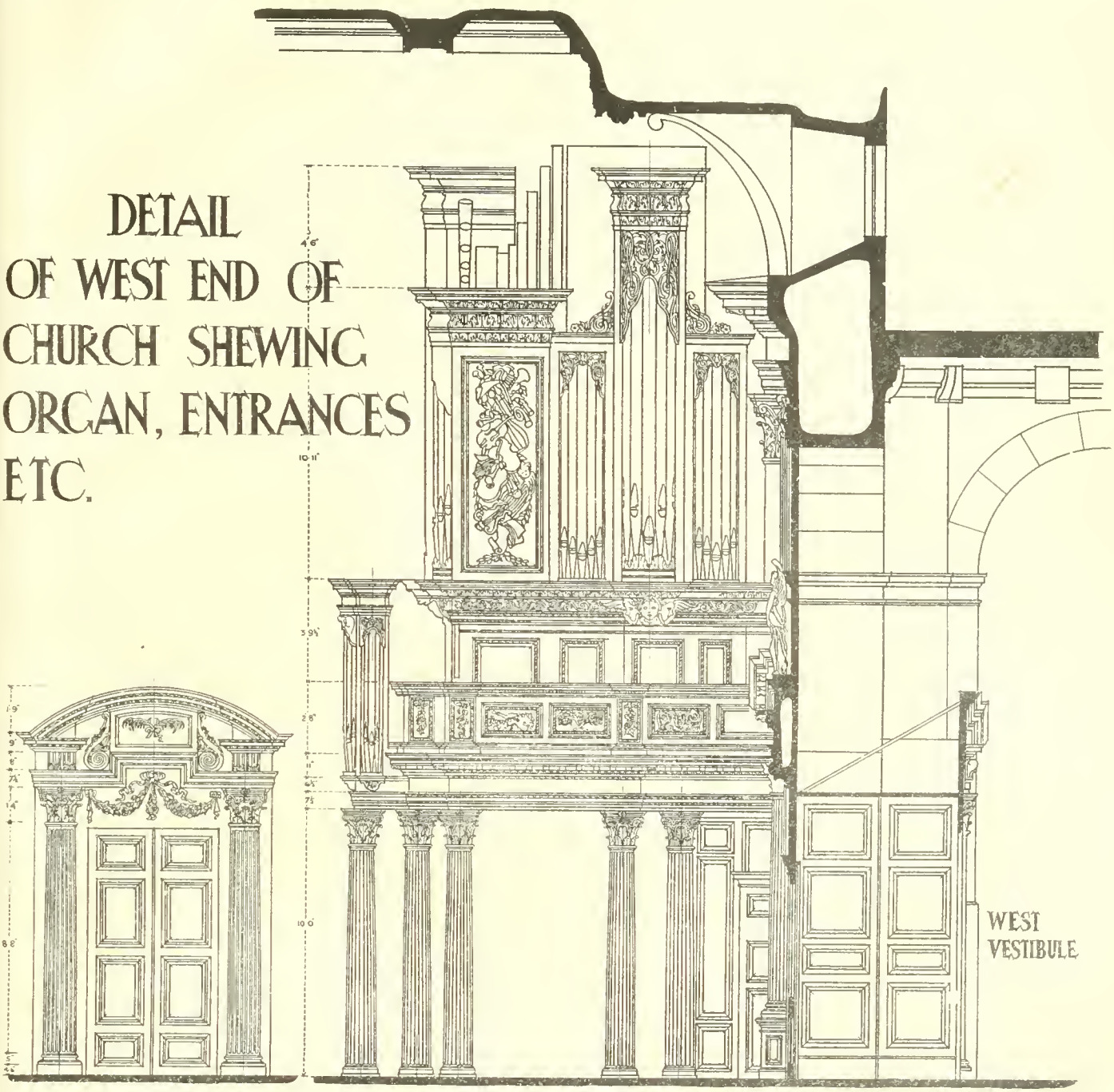
At the encænia held at the Sheldonian Theatre of Oxford University on Wednesday, the honorary degree of D.C.L. was conferred on Mr. Thomas Graham Jackson, R.A., F.S.A., M.A. In presenting Mr. Jackson, Dr. Warren said his skill was not that of the pencil and the pen only, but he was a scholar and a historian, altogether a fitting son and pupil of Wadham College. By the chancellor of the University Mr. Jackson was described as "most Oxonian of architects, who, by a marvellous combination of the beauties of every style of architecture, has given to our age a new style of its own."



ROYAL INFIRMARY, BRADFORD: SELECTED DESIGN.—Mr. William A. Pite, F.R.I.B.A., Architect.

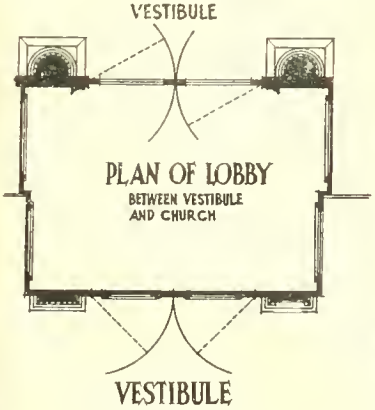
CHURCH OF ST. LAWRENCE JEWRY GRESHAM ST.

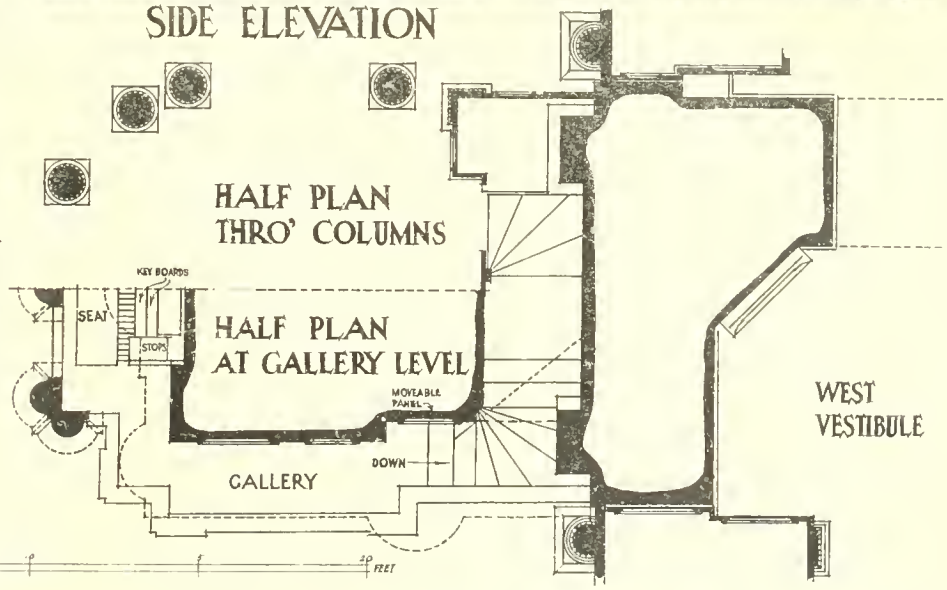
DETAIL OF WEST END OF CHURCH SHEWING ORGAN, ENTRANCES ETC.



ELEVATION FROM VESTIBULE

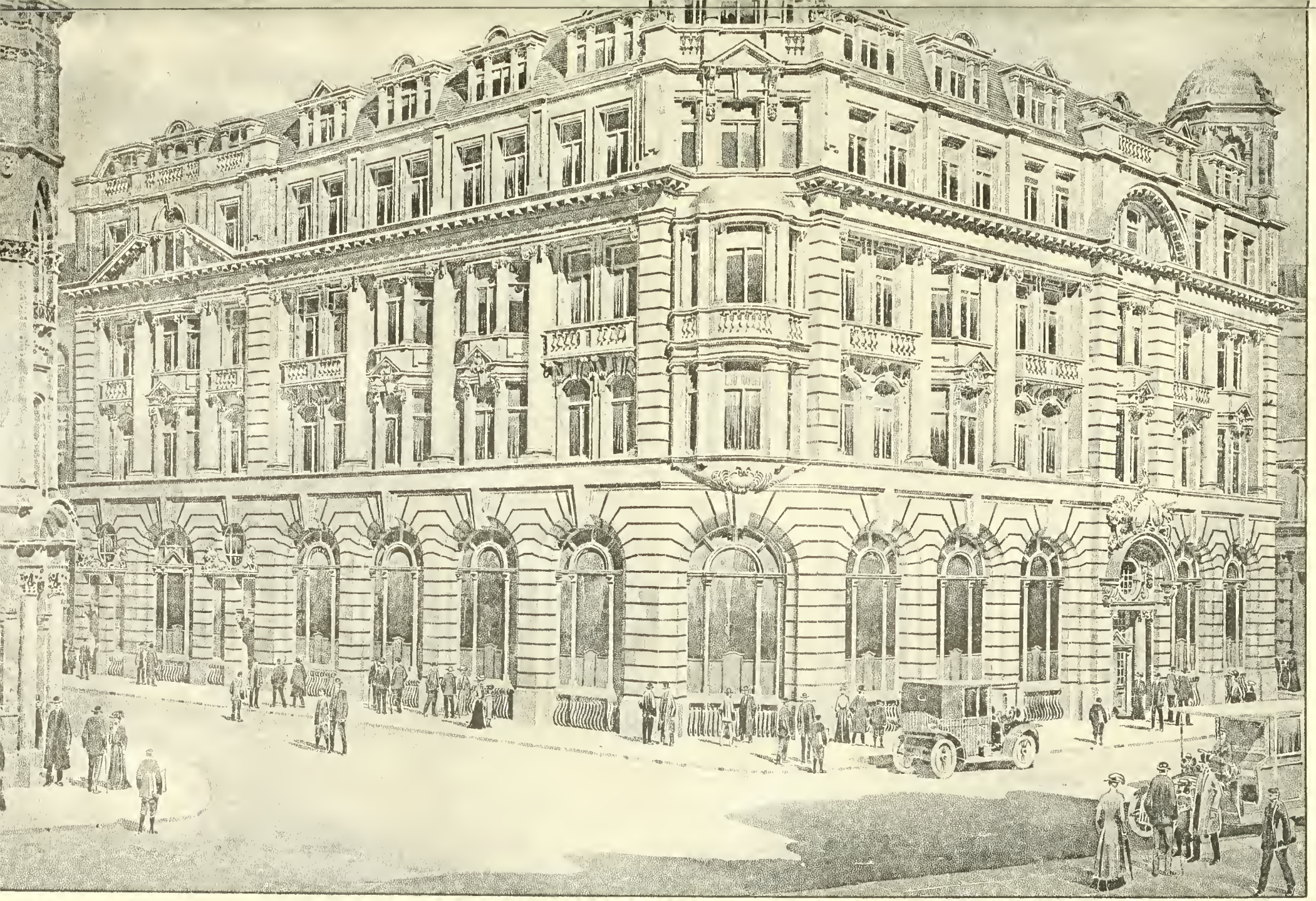
SIDE ELEVATION





SCALE

MEASURED & DRAWN ON THE SPOT / 1909

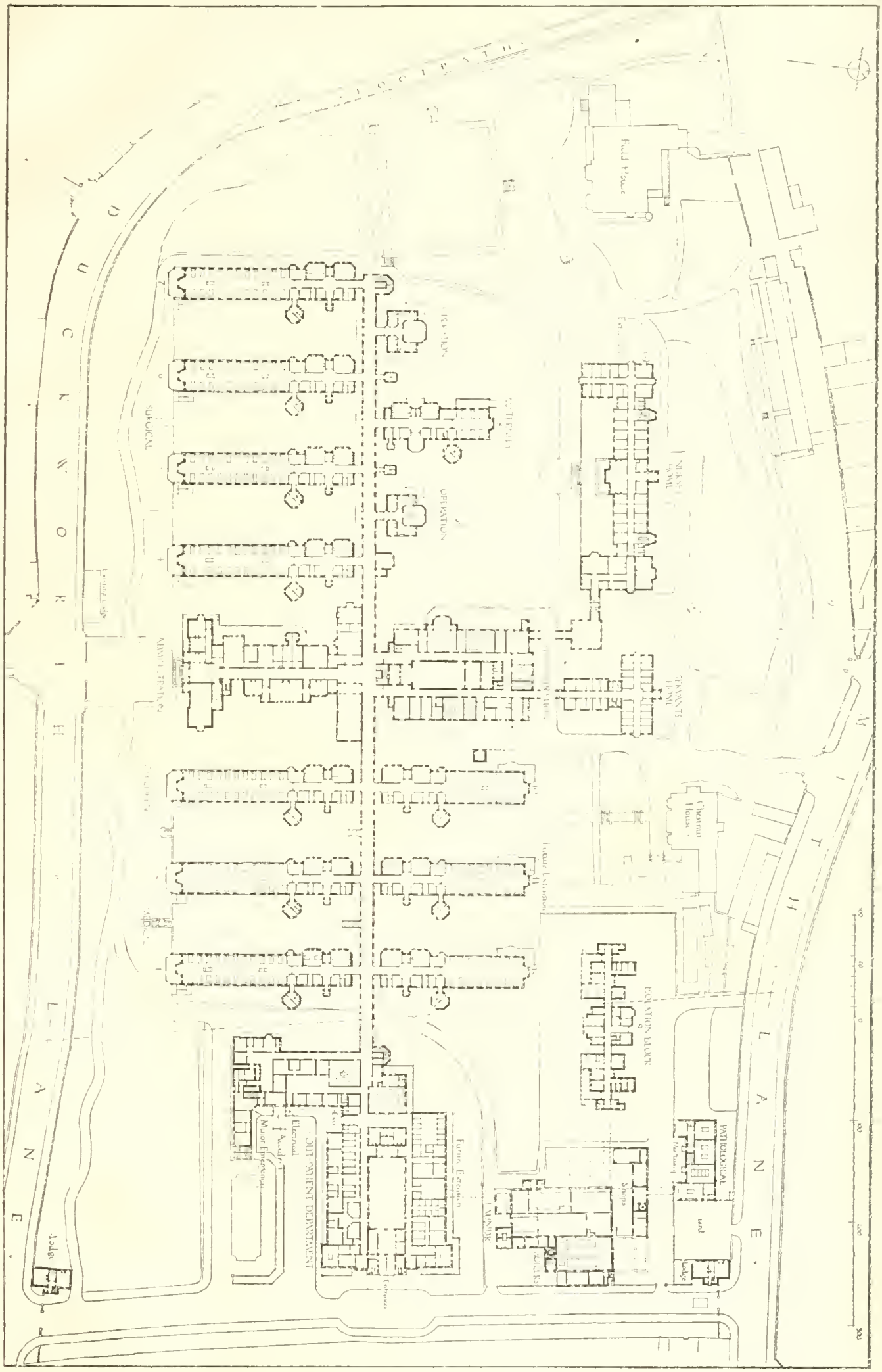


"PHOTO-TINT" by James Akerman, 6, Queen Square London, W.

THE ROYAL INSURANCE COMPANY'S NEW OFFICES LOMBARD ST EC MESSRS GORDON & GUNTON ARCHITECTS

THE ROYAL INSURANCE COMPANY'S NEW OFFICES, LOMBARD STREET, E.C.

Messrs. GORDON and GUNTON, Architects.



ROYAL INFIRMARY, BRADFORD: SELECTED DESIGN.—Mr. WILLIAM A. PITE, F.R.I.B.A., Architect.

SPECIFICATIONS FOR REINFORCED CONCRETE.

The following specifications were adopted by the Canadian Cement and Concrete Association at their last convention in Toronto, and are published in the annual report and proceedings of the association. The members of the special committee who brought in these regulations were Messrs. Peter Gillespie, Gustave Kahn, and C. R. Young, Toronto, and J. A. Jamieson, Montreal. The report contains, in addition, a number of valuable papers given at the meeting. Copies may be obtained from Mr. Snaith, secretary-treasurer of the association, 57, Adelaide-street East, Toronto.

I. General.

1. Height of Buildings.—There shall be no fixed limit to the height of buildings of reinforced concrete, except that arising from the requirements of these regulations.

2. Plans and Computations.—Before permission is granted by the Building Department to erect any reinforced concrete building, complete plans, accompanied by specifications, signed by the engineer and architect, must be filed with the Building Department, and remain on file for public inspection until the building is completed.

3. The Building Department shall have access to the computations. These shall give the various loads assumed, such as dead, live, and wind loads, the impact allowance, if any, and the resulting maximum stresses.

4. Specifications.—The specifications shall state the qualities of the materials to be used for making the concrete, and the density and strength required.

5. Certificate of Carrying Capacity.—Upon the completion of the building the engineer and architect shall issue, under the approval of the Building Department, signed certificates, to be posted on each floor of the building, stating the safe carrying capacity per square foot.

6. Records.—There shall be kept, for the inspection of the Building Department, careful records of the progress of the work. These records shall show the date of placing of all the concrete, the date of removal of the forms, and they must be turned over to the Building Department when the building is completed.

7. Walls.—Reinforced concrete walls may be used in place of brick or stone exterior, or bearing walls with thickness reduced to two-thirds the thickness specified for brick walls. Such walls shall not be less than four (4) inches thick.

8. Reinforced concrete walls shall be reinforced at both faces. The maximum spacing of bars in the same vertical plane shall be 18in. on centres. The quantity of metal employed shall be sufficient to provide for a uniformly distributed horizontal pressure of 30lb. per square foot acting on either side of the wall.

II.—Materials.

9. Cement.—Only Portland cement shall be used in reinforced concrete structures which meets the requirements of the specifications of the Canadian Society of Civil Engineers.

10. Tests of the cement used in building operations shall be made from time to time under the supervision of the Building Department and in accordance with the preceding specifications.

11. Fine Aggregates.—Fine aggregates shall consist of sand, crushed stone, or gravel screenings graded from fine to coarse, and passing, when dry, a screen of ¼in. mesh. Not more than 6 per cent. shall pass a screen having 100 meshes to the linear inch. They shall be free from dust, clayey material, free from vegetable loam or other deleterious matter.

12. Mortar.—Mortars composed of 1 part Portland cement and 3 parts fine aggregate, when made into briquettes, shall show a tensile strength at least equal to the strength of 1:3 mortar of the same consistency made with the same cement [illegible] Ottawa sand.

13. Coarse Aggregates.—Coarse aggregates shall consist of [illegible] broken stone or gravel, which is retained on a screen of ¼in. mesh. The particles shall be clean, hard, durable, and free from all deleterious material. The maximum size of the coarse aggregates shall be such that they will not separate from the mortar in laying and will flow readily around the reinforcement and into all parts of the forms.

14. Cinder Concrete.—Cinder concrete shall not be used for reinforced concrete structures; it may be used for fireproofing. Where cinders are used as the coarse aggregate, they shall be composed of hard, clean, vitreous clinker, free from sulphides, unburned coal, or ashes.

15. Medium Steel.—Medium steel for reinforcements shall have an ultimate tensile strength of 58,000lb. to 66,000lb. per square inch, an elastic limit of not less than one-half the ultimate strength and a minimum percentage elongation in 8in. of 1,500,000 divided by the ultimate strength. In all respects not covered by this specification, medium steel shall conform to the requirements of the general specifications for steel bridges and viaducts of the Department of Railways and Canals, Canada, 1908.

16. High Elastic Limit Steel.—High elastic limit steel for reinforcement shall be made entirely from new billets and shall have an ultimate tensile strength of 80,000lb. to 96,000lb. per square inch, an elastic limit of at least half the ultimate strength, and a minimum elongation, of 1,200,000 divided by the ultimate strength. It shall bend cold 180° around a pin the diameter of which is four times the thickness of the bar without showing fracture on the outside of the bend.

17. Rust, Scale, and Dirt.—All loose rust, scale, or dirt shall be removed from reinforcement steel before it is placed in the work.

III.—Design.

1. General Assumptions.

18. The ratio between the moduli of elasticity of steel and concrete shall, for a concrete crushing at 2,000lb. per square inch in twenty-eight days, be assumed at 15.

19. The compressive stresses in a reinforced concrete beam shall be assumed to vary directly as the distance from the neutral axis.

20. The tensile resistance of concrete shall be assumed to be zero.

21. T-Beams.—Where adequate bond between slab and web of beam is provided, the slab may be considered as an integral part of the beam, and its effective width may be determined by the following rules:—

(a) It shall not exceed one-fourth of the span-length of the beam.

(b) Its overhanging width on either side of the web shall not exceed four times the thickness of the slab, nor twice the thickness of the web.

(c) Where the slab extends on only one side of the beam, it shall be permissible to consider as effective flange area an overhanging width not greater than four times the thickness of the slab, or twice the thickness of the web.

2. Bending Moments.

22. Moments on Slabs and Beams.—In computing the positive and negative moments in beams and slabs, continuous over several supports, due to uniformly distributed loads, the following rules are recommended:—

(a) That for floor slabs the bending moments at centre and at support be taken at wl 12, for both dead and live loads, where w represents the load per lineal unit and l the span length.

(b) That for beams the bending moment at centre and at support for interior spans be taken at wl 12, and for end spans be taken at wl 10, for centre and adjoining support, for both dead and live loads.

23. Distribution of Loads on Slabs.—Floor slabs should be designed and reinforced as continuous over the supports. The distribution of loads longitudinally and transversely in slabs reinforced in both directions shall be determined by the following formula:—

$$r = L_1 \div (L_1 + B_1),$$

where r is the ratio of the load carried transversely to the whole load, L is the length, and B the breadth of the slab. If the length of the slab exceeds 1.5 times its width, the entire load shall be assumed to be carried by the transverse reinforcement. Square slabs are preferably reinforced in both directions, using reinforcement in each direction calculated for one-half the specified load.

24. Distribution of Loads on Beams.—The loads carried to beams by slabs which are reinforced in two directions will not be uniformly distributed to the supporting beams, but may be assumed to vary as the ordinates on the sides of an isosceles triangle, the base of which is the length of the beam. The moments in the beams should be calculated accordingly.

3. Working Stresses.

25. The working stresses proposed below are for a concrete the ultimate crushing strength of which at an age of 28 days is 2,000lb. per square inch. For concrete of greater or less compressive strength, proportionate increments to, or reductions from, the proposed stresses shall be made.

(a) Bending.—The maximum allowable compressive stress on the extreme fibre of beams shall be 650lb. per square inch.

(b) Direct Compression.—The maximum allowable compressive stress on concrete in columns without hoops, or in columns reinforced with less than 1 per cent. of hooping, shall be 500lb. per square inch.

(c) Pure Shear.—Pure shearing stresses, uncombined with tension or compression, shall not exceed 120lb. per square inch.

(d) Diagonal Tension.—Shearing stress combined with diagonal tension shall not be greater than 400lb. per square inch.

(e) Bond.—The maximum allowable bond stress between concrete and plain steel shall be 60lb. per square inch, and between concrete and deformed bars approved by the architect or engineer, 120lb. per square inch.

(f) Tension in Steel.—The tensile stress on steel reinforcement shall not exceed one-half of the elastic limit of the steel, nor in any case 16,000lb. per square inch.

(g) Columns.—Columns reinforced with longitudinal reinforcement only, shall be figured for a working stress in the concrete of 500lb. per square inch, and in steel, a stress of 7,500lb. per square inch.

(h) Columns with at least 1 per cent. of reinforcement in the form of bands or hoops shall be figured at a working stress of 500lb. per square inch on the concrete.

(i) Columns reinforced with at least 1 per cent. and not more than 4 per cent. of longitudinal bars, and with at least 1 per cent. of reinforcement in the form of bands or hoops, or with structural steel column units which thoroughly encase the concrete core, shall be figured at working stresses of 650lb. per square inch on the concrete, and 9,750lb. per square inch on the longitudinal reinforcement.

4.—Details of Design.

26. Spacing of Bars.—The lateral spacing of bars should not be less than three diameters, centre to centre, nor should the distance from the side of the beam to the centre of the nearest bar be less than two diameters. The clear spacing between two layers of bars should not be less than 1in. In no case shall the minimum thickness of fireproofing be less than that specified by the Building Department.

27. Web Reinforcement.—In the calculation of web reinforcement to provide a strength of 120lb. per square inch, which is assumed to be the maximum permissible vertical shearing stress on beams, no matter how well reinforced for diagonal tension, the concrete may be counted upon as carrying one-third of the shear, or for 2,000lb.—concrete, 40lb. per square inch. The remainder may be provided for by means of metal reinforcement, consisting of bent bars or stirrups, but preferably both. The area of a stirrup, acting in tension, must be proportioned to the force equal to the whole horizontal shear produced between the two adjacent stirrups, less the amount to be carried by the concrete. This total horizontal shear may be found by multiplying the distance between the stirrups by the average horizontal unit shear, which is equal to the vertical unit shear, and is represented by the expression V/d where V is the total vertical

shear not carried by the concrete, and d is the depth of the beam to the centre of the steel. In accordance with this method, the stress in a vertical stirrup will be equal to $V_s \frac{d}{s}$, and in a stirrup or rod bent at 45deg. it will be 0.7 $(V_s \frac{d}{s})$, in which s is the horizontal spacing of stirrups or bent rods in the direction of the axis of the beam.

28. Stirrups.—The longitudinal spacing of stirrups shall be such that at least one rod shall intersect below the centre of the beam any 45deg. line of rupture in the portion of the beam where the shearing stresses exceed the allowable shearing value of the concrete.

29. Length of Columns.—The ratio of unsupported length of columns to their least width shall be limited to fifteen.

30. Area of Hooped Columns.—The effective area of the hooped column shall be taken to be the area within the protective covering, which shall not be less than 2in. in thickness. In the case of columns reinforced with structural shapes, it shall be taken as the area wholly within the structural shapes.

31. Longitudinal Reinforcement. — Bars composing longitudinal reinforcement must be straight, and shall have sufficient lateral support to hold them securely in place until the concrete is placed.

32. Hooping.—The clear spacing of bands or hoops shall not be greater than one-eighth the diameter of the enclosed column. Adequate means must be provided to hold bands or hoops in place, so as to form a column, the core of which shall be straight and well centred.

33. Bending Stresses.—Bending stresses due to eccentric loads must be provided for by increasing the section until the maximum stress does not exceed the values specified above.

34. Bases of Columns.—At the bases of columns, longitudinal reinforcement shall abut squarely on bearing plates, or shall be carried into the footing a sufficient distance to develop the compressive stress in the reinforcement, on the basis of the working stresses specified above.

35. Splicing of Reinforcement.—In columns all longitudinal reinforcing-rods shall be properly butted or spliced.

36. Wherever it is necessary to splice reinforcement by means of lapping, the length of the lap shall be determined upon the basis of the safe bond stress and the stress in the bar at the point of splice; or, a connection shall be made between the bars of sufficient strength to carry the stress. Splices at the point of maximum stress must be avoided.

37. Shrinkage and Temperature Changes. —Where large areas of concrete are exposed to atmospheric conditions, the changes of form due to shrinkage and variation of temperature must be provided for by placing small rods or light fabric near the exposed surface, of a quantity to be determined on the basis of the elastic and thermal properties of the materials.

IV.—Construction.

38. Measuring and Mixing of Ingredients. —The ingredients of concrete shall be thoroughly mixed to the desired consistency, and the mixing shall continue until the cement is uniformly distributed and the mass is homogeneous and uniform in colour.

39. Methods of measuring and proportioning the ingredients shall be such as are approved by the engineer or architect.

40. When the conditions will permit, a machine mixer of a type which insures the uniform distribution of the materials throughout the mass shall be used.

41. When it is necessary to mix by hand, the mixing shall be on a watertight platform, and special precautions must be taken to turn the materials until they are homogeneous in appearance and colour.

42. Consistency.—The materials must be mixed wet enough to produce a concrete of such consistency as will flow readily into the forms and about the reinforcement, and which, on the other hand, can be conveyed from the mixer to the forms without separation of the coarse aggregate from the mortar.

43. Retempering.—Retempering mortar or concrete—i.e., remixing with water after it has partially set—shall not be permitted.

44. Placing of Concrete.—Concrete shall be rapidly and continuously handled from the time the water is added until it is finally placed in the work. The placing shall be facilitated by the use of suitable agitating and ramming tools, so as to produce a thoroughly compact concrete of maximum density.

45. Wetting. — Concrete exposed to premature drying shall be kept damp for a period of at least four days.

46. Forms. — Before Concrete is placed, care shall be taken to see that the forms are substantial and thoroughly wetted, and that the space is entirely free from debris.

47. Joining Up New Work to Old.—When work is resumed, concrete previously placed shall be roughened, thoroughly cleaned of foreign material and laitance, drenched and slushed with a mortar consisting of one part Portland cement and not more than two parts fine aggregate.

48. Placing in Water.—Where concrete must be placed under water, unusual care must be taken to prevent the cement from being washed away.

49. Freezing Temperature. — Concrete should not be mixed or deposited at a temperature lower than 28° Fahr., unless special precautions are taken to avoid the use of materials containing frost or covered with ice crystals, and to provide means to prevent the concrete from freezing after being placed in position.

50. Reinforcement. — The reinforcement shall be accurately located in the forms as required by the plans, and carefully secured by wiring or other means against displacement before placing the concrete.

51. Joints. — Reinforced-concrete work shall be stopped at points where joints will have the least possible effect on the strength of the structure.

(a) Footings shall, where practicable, be cast to their full depth at one operation.

(b) Columns shall be cast at a single operation, and work shall be stopped at the under side of the lowest beams or girders bearing on the columns. Where a bracket is used, the bracket shall be considered a part of the beam or girder.

(c) Construction joints in beams and girders shall be vertical and at the centre of the span. Any concrete which may run past the bulkheads must be cleaned up before the concreting of the next section is started.

(d) Construction joints in slabs shall be at the centre of the span. Where a joint occurs between a slab and a beam or girder, no T-action in figuring the beam or girder shall be considered.

52. Removal of Forms.—No forms shall be removed without the written consent of the engineer or architect.

53. Tile and Joist Construction.—Wherever floors are built with a combination of tile or other fillers between joists, the following rules regarding the dimensions and methods of calculation shall be observed:—

(a) The ratio of minimum depth to clear span of joist shall not be less than one to twenty-four.

(b) Wherever a portion of the slab above the tile joist shall be considered as acting as a Tee beam section, the slab portions must be cast monolithic with the joist, and must have a minimum thickness of 2in. In such a case, all regulations applying to Tee-beams shall apply to tile and joist construction.

(c) In no case shall the tile or other fillers be considered as bearing stress.

(d) Wherever porous tiles, or other materials which by their nature will absorb water from the concrete, are used between the joists, care must be taken to thoroughly saturate the tiles, or other materials, with water immediately before the concrete is placed.

Mr. Edward Stimson, of 52, Brixton-hill, S.W., founder and head of the firm of Messrs. Stimson and Sons, auctioneers and surveyors, left personalty amounting to £85,797.

The House Letting and Rating (Scotland) Bill, which, with slight alterations, is framed on the lines of the measure discussed in 1909, was read a second time in the House of Commons on Tuesday.

Correspondence.

MANCHESTER NEW LIBRARY AND ART GALLERY.

To the Editor of the BUILDING NEWS.

SIR,—The Assessor's decision in the preliminary competition for the above, judged from the information contained in his Report, has given dissatisfaction to the profession unparalleled in the history of architectural competitions. It would hardly seem possible for any assessor, when making choice of designs for a building of this importance, to select certain schemes which on his own showing—in his report to the promoters—clearly transgressed definite instructions on two essential points—viz., (1) cost, (2) area of land to be built on.

I will prove this has been done.

First, as to cost. At the outset the promoters consulted the city architect as to the price per foot cube it would be necessary to allow for the satisfactory erecting of a building of this character. I have the authority of certain corporation members in stating that a minimum cost of 1s. 2d. per cubic foot, ranging up to 1s. 6d., was quoted, based on the relative cost of a number of public buildings recently erected.

The conditions of competition issued to the competing architects state as follow, viz.:—

"Designs which do not conform to the instructions and conditions laid down will be excluded from the competition."

Also—

"The corporation are advised that it is possible to obtain a building (including the matters aforesaid, but excluding furniture) suitable for their requirements at a cost not exceeding £250,000. Any design likely to exceed that figure will be excluded from the competition."

In the printed replies to competitors' queries, the following also appears, viz.:—

Query 39: Must the preliminary scheme *not* exceed the sum of £250,000?—Reply: £250,000 is the limit to which the corporation will go.

The Assessor, in his report, states that 1s. per cubic foot was, in his opinion, the very lowest at which the work can be done, and "Mr. Price has had the cost worked out on this basis with the following results:—

"No.	14	£247,314
"	32	244,077
"	87	255,700
"	110	238,340
"	126	201,300
"	129	241,000
"	144	248,500
"	150	207,000
"	167	222,100
"	179	242,000."

Therefore it will be seen, out of the ten designs chosen for the final competition—even on the 1s. assessment—*one* exceeds the stipulated outlay by some £5,700. But it is common knowledge 1s. 2d. per foot cube is the *least* price for which a building of this character can be erected, and this is confirmed also by the city architect's quotation to the promoters.

It necessarily follows, as seven of the selected designs exceed the stipulated limit of cost by many thousands of pounds, they ought *not* to have been included, in fairness to those schemes which faithfully complied with this most important instruction. The Assessor further reports:—

"Nos. 110 and 126 were short in various particulars. The latter (viz., 126 in particular) has not followed the requirements with any closeness, his deficiency being estimated at about 9 per cent. As will be seen, however, from the estimated cost, his building works out at a lower figure than that of the other selected competitors."

Had it been otherwise, it would indeed have been remarkable, considering 9 per cent. of the stipulated accommodation has been omitted.

Now as to the area of land to be built on.

[illegible]

[illegible]

[illegible]

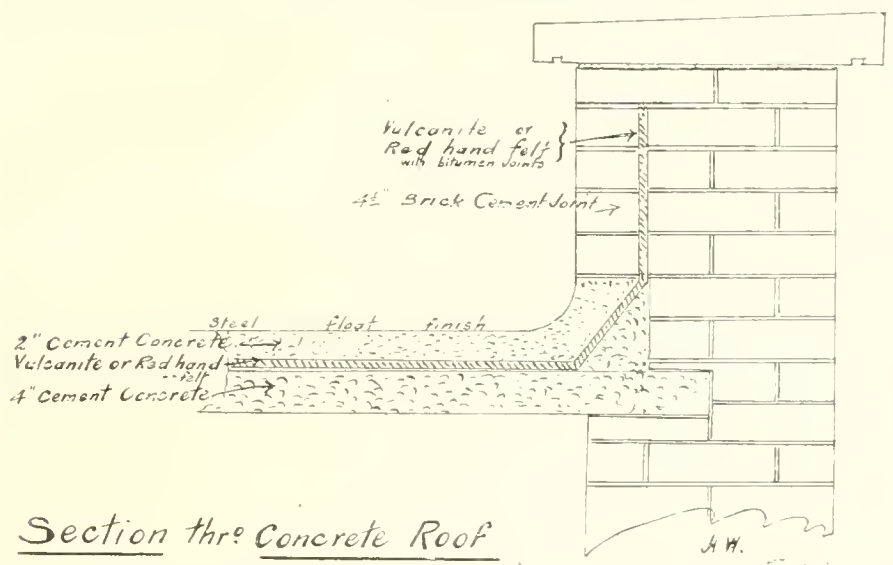
portion of 12lb. of soap to 30 gallons of water. This is carefully painted on the cement and sand finish, and when quite dry, a coating of alum solution in the proportion of 20lb. to 30 gallons is applied in the same way, care being taken to fill any interstices there may be in the cement and sand finish. This sets up a chemical action, forming aluminate of sodium, and if the work is carefully done, the roof will be perfectly watertight, no matter how slight the fall may be.—F. Harold Smith, 105, Davenport-street, Bolton, Lancashire.

[13056.]—CONCRETE ROOFS.—I presume "Grateful" means 1 best Portland cement, L.S.G., and 5 clean aggregate, and finished with 1in. cement and fall, as stated in question. Even assuming that the said work is carried out in the best workmanlike manner, the said roofs cannot be depended on as being waterproof under eighteen months. This I have proved by experimental floors and garden paths for the past thirty years. As cement requires everything it is incorporated with to be scrupulously clean, if it is to give satisfaction, it will not, in my opinion, add to its setting properties if mixed with compo or soft soap. Assuming that "Grateful" is fond of brush-work, he may try coating the finished surface with alum-water and sheate of soda; but this method will only act as a temporary one, and will keep him fully employed for at least eighteen months. As the coat of finishing with asphalt is prohibitive, therefore, to make "Grateful's" concrete roof waterproof "at once" is to treat it with one of the two following methods: First: At completion treat it with two coats of cement wash, and, when dry, cover with two coats of hot bitumen, well covered with washed, sharpgritted sand. Second: Treatment as per sketch herewith, which in several cases I have found to give every satisfaction.—Henry Walker, 36, Miller-arcade, Preston, Lancs.

[13056.]—CONCRETE ROOFS.—The trouble arising from the leakage of water through concrete roofs is due to the expansion and contraction of the concrete, which produces fine cracks. These become filled with water, which, after freezing and thawing, expands the cracks, and disintegrates the surface of the concrete. The best way to proceed is to wash and clean the surface well, then mix some good Portland cement with water, and pour it over the surface, brushing it into the cracks, if any. When quite dry, apply a couple of coats of hot Stockholm tar, over which a thin layer of sand may be sprinkled, for the sake of appearance, or for walking on. It is not advisable to mix soft-soap with cement and sand, as it will neutralise the chemical action which goes on during the setting of the cement. The proportions of 1 to 5 for cement and aggregate are rather poor for a watertight concrete for roofing purposes; they should not be greater than 1 to 3½. Should the coating of tar be considered unsightly, two or three coats of some good waterproofing composition will probably be found effective.—S. E. Bailey, The Laurels, Banstead-road, Ewell.

[13056.]—CONCRETE ROOFS.—A concrete roof composed of the proportions you mention will stand for a year or two. But for a substantial job at a little more expense, I recommend 4 parts of a good coke breeze or broken brick (both should be able to pass through a 2in. ring) to 1 part of a good Portland cement, mixed twice dry and three times wet. The batches should not be made too sloppy, or the cement liquid will, to a certain extent, leave the breeze or brick when being dumped on to the boarding. Regarding the finishing coat, sand stands fairly well, but cannot be compared to granite or whin chips for a really substantial crackproof job. The chips should be put over a fine riddle, so as to extract the dust, and afterwards mixed in the proportions of 3 chips to 1 of cement. The chip dust should be mixed with a little cement and rubbed over the roof when laying the finishing, in order that you may get a good hard and smooth finish. I have had considerable *practical* experience in laying concrete roofs, and never heard of soft soap being used; but for a porous roof a coat of coal-tar makes a splendid job, and will fill up the interstices to the necessary extent. But if you follow my composition, there is little need to coat the surface with a waterproofing substance.—Thomas Black, jun.

[13056.]—CONCRETE ROOFS.—Concrete roofs, finished with cement and sand, floated up, are not satisfactorily waterproof, and should not be attempted as such. There is a patent composition on the market which is mixed with the cement for waterproofing, but this is not in liquid form, as suggested by "Grateful." The material is a patent cement in fine powder, and is called "Medusa" cement. About 4½lb. of "Medusa" is mixed with one bag of Portland cement and is floated up with a layer ¼in. thick over the ordinary concrete flat. It should be applied before the concrete is thoroughly set, so as to obtain good adhesion, and it is then not liable to crack by contraction. "Medusa" is an American cement, for which Messrs. Earles, Ltd., Hull, are the sole agents for England. I believe the cost of same is 7d. per lb. This method of waterproofing is satisfactory in every way, and I can with confidence recommend it, having had considerable experience of its use, and I have in no case had a leakage. During this last year I have used it in warehouse roofs, a large club building, and also on a mansion where the room under the flat is most expensively decorated and furnished. In one case of a warehouse the roof was made to the form of a tank for the condensation of waste steam. This, I think, is the most severe test possible. The cost of this waterproofing by "Medusa" cement works out at much less than asphalt method. "Grateful" should arrange for Messrs. Earle to mix the "Medusa" with the Portland cement by their machines, as it is essential that the proper proportion and a thorough mixing shall be obtained. If too much "Medusa" is used the result is not satisfactory.—A. Chas. Brockmore, P.A.S.I., Hull.



[13056.]—CONCRETE ROOFS.—The roof should be increased to 7in. total thickness and the aggregate should be broken to pass a 1½in. diameter ring, no larger pieces being allowed to be used. Otherwise the roof may be as specified by "Grateful." Alum and soap are used as a waterproofing for concrete. The alum in powdered form may be mixed with the dry cement or the sand, and the soap may be dissolved in the water employed in mixing the concrete; or both alum and soap may be dissolved in the water. The alum and soap combine, and form a finely-divided flocculent, insoluble, water-repelling compound which fills the pores of the concrete and decreases its permeability. The best proportions are alum one part and hard soap two parts—both by weight. The finishing coat should be carried up the walls 9in. to form a skirting. The success of this roof depends so much upon workmanship that the supervision must be very strict to see that the proper materials and proportion and mixing are rightly performed, and the proper falls secured to get rid of the water as soon as possible.—J. W. Thorpe, 6, Woodville-terrace, Lytham.

[13056.]—CONCRETE ROOFS.—Concrete mixed as mentioned by "Grateful" will of itself be waterproof in about a year; this I have had from practical experience. The gradient mentioned is hardly "self-cleansing": most flat roofs require 1 in 40 as the minimum gradient. "Grateful" should make his concrete of fine stuff, which is not so porous as the coarse, and will add to the efficiency of the roof.—K. H. Read, Lecturer on Building Construction, Gloucester Technical Schools.

[13056.]—CONCRETE ROOFS.—Speaking from personal experience, it is practicable to form a concrete flat roof, to be perfectly waterproof, without covering with asphalt, provided that special care and attention is given to the quality of the materials and the manner of laying. I should not, however, advise constructing the roof without some form of reinforcement, such as, for instance, expanded metal, as the reinforcement embedded in the concrete ties the whole together, thus considerably strengthening the concrete, and so preventing any possibility of cracks developing, through which dampness, or even water, might percolate. It is very important that the concrete mixed, say 1 of Portland cement, 2 of sand (to pass a ¼in. ring), and 3 of ballast, or broken stone (to pass a 1in. ring), should be well punned and consolidated, and left perfectly free of voids. I mention free of voids, as on one occasion I found the contractor using sand far too fine, which instead of helping to fill up the voids between the aggregate, had percolated through to the under side with the cement, and the whole had to be grouted over. Particular attention should be given to prevent the concrete setting too quickly; the work, after the initial set, should be covered with wet sacks, and be kept moist for at least seven to ten days; the top surface of the concrete should be left rough, and then be finished off with a floating, laid to a fall of not less than ¼in. to a foot, and composed of Portland cement and sand, 1 and 1, or if to be subjected to much wear, a floating of 1 part Portland cement, 1 of sand, and 1 of crushed granite screenings. The above construction I have found absolutely satisfactory in extremely exposed positions on a sea front. I have never employed any form of composition for mixing with the concrete, although there are materials known as "Medusa" and "Ceresit" on the market for this purpose, or the roofs can be made thoroughly waterproof by using a mixture of alum, lye, and cement, to be used as a wash. Dissolve 1lb. of concentrated lye and 5lb. of alum in two gallons of water. Heat nearly to boiling point, to insure thorough solution. To 1 pint of this "stock" add 10lb. of cement in a 12-quart pail, and add enough water to fill the bucket; this will give a mixture which spreads easily and well with a whitewash brush. Apply it to the face of the flat after it has been laid about three or four days, and while wet; a few hours are sufficient for the wash to stand a spray.—J. E. Todd, 145, Victoria-road North, Southsea.

LEGAL INTELLIGENCE.

IN RE A. H. BATLEY.—Before Mr. Registrar Giffard, on Friday, an application was made for an order of discharge by Arthur Henry Batley, builder, 44, Piccadilly-circus, W. The trustee had reported that the total unsecured indebtedness would probably amount to £7,837. The only asset returned in the statement of affairs was a surplus, estimated at £34,192, from securities in the hands of fully-secured creditors, and the trustee did not expect to receive anything from that source. The bankrupt attributed his failure solely to his title to certain land in Sudbury Vale, Middlesex, acquired with the view of laying it out as a model garden city, having been attacked. Mr. W. P. Bowyer, Assistant Official Receiver, reported that, though the bankrupt's capital had been substantial, it was inadequate to carry through his scheme for forming a garden city. Mr. Registrar Giffard said that he would not add anything to the period of suspension on the ground of rash and hazardous speculation. The discharge would be suspended for two years.

SERIOUS CHARGE AGAINST A COMMERCIAL TRAVELLER.—At Peterborough Police-court, on June 21, James Henry Herman, alias Geo. Edward King, commercial traveller, appeared to answer seven charges of obtaining money by false pretences. Three of the charges were of obtaining a cheque for 21s. by means of certain false pretences, on May 25, from David Gray, Geo. Brown, and John Lucas, builders and contractors, of Peterborough; and there were four charges of attempting to obtain 21s. from the three named builders and Arthur Neaverson, builder, of Peakirk, by false pretences, on the same date.—Arthur Neaverson, builder, Peakirk, stated that on May 25 he received a letter, signed "G. E. King," which invited tenders for a county residence at Peakirk for Mr. Leslie Gordon, and stating that plans and specifications for the same would be forwarded on receipt of one guinea. The money would be returned on receipt of a bona-fide tender. From his local knowledge witness had suspicions, and handed the letter to Inspector Slaughter.—David Gray, builder and contractor, Lincoln-road, Peterborough, said on May 25 he received by post a letter from the defendant.—The magistrates' clerk said the letter was precisely the same as the last.—Witness continuing, said, believing the communication to be from a bona-fide architect and surveyor, he instructed his son to respond to the invitation to tender, and sent a cheque for one guinea. He afterwards stopped payment of the cheque.—George Brown, builder and contractor, of All Saints'-road, Peterborough, stated he received a letter inviting tenders for G. E. King. He wrote, sending one guinea, and had received no reply to his application. His banking account had been debited with the amount.—John Lucas, builder and contractor, Dogsthorpe-road, Peterborough, deposed to receiving a letter from G. E. King inviting tenders and sending an application and one guinea. He stopped the payment of the cheque, receiving no reply to the letter.—Archie Harold Gray said he assisted his father in the business of a builder and contractor on Lincoln-road. In reply to a letter signed "G. E. King," he sent a letter enclosing a cheque for one guinea, for his father. He had seen no reply to the letter. The payment of

defendants served him under section 18 of the Act with notice of a meeting to be held on June 28 to consider the question of the demolition of the houses. The plaintiff had under section 17 of the Act, fourteen days from May 22 in which to appeal to the Local Government Board against the refusal of the defendants to determine the closing orders. Instead of doing so he now applied for an interim injunction until the trial of the action. Mr. Justice Neville thought the local authority had made a mistake. The right of appeal given by subsection 3 of section 17 of the Act was a very important, and it was only reasonable that an owner served with a closing order by the action should be given notice of that right. He should grant an injunction restraining the defendants from entering the closing orders until the trial of the action. The parties agreed to treat the motion as the trial of the action, and that the injunction should go restraining the defendants from enforcing either of the closing orders, with costs.

FALL OF A CORONATION ARCH. An inquest was held at Barnstaple on Friday evening into the circumstances attending the death of Mrs. Lily White, aged thirty, who was killed by the collapse of a triumphal arch on Coronation Day. It appeared that just as the tail of a procession had passed through the archway it collapsed, during a sudden gust of wind, inflicting fatal wounds on Mrs. White and injuries on several other people. The borough surveyor, Mr. E. M. Saunder, said the arch was erected under the orders of the decorations committee. It was decided by the committee that three arches should be erected, and he was instructed to go to the carrying out of the work. As he was impossible for the large amount of work in connection with the festivities he performed out the work to make it go as smoothly as possible. He had a consultation with the foreman of works, Mr. F. W. Gerge, and gave him a rough pencilled sketch of the arch. Mr. Grant said he had had considerable experience of erecting arches of the same type, and witness left the construction to him. He examined the arch when the piers were being placed in the tubs to see that the earth was being well rammed down and secure. After that his examination of the arch was very meagre as Mr. Grant was giving his whole time to it. The arch was a little more embedded than the other, but that would not affect its stability. He was inclined, after the evidence, to think that an exceptional gust of wind was the main factor in the overturning. By the coroner: He emphatically denied that anyone previously complained to him that the arch was giving way or toppling. Answering a juryman, the borough surveyor said he did not think it necessary to put in a stay on either side of the uprights. The foreman of works, Mr. E. W. Grant, said he found the poles as sound after the accident as when he put them up. The barrels were over on their sides, and the structure toppled over bodily. The arch was substantially built, and should have stood a bigger wind than that. Asked by the coroner whether the arch would have come over if stays had been provided, witness said he could not say. The Coroner: Well I think we all can.—Witness added that no one complained to him of the lack of stability in the arch before it fell. Witness was closely questioned by jurors in regard to various details. He explained that he found none of the main poles broken after the accident. There were no supporting poles fixed in the ground. It was not true that any of his men drew his attention to a cracking of the arch during construction. The work was done by skilled workmen, not casual labour. The material in the tubs which supported the main poles was as firm after the accident as before. After a long retirement, the jury returned a verdict of "Accidental death." They found that the collapse of the arch was caused by "an exceptional gust of wind," and they recommended that "in future lateral stays be fixed to any such structure to prevent an accident."

CUTTING AWAY CHIMNEY BREAST NEGLECT TO GIVE NOTICE LONDON BUILDING ACT 1894. On June 14 at Tower Bridge Police court, before Mr. Chapman, Messrs. C. Martin and Co., housebreakers, of [illegible] were summoned by Mr. Bertram D. [illegible], district surveyor for Newington, [illegible] to give notice to the [illegible] required by section 145 of the London Building Act 1894, at certain premises, Nos. 9 and 11, Newington causeway, by cutting away a chimney breast with [illegible] the party wall between Nos. 9 and 11 Newington causeway without giving the district surveyor certificate under section 64 [illegible]. Evidence was given that two houses, Nos. 11 and 13 Newington causeway had been pulled down by defendants to make room for a stand to view the Coronation procession, and that a chimney breast belonging to No. 11, but with and bonded to the party wall next No. 9 had been cut away. No notice had been given, and no certificate had been asked for. Mr. Chapman fined defendants 5s. and 23s. costs on one summons, and 5s. and 2s. costs on the other.

A CARNARVON LIGHT AND AIR CASE. Owen v. Mayor and Corporation of Carnarvon. In the Chancery Court, on Wednesday, Mr. Justice Neville sitting as an additional Judge of the King's Bench Division had before him this non-jury case, brought by Evan Jones, butcher, trading as the Meat Stores at Carnarvon, to obtain an injunction against the mayor and corporation of that town restraining them from building an extension of the institute (a building erected from plans by Mr. Rowland Lloyd Jones, the county architect, in 1887) in such a way as to interfere with the access of light and air to plaintiff's premises. Mr. Hewitt appeared for the plaintiff and Mr. Ellis Griffith, K.C., M.P., and Mr. Rowland Rowlands for the defendant corporation. When the action was called on Mr. Hewitt asked for a stay of proceedings upon terms of settlement agreed upon. His Lordship made an order accordingly.

MEASURES BROTHERS LTD. At Bow-street on Tuesday Robert Herbert Measures, formerly managing director of Measures Brothers, Ltd., iron and steel contractors and engineers, of Southwark-street and Croydon, again appeared before Mr. Marsham to an adjourned summons charging him with circulating profit-and-loss accounts and balance-sheets in which the amount of the stock in hand was considerably overestimated in the years 1904, 1905 and 1906. Mr. Leycester and Mr. Rowe conducted the case on behalf of the Director of Public Prosecutions. Mr. C. F. Gill, K.C., and Mr. Randolph appeared for the defendant. Mr. Gill, in addressing the magistrate for the defence, submitted, in a speech of between three and four hours' duration, that there was no probable presumption that a jury would find the defendant guilty of the charge. It was a case in which the jury would require a special training in order to follow the evidence in detail. If the magistrate decided to dismiss the case, it would be a relief to those representing the defendant, and he felt sure that it would not be altogether unsatisfactory to those who had the conduct of the prosecution. It was clear that the authorities were compelled to take these proceedings. A certain section of the shareholders considered that they had been defrauded by the defendant, and if it had not been for this magisterial inquiry that belief would have been difficult to shake. The case had made it perfectly clear that it was impossible to call one single shareholder or member of the public who had lost any money in consequence of the certificates or balance-sheets in question, and it was for that reason that at the last moment it was suggested that there might be an offence under another section. The case started with regard to matters which took place six or seven years ago. The Board of Trade inquiry into the company's affairs was completed in October, 1909, and eighteen months elapsed from that time before any criminal process was applied for. The initial mistake made by the prosecution—a fallacy which ran through the whole case—was the proposition that the defendant was wholly responsible for everything that had taken place with regard to the stocktaking. The evidence showed that the entries in stock boards were transferred to stock sheets, generally at the defendant's dictation; but sometimes they were dictated by a clerk, and there was a great deal of uncertainty about the whole proceeding. The fact that there were duplications of some portions of the stock had never been disputed by the defendant; but it was elicited in cross-examination that those duplications might be the result of honest mistakes and clerical errors made by absolutely innocent persons. There was no fixed rate by which the cost price of goods was calculated. Up to 1904 the average cost price had been taken; but after that date the defendant relied, in some cases, upon his general knowledge. One matter which had been mentioned to the defendant's prejudice was the sale by him of 13,000 or 14,000 shares between October and December, 1905. The history of the defendant's share transactions was that during the existence of the company he bought 94,800 ordinary shares for £109,000 odd, he sold 58,000 for £56,456, and transferred 45,000 to various members of his family. Quite apart from the transfer of shares to members of his family, the defendant had sustained a loss of £5,000 or £6,000 over his transactions. At the end of 1905 the defendant was in bad health, and was arranging his affairs. At about that

time he unfortunately listened to the advice of a man who induced him to sell some shares through the London and Paris Exchange. This man afterwards brought an action against the defendant for an amazing sum of money. He failed to get it, and gave information to a committee of inspection which had been appointed. Notwithstanding the option on shares which the defendant gave to the London and Paris Exchange, he still continued to be the largest shareholder in the company, and at the end of 1907 he held 32,557 ordinary shares, 8,800 preference shares, and £13,000 in debentures. There was, therefore, the strongest possible inducement for him to endeavour to tide over the bad time which had overtaken the business. The committee shut their eyes to the fact that the defendant had an interest in the business far in excess of any of the other shareholders. Altogether twenty-three witnesses had been called in support of the prosecution. Eleven of them were connected with the company of Measures Brothers, and it was not even suggested to them that the defendant had consciously done anything that was wrong. The statement which the defendant made when the summons was served upon him had been amply borne out by the evidence. He said, "I never prepared any balance-sheet or profit-and-loss account. Quite true the auditors prepared such sheets, and I signed them, fully believing that they were absolutely correct." None of the witnesses had said a word against the honesty and integrity of the defendant: he had not induced any of his employees to make false entries, and he had not concealed anything from them. The defendant was seventy-two years of age. He had worked early and late in the business for forty years, and it was in the highest degree improbable that a man of his character would knowingly commit an offence of this kind to defraud the public. For many years the business had been an exceedingly prosperous one; but, as in the case of most businesses, a time came when the dividends fell, and very naturally some people were disappointed. When a man was successful, nothing that was too good could be said of him; but nothing was too bad to be said of a man when things went wrong. The attack in this case took the form of the appointment of a committee of inspection. The members of that committee, though no doubt eminent men in their own line of business, had not received that special training which would qualify them to deal with the situation with which they were faced, and they were assisted by a journalist out of work, who acted as clerk. They held meetings, and there was a good deal of excitement and angry talk, which only resulted in damaging the business. During this period the defendant wrote making various suggestions; but none of these was accepted, and the result was disastrous to the business. The goodwill of the business was worth something like £200,000, so that the differences of 400 or 500 tons in the stock was trifling in comparison. Between 150,000 and 200,000 tons of iron were sold each year. The business of Measures Brothers was now in the possession of the defendant. The Official Receiver offered it for sale, and, with the sanction of the Court, the defendant purchased it, but only after all his offers of assistance had been refused by the committee. As to the stocktaking, the ordinary business of the company was proceeded with while this was going on. Over 12,000 items had to be dealt with, and thousands of calculations had to be made. There were stock books, stock sheets, stock boards, summaries, and a summary of summaries. The clerks engaged in the stocktaking relied upon themselves, and there was not sufficient check. Mr. Gill argued that the price put upon the stock was justified, and pointed out that the balance-sheets were prepared by auditors of high repute, who certified that they had access to the company's books, papers, etc. They were signed by the auditors, directors, and secretary, and no one suggested that they knew that anything was wrong. The other charge brought against the defendant, at the last moment, was under a section intended to deal with a man who destroyed, altered, or falsified any book, paper, writing, or valuable security belonging to a company; but no evidence had been brought to show that the defendant had done anything of that kind. There was no doubt, proceeded Mr. Gill, that there should have been an inquiry into this case. Perhaps there should have been a prosecution; but now that the matter had been fully gone into—now that it was apparent, after the fullest publicity had been given to the case, that no one had suffered in any way as a consequence of anything the defendant had done—he hoped the magistrate would not subject him to the ordeal of being tried by a jury.—Mr. Marsham said he could not withdraw the case from a jury. There were certain points about the case which a jury ought to decide, and he therefore committed the defendant for trial.—The defendant put in a written statement, which was read to the Court, and in which he said he had never knowingly given any false certificate or signed any document which he did not believe to be perfectly correct. He had very little to do with the stocktaking in 1905, as he was ill at the time, and whatever mistakes occurred were made by clerks and others who assisted in the work. He was away from the business during a part of 1906. He was more largely interested in the business than anyone else. It was not to his interest to prejudice the company in any way. On the contrary, he had devoted his whole life to it. The agitation of certain persons had involved him in serious loss. When the agitation commenced, his holding in the company was £50,000, and he considered he had lost £100,000 through the action of the shareholders' committee, whose refusal to accept his offers had ruined the company and practically ruined him.—Bail was allowed as before—two sureties in £500 each.

The new wings of the Royal Orphanage at Wolverhampton will be opened by the Earl of Dartmouth on Friday in next week.

The Local Government Board have sanctioned the borrowing of £5,610 by the Middlesbrough Corporation for the paving of Newport-road, and of a further sum of £1,410 for the laying-out of Depot-road.

At St. Mark's, Southampton, on Trinity Sunday, the Bishop of Southampton dedicated gifts which had recently been presented to the church. The gifts consisted of a chancel screen and the two further lights of the east window.

Mr. J. G. H. Collister, M.I.C.E., late chief engineer of the G I P. Railway, Bombay, died at his residence in Madeley-road, Ealing, W., on Saturday, in his sixty-seventh year. He was the only son of Mr. John Collister, C.E., of Kensington.

The plans prepared by Messrs. Sutton and Gregory, of Nottingham, for the rebuilding and extending the chancel, including new choir-stalls, etc., of St. Leonards Church, Dinnington, Yorkshire, have been accepted by the Athorpe Memorial Committee. The work is to be proceeded with immediately.

The premises erected for the Carlin How and District Workmen's Club and Institute were opened on Friday by the chairman of the Skelton and Bretton Urban Council. The building occupies a prominent position adjoining the Bretton and Loftus main highway, and the cost of erecting and furnishing was £3,000.

The memorial exhibition of etchings, drypoints, and drawings by the late Sir Francis Seymour Haden, president of the Royal Society of Painter-Etchers, will be opened to-day (Friday) at the Leicester Galleries, Leicester-square. For this exhibition Messrs. Brown and Phillips have obtained the loan of Dr. H. N. Harrington's collection of Sir Seymour Haden's etchings, and a selection of rare proofs will be shown.

Haslingden Town Council have made application to the Local Government Board for power to borrow £14,500 for the purchase and towards the development of 18¼ acres of land and a mansion comprised in the Lee-Warner and the Greenfield estates, in the centre of the town. The scheme will liberate for building land hitherto closed for this purpose, and which has now become valuable. Upon part of the site will be built an elementary day-school to accommodate 1,100 children.

Considerable progress has recently been made with the works in connection with the increased dock accommodation which the North British Railway is providing for the Fifeshire coal trade at Methil. In what will be the basin proper of the new dock little remains to be done at the north tongue, which was almost destroyed by the last heavy gale. The most difficult and dangerous part of the work has, however, yet to be undertaken—viz., the erection of the west jetty. Granted a continuance of favourable weather, the contractors hope to have the dock opened by the end of the summer.

A stained-glass window to the memory of Mr. T. C. Marshall has been dedicated in St. John's Church, Peterborough. In the small lights in the tracery are the symbols of the Trinity, the hand of the Almighty, the Agnus Dei, and the Holy Dove. In the next lights are angels bearing on a scroll a text. In the four main lights are: St. Paul, who baptised the jailer; St. John the Baptist, who baptised our Lord; St. Philip, who baptised the Ethiopian eunuch; and St Peter, who baptised the Centurion. Below are four Biblical subjects: the entrance into the Ark; the baptism of our Lord; Christ blessing the little children; and the passage of the Red Sea.

Our Office Table.

Some excavations have been in progress at Vale Royal, the Cheshire seat of Lord Delamere, with the object of ascertaining the position of the Cistercian Abbey. Mr. Basil Pendleton, architect, of Brazennose-street, Manchester, entrusted with the control, was successful, after careful examination of the land and study of old illustrations and manuscripts, in fixing upon what he believed to be the site of the abbey church. His assumption turned out to be correct, and on commencing the excavations at Easter, the first cross trench cut revealed the north wall of the choir, 3ft. beneath the surface. Further work led to the unearthing of the foundations of the abbey, one of the largest Cistercian abbeys in the country. The parts exposed are on the north side of Vale Royal. The church stood, as usual, east and west, with the cloisters on the south side; and the mansion was built on two sides of the cloister court, the position of the domus conversi forming the range of buildings on the west side now used as a residence, and the site of the refectory and other appurtenances constituting the south block being utilised for the domestic offices. Tracing the north wall of the choir in a westerly direction, the junction of the north transept with the main body of the church was found, and excavating this wall northward for a distance of 70ft., three skeletons were disclosed—one in a perfect state of preservation. The north transept, then excavated, contained three chapels at the east end, and made on the plan a square of 70ft. each way. A comparison of the church with the sister Abbey of Fountains came as a surprise, for it showed that the Cheshire monastery exceeded 400ft. from east to west, whereas the Yorkshire fabric totals only 385ft. in length.

At University College an exhibition of Egyptian antiquities, discovered by Professor Flinders Petrie and students at Hawara, Gerzeh, Mazghuneh, and Memphis, all some fifty miles south of Cairo, was opened on Monday under the auspices of the British School of Archæology. The chief feature of the exhibition is a series of painted portraits of the Roman period. These are artistically finer than those discovered by Professor Flinders Petrie in 1888, and over a dozen are still on the mummies. A large number of mummies were discovered during last winter. One is a delicate-featured woman of middle age, with wavy black hair, laid smooth. Before the head is the name Hermione Grammatike, and this Hermione is the earliest woman teacher whose portrait is known. The most perfect specimen of wrapping of a mummy yet discovered is another "find" of the British School, it being thirteen layers deep. Amongst the toys with which a mummy of a girl is surrounded are a number of little convex and concave mirrors, glass bottles, and painted tablets. A piece of mummy-cloth with a fringed stole, *c.* 100 B.C., shows the evolution of the ecclesiastical robes. On the sculpture stand is a block with part of the figure of Rameses III. seated in a shrine and fanned by the King's Ka. A number of limestone vases—hitherto not known to have been made in prehistoric times—are amongst the other exhibits, whilst specimens of wreaths and plants preserved on mummies are also of much interest. The display of miscellaneous articles includes a bottle with a cork in the mouth, the first exhibit to show the early use of cork for that purpose.

Further progress is being made with the reconstruction and rearrangement of the National Gallery. This week, four of the rooms in the East Wing, which have long been closed for structural alterations, have been reopened to the public. They have been re-roofed and re-floored, and the little room formerly an octagon on plan has been made square. The latter apartment now contains three works by Terburg and a couple by Vermeer, another by De Keyser, and a few other Dutch pictures. Of the other rooms, one contains the paintings by Rembrandt, now arranged in chronological order, and several landscapes; the next, many Dutch

[illegible] pictures by [illegible] the West Wing, which is [illegible] Engel pictures. It [illegible] the [illegible] press and the [illegible] which used to [illegible] Dutch [illegible] pictures, [illegible] ally be treated [illegible] the [illegible] However, [illegible] next [illegible] months [illegible] Sir [illegible] Royal [illegible] with the [illegible] masters, including Rubens, Vandyck, Teniers and Jordaens.

There is a rumour [illegible] to the effect that [illegible] floor [illegible] recently laid is practically at the end of its usefulness. This is undoubtedly due to the results of unskilled workmen attempting to repair a damaged floor. Unless proper care is taken, and the workman engaged on the job has sufficient knowledge of concrete, a repair is most unsatisfactory. Wherever floors have been chipped in places because of dropping heavy materials on to the place, the proper method of repairing is to cut out with mallet and chisel, or [illegible], preferably square, of sufficient depth to reach to the bottom of the deepest break in the concrete surface. The rough surface resulting from this process is then treated with acid to bring out the solid aggregate, or else a stiff brush is used to remove all the loose dust, and the recess washed out by sluicing with a hose. When all the dust particles have been removed, the recess is grouted with cement, and before this has set the grain of the finish is applied and levelled on with the rest of the floor.

The importance of understanding, at least to some measure, the causes of the corrosion of iron and steel can be ignored by no architect or builder, more especially in view of possible developments in regard to some of our most "reinforced concrete" experiments. We know no better help obtainable than "The Corrosion of Iron and Steel," by Mr. J. Newton Friend, Ph.D. (Wurzb.), D.Sc. Being going just published at 6s. by Longmans, Green, and Co. The literature of the subject is vast, and the investigations have been so many, some of them tumbling over each other's heels with their red scarves flying, that already long ago well known physical chemists furnished by [illegible] such as Mr. Newton Friend's industry and accuracy are [illegible] Here is the whole ground, and we hope will speedily be encouraged [illegible] same author [illegible] promises [illegible] methods of protection from corrosion.

Messrs. W. H. Jackson and Co., of Victoria Street, Grimsby, have just published a [illegible] paper-covered illustrated folio on "The Docks of Grimsby and Immingham." In a preface by Sir George Doughty, M.P., it brings out the [illegible] feature of the [illegible] Immingham to be opened [illegible] next [illegible] possess absolute [illegible] on the sea at all [illegible] The dock itself is the largest [illegible] Humber, alongside the [illegible] and next to the [illegible] is designed [illegible] will only com- [illegible] ains each 12 oft by [illegible] 1000ft square, [illegible] water space of [illegible] with a water [illegible] to the projected [illegible] to be completed as the [illegible] [illegible] Dock [illegible] and 52ft [illegible] on the [illegible] [illegible] Dock [illegible] Grimsby and [illegible] Company [illegible]

the way in which the trust is being administered. They object to the separation of the rates from the rents, an innovation seven years ago, which, it is contended, has worked harshly and introduced much worry and anxiety by making tenants run six months into liability. It is pointed out also that the rent of houses is advanced 3d. and upwards on every change of tenancy, and that the estate is being run purely as a commercial undertaking, and as the very opposite of a "model village." Six roomed houses are let at 8s. 6d. and rates, giving a gross rent of 11s. 0½d. per week, while houses with equal accommodation can be obtained elsewhere at from 9s. to 10s. a week clear. From the way things are going, say the petitioners, in a year or two's time most of the working men in the village will have to seek houses at a rent they can afford to pay.

A return presented to the House of Commons issued recently shows that there is a total of 174 established officers in the Valuation Department of the Inland Revenue. These comprise a chief valuer appointed at £1,000 a year, rising by yearly increments of £50 to £1,200; 14 superintending valuers appointed at £800 a year, rising after three years to £850; 49 first grade valuers appointed at £550 a year, rising by increments of £25 yearly to £700; 107 second grade valuers appointed at £350 a year, and rising by yearly increments of £15 to £500; and three technical assistants appointed at £150 a year, rising by annual increments of £10 to £250. There are in addition 643 unestablished officers, three being consultant mineral valuers, 623 temporary valuers and assistants, and 17 technical assistants, the total strength of the department thus being 817, and the salary of the present holder of the office of chief valuer is £1,500 per annum.

Under ideal weather conditions, a large number of the employees of the Brilliant Sign Company (1907), Ltd., 38, Gray's Inn Road, W.C., held their annual outing on Saturday last. The rendezvous was the Crown Hotel, Brockhurst; and the Pioneer Catering Company, who were responsible for the arrangements, were congratulated on the success achieved. A full programme of sports had been arranged previously, and, on arrival at Brockhurst, was carried out with the greatest enthusiasm. After the sports a very excellent dinner was partaken of by the entire company at the Crown Hotel, the chair being taken by the governing director, Mr. F. G. Lewis. The company's toast was most ably proposed by Mr. T. E. Spurr, and the chairman's health was proposed by Mr. C. F. Speaight, and drunk most heartily with musical honours, after which a well appointed concert was held. Valuable prizes were then distributed. A handsome loving cup, suitably engraved, was won by F. Goodger as having gained the most points as a competent all round athlete. The solid silver challenge cup presented by the Pioneer Catering Company, Ltd., was won by Mr. W. Cox's tug of war team. Handsome and acceptable prizes were also presented by the company, and by each individual director and departmental manager. After the presentation of prizes the entire company dispersed, reassembling at seven o'clock in the evening for tea, and at eight o'clock left for town, one and all declaring that this, the twentieth annual outing was a record in the company's history.

MEETINGS FOR THE ENSUING WEEK.

SATURDAY (to-morrow).—Manchester Society of Architects. Visit to Selby Abbey, to be [illegible] by Professor S. H. Capper, M.A.

Edinburgh Architectural Association. Annual Excursion to St. Andrew's city—cathedral, castle, restored town church, priory, university and library buildings.

TUESDAY.—Royal Institute of British Architects. Annual Dinner at the Fishmongers' Hall, Adelphi Place, London Bridge, E.C.

The two [illegible] blocks [illegible] have been erected at Surbiton [illegible] with the Durham Aged Miners' Homes Association, and will be opened on August 5 by the Hon. Sidney Jones. The houses have cost £1,700.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, Effingham House, 1, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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Handsome Cloth Cases for binding the BUILDING NEWS, price 2s., post free 2s. 4d., can be obtained from any Newsagent, or from the Publisher, Effingham House, 1, Arundel-street, Strand, W.C.

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Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

RECEIVED. C. B. Ltd.—A.C.—Mc. G. S.—W. S. and Co.—G. J. and Sons.—E. N. and Co.—L. C.—Nibs.—W. R. and Co.—J. S.—H. B. S.—Segma.—J. R. T.—F. W. P.—Navis.—P. T.—D.—R. J. F.—T. and Co.—S. Bros.—J. H. P.—R. C. and Co.—L. and Co.

SEPTIMUS.—Yes.

CHESTER.—Not yet.

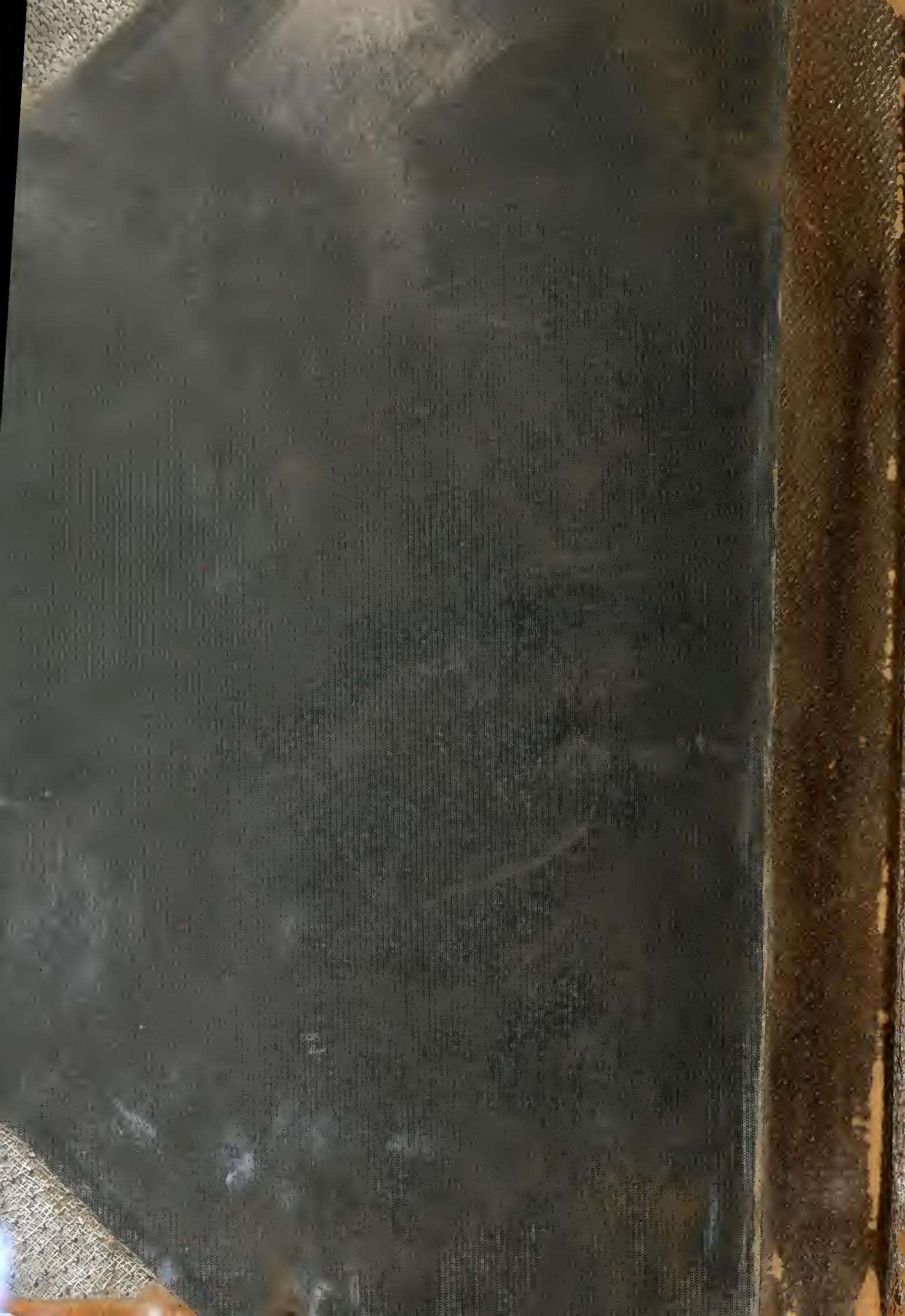
T. R. V.—Send, and we will see.

H. L. D.—Thanks, but it has been given many times.

EXETER.—The onus of proof of course is on you. 2. No.

LUBIN.—It is not a material we care to use. Terra-verde brickwork is better. 2. Jabez Thompson and Sons, Northwich.

FORGES.—Better address the publishers. We cannot insert queries in "Intercommunication" about errors in published books.

RESIDER.—We believe there is such a firm in existence, but we have no time to look up its whereabouts. See our "Directory" pages under "Marble."

A VICTIM.—The best thing we know of for beetles is "Battis." Get a 1s. 3d. tin post free from Howarth and Fair, chemists, 171, Crookesmoor, Sheffield.